

The Interrelation Between Hardiness and Prognostic Potential of Students of Higher Education Institutions

La interrelación entre robustez y potencial pronóstico de estudiantes de instituciones de educación superior

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Summary

The paper presents the results of an empirical study of specific features and the relationship between hardiness of students and prognostic potential of their personality. The methods of research comprised: theoretical analysis, empirical research (testing), qualitative analysis of the obtained data, mathematical and statistical data processing (SPSS Statistics, Excel). It has been found that students with a high level of prognostic potential development are distinguished by pronounced personality traits typical of hardy people. The authors have proved in the paper that the prognostic potential of students is a holistic system of personality resources, which is based on specific features of thinking and building a secondary image. There are criteria and development levels of the prognostic potential among students: an internal criterion (features of thinking and building secondary images) and an external criterion (the effectiveness of forecasting activities, the conformity of the stages of prognostic activity with the reference model). The prognostic potential is interconnected with personal and professional characteristics of students (features of the intellectual, communicative, emotional-volitional and motivation spheres). There are significant differences between students with different levels of development of prognostic potential according to the main personal and professional features. The correlation analysis of the data gave the following interrelations: there is a direct interrelationship between the level of development of prognostic potential and emotional stability of students; between the level of development of prognostic potential and such motives for studying at a university as professional and educational-cognitive motives; between the level of development of prognostic potential and the features of self-regulation. On the basis of the results of an empirical study, the authors designed a program for the prognostic potential development of students which includes active teaching methods, lectures, and trainings.

Keywords: Hardiness; Prognostic Potential; Students; Educational and Professional Activities.

Resumen

El artículo presenta los resultados de un estudio empírico de características específicas y la relación entre la resistencia de los estudiantes y el potencial pronóstico de su personalidad. Los métodos de investigación comprendieron: análisis teórico, investigación empírica (pruebas), análisis cualitativo de los datos obtenidos, procesamiento de datos matemáticos y estadísticos (SPSS Statistics, Excel). Se ha encontrado que los estudiantes con un alto nivel de potencial pronóstico se distinguen por rasgos de personalidad pronunciados típicos de las personas resistentes. Los autores han demostrado en el documento que el potencial pronóstico de los estudiantes es un sistema holístico de recursos de personalidad, que se basa en características específicas del pensamiento y la construcción de una imagen secundaria. Existen criterios y niveles de desarrollo del potencial pronóstico entre los estudiantes: un criterio interno (características de pensar y construir imágenes secundarias) y un criterio externo (la efectividad de las actividades de pronóstico, la conformidad de las etapas de la actividad pronóstica con el modelo de referencia). El potencial pronóstico está interconectado con las características personales y profesionales de los estudiantes (características de las esferas intelectual, comunicativa, emocional-volitiva y de motivación). Existen diferencias significativas entre los estudiantes con diferentes niveles de desarrollo de potencial pronóstico de acuerdo con las principales características personales y profesionales. El análisis de correlación de los datos proporcionó las siguientes interrelaciones: existe una interrelación directa entre el nivel de desarrollo del potencial pronóstico y la estabilidad emocional de los estudiantes; entre el nivel de desarrollo del potencial pronóstico y los motivos para estudiar en una universidad como motivos profesionales y educativo-cognitivos; entre el nivel de desarrollo del potencial pronóstico y las características de la autorregulación. Sobre la base de los resultados de un estudio empírico, los autores diseñaron un programa para el desarrollo potencial pronóstico de los estudiantes que incluye métodos de enseñanza activos, conferencias y capacitaciones.

Palabras clave: Robustez; Potencial pronóstico; Estudiantes; Actividades educativas y Profesionales.

Introduction

In current conditions of the development of society, higher requirements are imposed on a graduate of a higher education institution. During professional selection and recruitment by executives of organizations and enterprises of both the public sector and business entities, not only theoretical and practical knowledge, skills of candidates are evaluated, but also the socio-psychological competency of an individual. Social and creative activity is of great importance as well as stress resistance, the ability to cope with difficult life situations, independence, harmony, adaptability, the level of integrity and morality and other individual and typological characteristics of a person. In our opinion, meeting the demands of practice, the entire list of personal properties and qualities necessary for a modern competitive specialist can combine such an integral concept as psychological hardiness.

Hardiness is a psychological property of a person that determines his ability to overcome life difficulties in a constructive way of behavior — the ability to cope with crisis circumstances and with one's own personality.

The period of getting higher professional education, when the educational and labor activity is the leading type of activity, is defined as the sensitive period for the formation and development of hardiness. The period of learning at the university lays a foundation for further professional and personal development, prepares a resource for further harmonious development.

Contemporary society is characterized by global social, economic and political changes. Such living conditions impose increased demands on all categories of society and can adversely affect the mental and physiological health of the population. Taking account of the fact that the mature personality of an individual has not been formed in adolescence yet, negative factors of the outside world can pose the greatest danger to this category. In this regard, stressful and crisis situations are the starting mechanism for the younger generation to reassess values, change attitudes towards oneself and the world as a whole. The lack of a resource in overcoming difficult life situations and constructive ways of behavior in crisis situations can lead to psychological problems: negative feelings, increased anxiety, disturbance of interpersonal contacts, choice of destructive models of behavior, low self-esteem, etc. Thus, the development and formation of hardiness among university students during the period of getting higher professional education is important both for scientific research and for social life.

Literature Review

In modern domestic psychological science and practice, the study of personality traits that determine a person's ability to successfully adapt and cope with life difficulties has led to the emergence of theories and concepts of personality-adaptation potential. Personal adaptive potential is a personality trait that determines a person's ability to constructively overcome crisis and extreme situations (Tarabrina, 2001; Pukhovskiy, 2000; Muzdybaev, 1998; Lebedev, 1989; Korolenko, 1978; Alexandrovskiy, 1976).

In foreign psychology, S. Maddi, developing the problem of the personality's creative potential and stress regulation, created the theory of the special personal quality of "hardiness",

which he defines as a special pattern of the structure of attitudes and skills that helps to turn the changes that happen to a person into his capabilities (Maddi & Khoshaba, 1994).

In domestic literature, it is customary to translate “hardiness” as “stamina” or “viability” (Leontiev & Rasskazova, 2006), however, there is still no clear definition of the concept of “hardiness” in psychological science and practice, nor is there a sufficient number of studies capable of introducing clarity in the definition of this term.

In our opinion, the following psychological categories are more closely related to hardiness: the meaning of life (Chudnovsky, 2002); subjectivity (Ananyev, 1980; Leontiev, 1975; Rubinstein, 1989); life-creativity (Leontiev & Rasskazova, 2006); personality-situational interaction (Korzova, 2002); self-realization of personality (Korostyleva, 2000). Similar concepts are represented by style patterns, style manifestations (Libina, 2008) as differences in the ways people interact with the world around them and with each other. More general in relation to the concept of “hardiness” is subjectivity, which contributes to the active, conscious and purposeful implementation of accumulated experience, not only when tackling stressful, problem issues, but also all tasks.

D.A. Leontiev’s (2003) point of view on life-creativity is close to the concept of “hardiness” which he defines as the expansion of the world, the expansion of life relations. Life-creativity does not work with emotional experiences, not with forms of representation of any phenomena of the world, but with the world itself, that is, it directs the focus of a person’s attention not to himself, but to the outside. D.A. Leontiev (2003) defines life-creativity as personality-oriented practice of development and correction of relations with the world (Sotnichenko, 2009).

In foreign studies, hardiness has been studied to a greater extent in terms of its relationship to adaptation to stress, mental and psychological health. La Greca (1985) considers the psychological factors of coping with stress, among which adaptation of childhood plays an important role, individuality - hardiness, and expectation of stress, splitting the internal stress experience, social support, and the environment. According to the studies by I. Solcava and J. Sykora (1995), who investigated the relationship between “hardiness” and tension under conditions that induce anxiety in individuals with lower levels of anxiety and higher levels of hardiness, they demonstrated weaker physiological responses when encountered a stressful situation. M.F. Scheier and C.S. Carver (1989) studied the effect of expectation of a result on a person’s physical well-being. The quality of “hardiness” (defined as commitment, control and challenge), which may be associated with optimism, the authors propose to consider as a personality trait that is a buffer against the adverse physical effects of stress (Sotnichenko, 2009).

The studies by I. Solcava and P. Tomanek (1994) are devoted to the role of hardiness in overcoming everyday stress. The paper considers possible areas in which “hardiness” can act as a protective function of the organism in the fight against stress. Their study showed that “hardiness” affects coping resources through the increase in self-efficacy. People with high values of “hardiness” have a greater sense of competency, higher cognitive appraisal, more developed coping strategies, and experience less stress in everyday life (Sotnichenko, 2009).

Thus, the works of domestic and foreign authors give the following characteristics of hardiness: this is a certain degree of “viability” (Alexandrova, 2004), “courage to be” (Tillich, 1995), “act contrary to”, “rooted in being” (Heidegger, 1971), “the ability to overcome oneself” (Leontiev & Rasskazova, 2006), “the ability to turn problem situations into new opportunities” (Bogomaz & Gladkikh, 2009), “key resource” (Maddi et al., 2002).

Having compared and analyzed similar categories, M.V. Loginova (2009) formulated the definition of hardiness: hardiness is a system of persuasions in the personality of an individual that contributes to the development of the subject’s willingness to participate in situations of increased complexity for him, to control them, to manage them, to be able to perceive even negative events as experience and successfully cope with them (Selezneva et.al., 2015).

In order to develop, to feel the prospect of development, it is necessary to possess and apply prognostic potential, on the other hand, overcoming oneself and adapting to new conditions requires a certain level of hardiness in students (Bonkalo & Gorohova, 2012; Kalinina et al., 2018; Salakhova et al., 2018a; Ishkov, 2014; Mitin et al., 2018; Efimova et al., 2018; Erofeeva et al., 2019).

Scientists consider the ability to forecast and related concepts from different explanatory positions. Forecasting as a psychic process is presented in the works of A.V. Brushlinsky (1996), V.M. Rusalova (1991); forecasting as an activity in the works of J. Bruner (1975), B.F. Lomov (1985); forecasting as an ability in the works of L.A. Regush and A.V. Orlova (2010), S.L. Rubinstein (1989); the study of the interrelationship between thinking and forecasting was carried out by such scientists as A.V. Brushlinsky and O.K. Tikhomirov (2013); the works of S.T. Posokhova (2001), A.A. Rean (2008), A. Toffler are devoted to the study of the interrelationship between personal properties and prognostic abilities; the life prospect of a person as a relationship between the present, past and future is described in the works of K.A. Abulkhanova-Slavskaya (1991), K. Levin (2000), S.L. Rubinstein (1989).

There is a leading start in any activity, but there is a special type of activity whose purpose is to get a forecast - this is forecasting activity or prognostic activity. I.P. Podlasy (2007) gives such a definition of this activity. Forecasting is the ability to foresee the result of one's activity in the existing specific conditions and, proceeding from this, determine the strategy of one's activity, assess the possibility of obtaining a product of required quantity and quality. Forecasting starts with goal setting, followed by the stage of collecting information, building a forecast in the form of a project, plan, hypothesis, implementing or organizing the execution of this forecast, evaluating its accuracy, monitoring and correcting the results (Salakhova et al., 2019; Leontev et al., 2018; Agadzhanova, 2019; Safronova, 2019).

The ability to make a forecast gives a person the possibility to predict the results of his own activity, the activities of other people and events on a probabilistic basis. Tactics of behavior is being built at the moment; adequate methods of activity are being selected based on forecasting. The prediction of the possible degree of the goal achievement with a certain method of action is the content of the forecasting process as one of the important stages and management functions (Miloradova & Ishkov, 2019a; Bonkalo, Erofeeva & Gorokhova, 2008; Goloshumova et al., 2019b; Leontev, 2016; Gorohova & Bezkravnaya, 2018).

In the psychological literature, the term "prognostic abilities" contains various shades of meaning. On the one hand, in the works of P.K. Anokhin (1975), this rationale is given for the ability to predict: it is the ability of the human or animal organism to prepare for a reaction to an event before it occurs. This expectation is expressed in a certain pose or movement and is provided by the mechanism of the acceptor of the result of the action. On the other hand, in the works of W. Wundt, the ability to predict is the ability of a person to imagine the possible result of an action before its implementation, as well as the ability of his thinking to imagine a way to solve a problem before it is actually solved.

These two concepts contain the psychophysiological, cognitive and activity aspects. However, in our opinion, it is necessary to integrate these aspects of prognostic abilities within the framework of a broader concept - prognostic potential. The potential concentrates in itself the relationship of the past, present and future. Firstly, it reflects the past, that is, it is a set of properties accumulated by the system in the process of its formation and contributing to its development and functioning. Secondly, it characterizes the present from the point of view of practical application and use of existing abilities, which allows us to distinguish between realized and unrealized opportunities. Thirdly, it is oriented towards the future, as the person gains new strengths,

abilities, improves and strives to actualize its potential capabilities (Salakhova et al., 2018b; Goloshumova et al., 2019a; Leontev, 2017; Miloradova & Ishkov, 2019b).

Materials and Methods

In the framework of our study, the prognostic potential of university students and its relationship with personal and professional features were comprehensively studied.

We suggested that 1) the level of development of the prognostic potential of students depends on the characteristics of the communicative, emotional-volitional and intellectual spheres of students; 2) there is a dependence between markedness of prognostic potential and personal and professional characteristics.

It is possible to bring out the essence of prognostic potential by identifying its psychological components. To identify and analyze them, in this study we analyze the prognostic abilities and the activity in which they develop.

The methods of research methods included: theoretical analysis, empirical research (testing), qualitative analysis of the obtained data, mathematical and statistical data processing (SPSS Statistics, Excel).

The following psycho-diagnostic tools were used in testing:

- “Style of self-regulation behavior-98” proposed by V.I. Morosanova (2004);
- the test “Forecasting ability” by L.A. Regush (1997);
- the diagnostic technique for educational motivation of students A.A. Rean, V.Ya. Yakunin modified by N.T. Badmaeva (2004);
- D. Marx’s questionnaire for determining the brightness of representations (Generalova & Grogoleva, 2004);
- R. Kettel’s multifactorial personality questionnaire, 16PF - Form C (Kapustina, 2001).
- The validity and reliability of the research results was ensured by the initial methodological positions, the use of proven tools, representativeness of the research sample, as well as mathematical processing of data with the use of a software package for statistical analysis.

Results and Discussion

As a result of an empirical study, the following results were obtained:

- The prognostic potential of students is an integral system of personality resources, which is based on the characteristics of thinking (flexibility, analyticity, depth, awareness, perspective, evidence of thinking) and the features of constructing a secondary image (brightness and clarity of emerging images-impressions). Prognostic potential can be realized in forecasting activities.
- There are criteria and development levels of the prognostic potential of students. The level of development or the markedness of the following components serves as an internal criterion for the prognostic potential development: specific features of thinking and constructing secondary images, acts. The effectiveness of forecasting activity and the conformity of the stages of prognostic activity with the reference model has been determined as an external criterion for the development of prognostic potential.
- The development of prognostic potential takes place according to the principle of an arbitrary transition from the potential to the actual. The authors have designed a program to develop the prognostic potential of students which contains theoretical (lectures) and

practical training blocks (seminars, laboratory classes, social and psychological training). The stages of the implementation of this program have been formulated: motivational, psycho-diagnostic, informational, educational, correctional and developmental and the stage of psychological and pedagogical support. The strategic areas for the implementation of this program are motivational-personal, intellectual and socio-psychological development of students.

- Prognostic potential is interconnected with personal and professional characteristics of students (features of the intellectual, communicative, emotional-volitional and motivational spheres).
- There are significant differences between students with different levels of development of prognostic potential according to the main personal and professional features.

As a result of the correlation analysis of the obtained data, the following interrelationships were identified: There is a direct correlation between the level of development of prognostic potential and the emotional stability of students. Thus, the higher the level of a student's prognostic potential development, the more he is emotionally mature, calm, efficient, cautious, independent, focused, with a strong will, responsible, focused on reality and stable in frustration situations, able to control his emotions and behavior.

In other words, we can say that a student with a high level of development of prognostic potential is hardy, as he is focused on the future and is able to successfully predict his further development.

- There is a direct interrelationship between the level of development of prognostic potential and such motives as learning at a university and professional and educational-cognitive motives.
- There is a direct correlation between the level of development of prognostic potential and such features of self-regulation as planning, modeling, evaluation of results, flexibility, and the general level of self-regulation.

The comparison of students with different levels of the prognostic potential development made it possible to identify the psychological and acmeological features characteristic of each of these groups.

1. The following features were identified in such a parameter of self-regulation as activity planning: students with a high level of development of prognostic potential have higher planning ability than students with a low level, no significant differences were found between other groups.
2. The following features were identified in such a parameter of self-regulation as modeling of significant activity parameters: students with a high level of the prognostic potential development have higher modeling ability than students with a low and medium level, no significant differences were found between other groups.
3. The following features were identified in such a parameter of self-regulation as activity programming: students with a high level of the prognostic potential development have a higher programming ability than students with a low level. No significant differences were found between other groups.
4. According to such a parameter of self-regulation as the ability to evaluate the results of activity, significant differences between students with different levels of the prognostic potential development were not found.
5. The following features were revealed in such a parameter of self-regulation as regulatory independence: students with a high level of development of prognostic potential have higher regulatory independence than students with a low level. No significant differences were found between other groups.

6. The following features were determined in such a parameter of self-regulation as regulatory flexibility: students with a low level of development of prognostic potential have less developed regulatory flexibility than students from the other two groups. Students with a high level of development of prognostic potential have more developed regulatory flexibility than students with an average level.
7. An assessment of the general ability to implement self-regulation gave the following results: in students with a high level of development of prognostic potential the ability of self-regulation is higher than among students with a low and average level of development. Thus, the higher the prognostic potential of students is developed, the better they exercise self-regulation of activity, the more successfully they cope with difficult life situations. On the other hand, a high level of development of students' hardiness also implies a high level of development of self-regulation of behavior.

A comparative analysis of student groups with different levels of the prognostic potential development in terms of markedness of the main motives for learning at a university showed that:

1. There are no significant differences between student groups in terms of markedness of the communicative motive for learning at the university. Among all groups there are students for whom the learning process is closely related to communication with peers and teachers.
2. There are no significant differences between groups of students in terms of markedness of the motive to avoid failures in educational and professional activities.
3. According to the markedness degree of the motive for achieving prestige in educational and professional activities, there are significant differences between students with a low and medium level of the prognostic potential development. Students with an average level of the prognostic potential development evaluate the significance degree of this motive higher. Among students of other groups, there are no significant differences.
4. In terms of markedness of the professional motive for learning at a university, there are significant differences between students with a high and low level of development of prognostic potential. Students with a high level of the prognostic potential development are keen on improving professional skills, gaining practical experience, they want to become specialists in the chosen field of scientific interests. For students with a low level of development of prognostic potential, professional motives are less important. Among students of other groups, no significant differences were found.
5. In terms of the markedness degree of the motive of creative self-realization in educational and professional activities, significant differences between students of various groups have not been identified. All students are equally characterized by the desire to express themselves creatively in their chosen profession.
6. In terms of markedness of the educational-cognitive motive for learning at a university, there are significant differences between students with a high and low level of development of prognostic potential. Students with a high level of the prognostic potential development are keen on acquiring new knowledge in their specialty, they like to learn and find out new things. For students with a low level of development of prognostic potential, educational and cognitive motives are less important. Among students of other groups, no significant differences were found.
7. According to the markedness degree of the social motive for learning at the university, no significant differences between students of various groups were found.

The study of differences between students with different levels of development of prognostic potential in the communicative emotional-volitional and intellectual spheres allowed us to find a number of consistent patterns.

1. An analysis of the communicative characteristics of students showed that students with a high level of development of prognostic potential are distinguished by higher indicators of markedness of factor H ("Shyness – Courage"). According to factor A (Sociability),

- students with an average level of development of prognostic potential received higher grades than students with a high level of development of prognostic potential.
2. An analysis of the characteristics of the emotional-volitional sphere showed that the highest indicators for factor C (“Emotional Stability”) are in the group of students with an average level of prognostic potential, slightly lower than the indices of factor C in the group of students with a high level of development of prognostic potential. The lowest values of emotional stability are in the group of students with a low level of development of prognostic potential. According to the Q3 factor (“Self-control”), the lowest values are in the group of students with an initial level of development of prognostic potential, slightly higher values are in the group of students with an average level of development and the highest among students with a high level of development of prognostic potential. According to factor G (“Normative behavior”), students with a high level of development of prognostic potential have higher grades than students with a low level of development of prognostic potential. According to factor I (“Sensitivity”), students with an average level of development differ from students with a high level of development.
 3. An analysis of the characteristics of the intellectual sphere did not give any significant differences between students with different levels of development of prognostic potential.

Conclusion

Proceeding from the data obtained, we have drawn the conclusion that the hypothesis of the existence of differences between students with different levels of the prognostic potential development was confirmed. The differences we identified between students of various groups will allow us to take them into account when conducting psychological and acmeological training aimed at developing prognostic potential. It was found that students with a high level of development of prognostic potential are distinguished by pronounced personality traits characteristic of hardy people. Thus, it is necessary to develop the prognostic potential and hardiness of students in the framework of the educational and professional activities of university students.

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