



ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ АВТОНОМНОЕ
ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ
«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ «ВЫСШАЯ
ШКОЛА ЭКОНОМИКИ»

На правах рукописи

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«Possible Self as the resource of self-regulation»

Resume

of the Dissertation for the PhD in Psychological Sciences

Moscow – 2024

General characterization of the work

Introduction

For a long time, personality psychology turned to phenomena which are «necessary» (those that «cannot not be»), which could be explained within the framework of causal regularities. This created certain obstacles for scientists, as it limited their ability to pose research questions, problems, and hypotheses (Leontiev, 2011). The shift of attention to the space of the category of the «possible» allows for an expansion of the base for studying personality. D.A. Leontiev states that in the history of psychology, ideas about freedom and self-determination have always been in the focus of influential scholars in the field, but the opportunity to study them has often been limited.

M.N. Epstein argues that the «possible» modality of thinking is significant for the humanities and social sciences. When questions and ideas arise, the space of the possible becomes accessible through the alternatives they generate. The famous statement «history knows no subjunctive mood» is one of the confirmations of this thesis. Potential «ifs» are alternatives that were possible but did not pass into the category of «actual». Since they were not realized, the very event acquires a special meaning (Epstein, 2001).

The significance of the «possible» («what may or may not be») modality of thinking becomes important both in the context of the formation of the meaning of the «actual» (what is) and in the realization of the «necessary» (what cannot not be).

V.V. Znakov in his influential work «Psychology of the Possible» (Znakov, 2021) designates «possible» as the subject of modern personality psychology. Understanding of alternatives is an important process that implies consideration of different interpretations of events and situations and allows to «act reasonably» due to their most «thorough» comprehension.

The category of «possible», as well as the modality of thinking, emphasizes the freedom of the individual and opens space for choice and its realization.

In this work, the primary focus is on the construct of the «Possible Self», which is associated with the «possible» modality of thinking, combining the function of representing goals, aspirations, and fears, and embodying the idea of «what might be or might not be». Introduced by Hazel Markus and Paula Nurius in 1986, the construct is actively studied in various areas of human life. The Possible Self is a «cognitive representation of goals, aspirations, motives, fears, and threats. It provides a significant link between self-evaluation and motivation» (Markus & Nurius, 1986, p. 954). As an element of self-concept, the Possible Self is significant within personality research, and the motivational aspect postulated by the authors allows for the study of the reasons and direction of human behavior.

Given the relevance of the phenomenon, some researchers enrich the data on its characteristics in their works by proposing different types of Possible Selves. To date, there are seven types of Possible Selves that are the most developed and supported by empirical data (see section 1.3 for details): hoped-for possible self, feared possible self, best possible self, lost possible self, self-regulatory and self-enhancing possible self, shared possible self, and impossible self. A feature of this diversity is the specific approach to examining the context and mechanisms underlying the formulation of a particular Possible Self. The relevance of the work is determined by the increase in subjective stress experienced by people. The surrounding world, social and professional spheres of life are constantly undergoing changes, thereby involving people more often to refer to the category of the «possible» (VTsIOM, 2024; WIIN, 2024). Thanks to global progress, human aspirations go beyond the actual and necessary, revealing the significance of the space of alternatives. Along with the abundance of paths of development, society faces a multitude of challenges that create obstacles to the realization of desired choices.

The theoretical significance of the research lies in the attempt to summarize and integrate the accumulated results obtained through the active study of the Possible Self phenomenon in personality psychology. The content, quantity, and direction of an individual's behavior in specific situations have long played a

significant role in the studies of the Possible Self (Markus, Nurius, 1986; Oyserman, Markus, 1990; Cross, Markus, 1994; Higgins, 1996; Hoyle, Sherrill, 2006; Oyserman et al., 2006; Vignoles et al., 2008; Murru, Martin Ginis, 2010; Bak, 2015; Oyserman et al., 2015; Nurra, Oyserman, 2018). The descriptive aspect of the construct is confirmed by a large number of studies, however, much less attention has been paid to examining its explanatory potential. This side of the construct is associated with the fact that the phenomenon of agency, which substantiates its motivational potential, is involved in the formulation of the Possible Self. Thanks to agency, a person sees themselves as someone who can take responsibility for making decisions and act in accordance with those decisions (Markus, Nurius, 1986; Erikson, 2007). Thus, H. Markus and P. Nurius point out that the selection and creation of Possible Selves allow a person to see themselves as an active driver of their own development.

In our previous works, the Possible Self was examined through the prism of agency and the role that one's attitude towards their capabilities can play in an individual's life (Kostenko, Grishutina, 2018; Grishutina, Kostenko, 2019; Grishutina, Kostenko, 2023). An answer to the question of how the characteristics of the Possible Self can manifest in connection with personal resources may provide evidence of the explanatory potential of this phenomenon and also consider it as a potential resource for self-regulation. Such an approach to studying personality allows us to generalize the data obtained and suggest new questions for study.

The Possible Self is defined by its connections with various personality traits, as well as with human behavior, which may be the basis for assuming a correlation between the construct and the potential of the personality. Self-regulation is a significant aspect of personal potential, defined as «a universal explanatory principle of the activity of living and quasi-living systems, directed by goals or other higher criteria of the desirable, an alternative to the idea of linear causality» (Leontiev, 2011; 2016, p.13). The space of the «possible» created in the process of formulating Possible Selves embodies an alternative to linear causality. The *research question* about the potential resource role of the Possible Self in personal self-regulation could

be the beginning of new studies of the construct and its significance for the individual.

Confirmation of the assumption that the Possible Self and its parameters are resources for personality self-regulation.

The research *object* is the possible as a personal phenomenon.

The *subject* of the study is the characteristics of the Possible Self as a component of the Self-concept in their connection with the parameters of personality self-regulation.

Based on this, the following research tasks were formulated.

Theoretical tasks:

1. Conduct an analysis of the main Russian and foreign works on the topic of Possible Selves.
2. Summarize theoretical and empirical data on the explanatory role of the Possible Self.
3. Review the definitions of types of Possible Selves, taking into account the role of agency in their functioning.

Methodological tasks:

1. Prepare tools for researching the desired and lost Possible Selves of respondents.
2. Define techniques for measuring psychological resources.
3. Adapt the «Differential Questionnaire of Agency Experience» (Sense of Agency; Tapal et al., 2017) on a Russian-speaking sample.

Empirical tasks:

1. Conduct a correlation analysis between attitudes toward Possible Selves and indicators of psychological resources and well-being.
2. Conduct a psychometric analysis of the adaptation of the «Differential Questionnaire of Agency Experience».
3. Conduct a mediation analysis of the experience of agency in relation to psychological resources and attitudes toward Possible Selves.

4. Construct latent profiles based on the intensity of agency types and attitudes toward Possible Selves.

5. Interpret the obtained results based on theory and existing literature.

The main *hypotheses* of the study are the following assumptions:

Depending on the intensity of the experience of agency, the attitude towards the Possible Self can change the level of motivation. A high level of agency experience allows a person to more concretely construct a mental path to achieving their Possible Self. Conversely, the opposite indicator may interfere with formulating this representation (for example, forming negative Possible Selves without understanding what actions should be taken to avoid their realization). Thus, a high level of agency experience, combined with a positive attitude towards one's possibility, can be related to personality self-regulation. Considering the type of Possible Self and how agency is «involved» within it, the phenomenon of the Possible Self can function as a resource or anti-resource for the personality.

Thus, *the theoretical hypothesis* of this work is the assumption that the Possible Self, due to the phenomenon of agency, serves as a resource or anti-resource in personality self-regulation.

Empirical hypotheses:

1. A positive attitude toward the desired Possible Self (e.g., perceiving it as achievable) is positively related to experiencing positive agency.

2. Experiencing positive agency is positively related to resources for personality self-regulation.

3. The higher the ratings of constructive characteristics of the desired Possible Self, the higher the indicators of resilience, tolerance for uncertainty, autonomy, and level of positive agency.

4. The more strongly the lost Possible Self influences a person's current life, the higher the level of experiencing negative agency, the more "restrained" the positive agency, and the lower the levels of self-regulation indicators.

5. Indicators of personality distress (neuroticism, anxiety and depressive symptoms, susceptibility to control) show high levels in respondents with a pronounced lost Possible Self.

6. Positive agency plays the role of a mediator between characteristics of personality resources (resilience, tolerance for uncertainty) and respondents' attitudes toward their desired Possible Selves.

The theoretical and methodological basis of the work are the ideas of the philosophy of the possible by M.N. Epstein, the psychology of the possible (D.A. Leontiev, V.V. Znakov), the theory of the Possible Self by H. Markus and P. Nurius, the theory of agency by R. Harre, and the concept of personal potential as the potential for personality self-regulation (D.A. Leontiev), phenomenology of the Subjectivity of the Self (V.A. Petrovsky).

The *problem* of the study is the need to revise certain aspects of the Possible Self theory considering accumulated data about its functioning. Since the original article in 1986, new methods have been developed, additional types of Possible Selves have been defined, and new areas have been included. The results of recent studies confirm the high explanatory potential of the Possible Self, which extends beyond the theory of the Self-concept. Studying the attitude towards the Possible Self and the role of agency in the functioning of the construct poses new tasks and questions for researchers. The current work attempts to systematize knowledge about the phenomenon of the Possible Self, adapt the methodology for the experience of agency measuring, and obtain data on the extent to which the construct reflects the concept of the self-regulation potential.

The practical significance of the work lies in the potential usefulness of the research results in psychotherapeutic practice, particularly in developing interventions within the framework of issues related to personal growth and development. Our previous studies (Grishutina, Kostenko, 2023) demonstrated the fundamental psychotechnical value of the approach through Possible Selves in the context of psychotherapy. The obtained data can also be used in psychotherapeutic work with themes related to motivation and goal setting.

Theses submitted for defense

1. The explanatory potential of the Possible Self is determined by the role of agency in the process of its construction and realization.
2. The experience of agency determines the impact of personal resources on how individuals assess their desired and lost Possible Selves.
3. Both positive agency (the experience of having an impact on events and control) and negative agency (the experience of helplessness and impersonal causality) involve the person in the realm of the possible. However, only positive agency facilitates the realization of opportunities.
4. Negative agency maintains involvement in "lost Possible Selves" and is accompanied by signs of distress (low well-being, high levels of depression and anxiety).
5. The degree of experiencing agency and the attitude toward one's Possible Selves allow for the identification of personality profiles that define individual differences in resource and anti-resource characteristics.

Validation of results

The main results of the study were discussed at the conference «Psychology of the 21st Century. Psychology in an unpredictable world: conditions and opportunities» with a report on the topic: «The resource role of the Possible Self in times of crisis» (May 11–13, 2022, St. Petersburg), a postgraduate seminar at the International Laboratory of Positive Psychology of Personality and Motivation (April 24, 2023, Moscow), the Ananiev Readings – 2023 conference. «Man in the modern world» with a report on the topic «The Possible Self as a tool for personality self-regulation» (October 18-20, 2023, St. Petersburg), the conference «Man, subject, personality: prospects for psychological research», dedicated to the 90th anniversary of the birth of A.V. Brushlinsky» with a report on the topic: «The Possible Self: the role of agency in personality self-regulation» (October 12, 2023, Moscow).

The research results are also part of the work on several grant projects of Russian scientific foundations: the Russian Foundation for Basic Research in 2020-2021, the project «Variety of Possible Selves: The Role of Agency and Empirical Evidence Review»; the Russian Science Foundation, the project «The Potential of Agency: An Approach Through the Possible Self and the Quality of Choice» (from 2023).

The structure of the dissertation reflects the general logic of the research and consists of an introduction, three chapters, a conclusion, and a bibliography that includes 147 sources, 112 of which are in foreign languages. The results of the theoretical and empirical analysis are presented in 19 tables and 13 figures. The main text of the dissertation is set out on 116 pages. The total volume of the dissertation is 133 pages.

The main content of the dissertation

The **Introduction** substantiates the relevance of the dissertation research, defines the aim, objectives, object, subject, hypotheses and problem of the research, and outlines the provisions for defense.

In the first chapter «**Perspectives of the study of the category of the possible in psychology: the phenomenon of the Possible Self and the explanatory role of personality agency**» the category of the possible and what place it occupies in personality psychology is considered, and the phenomenon of the Possible Self is described.

Paragraph 1.1 «The category of the possible in personality psychology of modern times» examines the path of the «possible» category from the modality of philosophical knowledge to the object of psychological research.

Great attention is paid to the views and works of M.N. Epstein, D.A. Leontiev and V.V. Znakov. M.N. Epstein in his book «The Philosophy of the Possible» defines the category of the possible as the leading one in modern reality, and also emphasizes the potential of its study by representatives of the humanities. In his articles and speeches, D.A. Leontiev elaborates on methodological issues related to the

advantage of the turn of personality psychology researchers to the category of the possible. This turn is seen as an important stage in the development of personality psychology, not only for the discovery of new theories, but also for the enrichment of existing theories with new data. V.V. Znakov presented the work «Psychology of the Possible», in which he united the available knowledge on the issues of studying the category of the «possible» within the framework of psychological science.

Paragraph 1.2 «The Possible Self as a Possible Sphere Phenomenon», focuses on the phenomenon of the Possible Self.

Hazel Marcus and Paula Nurius' theory of the Possible Self, first presented in a 1986 article, provided new insights into the relationship between self-concept and personal motivation. Gaining interest among researchers, the phenomenon has long been studied descriptively, asserting the importance of the content part of the Possible Self. In a 2007 paper, Martin Erikson presents his view of the phenomenon, in which he emphasizes the strengths of the Possible Self as a construct and points out the errors that can occur within its study. The most significant thesis of M. Erikson's article is the emphasis of the phenomenon of agency as an important part of the Possible Self functioning. Following that, the thesis presents evidence for this idea, beginning with a consideration of the ideas of the original authors. In addition, evidence from the authors' past research examining the motivational aspect of the construct is presented. Previous findings have suggested a potential role for the Possible Self in personality self-regulation.

The long history of Possible Self research allows us to trace how various characteristics of the construct are revealed through the results of the research. Uncovering the potential of the Possible Self is of great interest because its role in personality structure remains incompletely defined. In its turn, the available theoretical and empirical data indicate that in addition to revealing the content of personality capabilities, the Possible Self also has functions that are determined by the phenomenon of agency.

The second chapter of the dissertation «**The Role of Agency in Explaining Phenomena of Personality Psychology**» consists of three paragraphs, in which the

phenomenon of agency, its correlation with the phenomenon of subjectivity, and its role in the functioning of different types of the Possible Self are considered.

In **paragraph 2.1 «The concept of agency and subjectivity in personality psychology»** the theoretical analysis of the phenomena of agency and subjectivity is given. The theories of agency (R. Harré, A. Bandura, M. Sinofzik, K. Frith, D. Wegner, H. Marcus, Kitayama) are considered, and then a review of works devoted to a close phenomenon - subjectivity (A.V. Brushlinsky, E.A. Sergienko, K.A. Abulkhanova-Slavskaya, A.K. Osnitsky, D.A. Leontiev, V.A. Petrovsky, V.I. Slobodchikov) is made.

The paragraph also raises the methodological problem of studying the phenomenon of agency - most empirical studies have focused on measuring cognitive sensations, as well as conscious judgments of arbitrary control of actions. It emphasizes the importance of a method that measures the overall experience of agency, which is the «Sense of Agency Scale» (2017) by A. Tapal, E. Oren, R. Dar, and B. Eitam.

Paragraph 2.2 «Types of Possible Self: The Role of Agency» presents an extensive analysis of sources that discuss different types of Possible Self: *hoped-for possible self* (H. Marcus, P. Newriss, S. Cross), *feared possible self* (H. Marcus, D. Oyserman, J. Pierce, K. Schmidt, S. Stoddard), *best possible self* (L. King, S. Lubomirsky, M. Peters, P. Loveday, J. Lovell), *lost possible self* (L. King, K. Rospin, E.Y. Vasilevskaya, O.N. Molchanova), self-regulatory and self-enhancing possible self (D. Oyserman, S. Strachan), shared possible self (I. Schindler, S. Wilson) and impossible self (M.M. Grishutina, V.Y. Kostenko).

Since the explanatory role of the Possible Self, defined by the phenomenon of agency, has often been omitted in past studies, it is the focus of the current work. Not only a literature review of Possible Self types is performed, but also a rethinking of definitions using the phenomenon of agency, which were presented in a summary table.

In **paragraph 2.3 «Types of Possible Selves: Generalization and New Definitions»** the results of the theoretical analysis are considered, accompanied by

the author's perspective on the types of Possible Selves through the lens of experiencing agency.

Following the analysis, **paragraph 2.4** presents the «**Statement of Research Problem**». The long history of studying the phenomenon of the Possible Self, together with the results of empirical research, allows us to hypothesize about the role of the phenomenon in the structure of personality. Thanks to the activation of agency, the Possible Self can potentially act as a resource or an obstacle for the individual. This study focuses not on the substantive part of the Possible Self but on the individual's attitude towards their possibilities. The use of the Russian version of the «Sense of Agency» allowed for the first time to measure the phenomenon of agency within the framework of the theory of the Possible Self.

The dissertation posits that the Possible Self and the experience of agency together can function as a resource for self-regulation of personality. Resources for self-regulation are defined as those psychological characteristics that ensure productive interaction between the individual and the surrounding world (Leontiev, 2016). The experience of agency within the theory of the Possible Self is one of the main qualities of the phenomenon. Agency can be seen as the psychological resource, as it is defined as the ability of a person to feel themselves as an active agent, ready to make decisions to regulate their own behavior and change the environment in favor of achieving the desired result (Harre, 1984).

Thus, this work aims to reveal the explanatory potential of the construct of the Possible Self from the perspective of theory and empirical data, which has been overshadowed for a long time. The question of the role of the Possible Self as a resource for self-regulation of personality is the next step in the development of the theory.

In the third chapter «**Empirical Study of the Resourceful Role of the Possible Self in the Self-Regulation**» the procedure, results of the empirical studies, and their interpretation are described.

The **paragraph 3.1 «Possible Self in Crisis Situations»** describes the procedure and results of Study 1. The hypotheses of the study are the following assumptions:

1. Positive attitude to the desired Possible Self is positively related to the level of tolerance to uncertainty.
2. Positive attitudes toward the desired Possible Self are positively related to personality resilience and well-being.

The study sample consisted of 80 people (82% female), age from 19 to 54 years ($M = 26.15$, $SD = 5.14$).

According to the results of the correlation analysis (Table 1), a positive relationship was found between the level of resilience and a person's attitude toward his or her own Possible Self, specifically with how much detail he or she imagines it ($r = .41$; $p < .001$) and how often he or she thinks about it ($r = .30$; $p < .05$). A relationship was also found between an individual's assessment of how capable he or she is of realizing his or her desired possibility and the Psychological Well-Being (MHC) scale ($r = .37$; $p < .001$).

Table 1 – Results of correlation analysis – Study 1

	How detailed the hoped-for Possible Self is	Ability to realize hoped-for Possible Self	Frequency of thoughts about the hoped-for Possible Self
BRS – Resilience	.30*	.04	.41**
MHC — Psychological health	.24	.37**	.19

$p < .05^*$, $p < .001^{**}$;

BRS – Brief Resilience Scale; MHC – Mental Health Continuum.

The correlation analysis of the subjective assessment of the number of opportunities and personality characteristics demonstrated the following connections: a positive correlation with tolerance for uncertainty (MSTAT-I) ($r = .27$;

$p < .05$); and the overall score of the Mental Health Continuum, and a negative correlation ($r = .22$; $p < .05$) with the depression scale (DASS-21) ($r = -.33$; $p < .001$), (Table 2).

Table 2 – Results of correlation analysis – Study 1.2

	MSTAT-I — Tolerance for Uncertainty	MHC — Overall Score	DASS-21 — Depression
Subjective assessment of the number of opportunities at present	.27*	.22*	-.33**

$p < .05^*$, $p < .001^{**}$;

MSTAT-I – Multiple Stimulus Types Ambiguity Tolerance, MHC – Mental Health Continuum, DASS-21 – The Depression, Anxiety and Stress Scale-21.

The results obtained in Study 1 formed the basis for Study 3. Thus, the positive connections between resource qualities and the assessment of opportunity characteristics make one reflect on the role of agency in the described processes. The indicators of the connection between the feeling of the number of opportunities in life with psychological well-being and ill-being confirmed our assumptions that in the space of the possible, there are potentially mechanisms that, when revealed, would define the role of opportunities as resources or anti-resources of personality.

The **paragraph 3.2** of the chapter describes Study 2 – «**Testing the 'Differential Questionnaire of Agency Experience' method**».

In the study for the questionnaire's adaptation, 800 people participated, 50% of whom were men.

The results of the exploratory factor analysis revealed two factors, as in the original version. The two-factor model was statistically acceptable with $\chi^2 (53) = 302$; RMSEA = .0767 (90% CI = .0767; 0.852); TLI = .917, and the inter-factor correlation ($r = -.29$). The high χ^2 value can be explained by the large sample size.

The authors of the original methodology excluded items 4 and 5, as they had a double load on the factors, so only 11 factors were used in the confirmatory factor analysis model.

The results of the confirmatory factor analysis showed that the model was not entirely satisfactory with $\chi^2(43) = 372$; RMSEA = 0.097 (90% CI = .088; 0.107); CFI = 0.912. Despite the high χ^2 value, the root mean square error was above the norm for an acceptable model (suitable RMSEA value < .08).

The reliability of the obtained scales, assessed by Cronbach's alpha criterion, was high: Positive Agency — $\alpha = .86$; Negative Agency — $\alpha = .84$.

As a result of the confirmatory analysis, it was established that translation of one of the items (5) showed unsatisfactory contribution estimates for the model. A repeated translation procedure of this item was carried out, after which another study was conducted, which was the main stage of the empirical part of this work.

Paragraph 3.3 described Study 3 «**The Possible Self as a Resource for Self-Regulation of Personality**». Within its framework, the Russian version of the «Sense of Agency» was also re-tested. Based on the data obtained in Study 1, an additional literature analysis was conducted, and the proposed model was revised.

The problem of the study was identified as the thesis that the Possible Self, by engaging the potential of the agency phenomenon, can influence a person's behavior but can also serve as a support or obstacle within the framework of personality self-regulation. Based on the problem, the following hypotheses were put forward:

1. A positive attitude toward the desired Possible Self (e.g., perceiving it as achievable) is positively related to experiencing positive agency.
2. Experiencing positive agency is positively related to resources for personality self-regulation.
3. The higher the ratings of constructive characteristics of the desired Possible Self, the higher the indicators of resilience, tolerance for uncertainty, autonomy, and level of positive agency.

4. The more strongly the lost Possible Self influences a person's current life, the higher the level of experiencing negative agency, the more "restrained" the positive agency, and the lower the levels of self-regulation indicators.

5. Indicators of personality distress (neuroticism, anxiety and depressive symptoms, susceptibility to control) show high levels in respondents with a pronounced lost Possible Self.

6. Positive agency plays the role of a mediator between characteristics of personality resources (resilience, tolerance for uncertainty) and respondents' attitudes toward their desired Possible Selves.

Based on the data obtained in the first study, a study was conducted using a corrected translation of one of the items. The study sample consisted of 320 people aged 18 and over, 50% of whom were men.

On the new data, a repeated exploratory factor analysis was conducted, in which the items were evenly distributed into the corresponding factors (Table 5). The model reflected the data better than in the previous version of the questionnaire with $\chi^2(34) = 41.9$; RMSEA = .027 (90% CI = .00; 0.051); TLI = 0.98, and the inter-factor correlation was ($r = -.32$).

Table 5 – Results of the exploratory factor analysis of data from the “Sense of Agency” scale

Item	Factor	
	Positive Agency	Negative Agency
(1) I am in full control of what i do.	.55	.06
(2) I am just an instrument in the hands of somebody or something else.	-.17	.60
(3) My actions just happen without my intention.	-.06	.67
(4) My movements are automatic -- my body simply makes them.	.02	.62
(5) The outcomes of my actions generally surprise me	.17	.68

Item	Factor	
(6) Things i do are subject only to my free will.	.69	.04
(7) The decision whether and when to act is within my hands.	.72	-.05
(8) Nothing I do is actually voluntary.	.03	.75
(9) While I am in action, I feel like I am a remote-controlled robot.	-.07	.75
(10) My behavior is planned by me from the very beginning to the very end	.53	.15
(11) I am completely responsible for everything that results from my actions	.60	-.21

As in the first study, the reliability of the scales was found to be high: Positive Agency — $\alpha = .74$; Negative Agency — $\alpha = .84$.

According to the results of the confirmatory factor analysis, the model was satisfactory with $\chi^2(43) = 97.2$; RMSEA = 0.062 (90% CI = .046; 0.079); CFI = 0.95, and the correlation between factors was $r = -.40$.

In the final version of the questionnaire, items 4 and 5 were not used, as in the authors' original methodology. The confirmatory factor analysis of the second study confirmed the acceptability of the model (Figure 1).

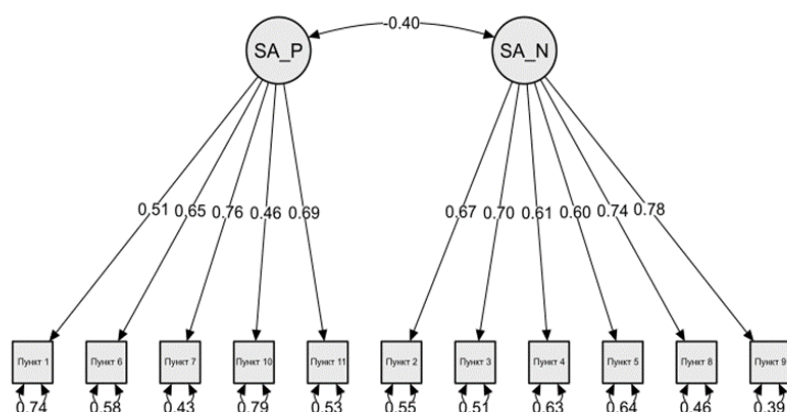


Figure 1 - Structure and parameters of the two-factor confirmatory model of the Russian version of the «Sense of Agency Scale».

SA_P - Positive agency scale, SA_N - Negative agency scale.

The construct validity of the revised version of the Scale was verified through correlation analysis (Table 6).

Table 6 – Correlations between the “Sense of agency” scale and other research variables

	Positive Agency	Negative Agency
MSTAT - I – Tolerance for uncertainty	.27**	.99
BRS – Resilience	.30**	-.26**
IAF - Authorship	.61**	-.22**
IAF - Susceptibility to control	-.06	.50**
IAF – Interest-taking	.12*	.28**
IAF – Overall score	.49**	-.26**
CIT - Engagement	.44**	-.25**
CIT - Mastery	.53**	-.19**
CIT - Autonomy	.21**	-.66**
CIT – Subjective Well-being	.49**	-.24**
BFI - Conscientiousness	.47**	-.41**
BFI - Neurotism	-.42**	.21**
BFI – Openness to Experience	.20**	-.17**
GAD7 - Anxiety	-.26**	.40**
PHQ9 – Depressive symptoms	-.26**	.48**

p <.05*; p <.001**

In the second stage of data analysis in Study 3, the results obtained from respondents were statistically processed using standard software packages Microsoft Excel, IBM SPSS Statistics, Jamovi. The correlation analysis demonstrated a positive relationship between the Positive Agency scale and the following indicators of respondents' attitudes towards their hoped-for Possible Selves: subjective feeling of the ability to embody their desired possibility ($r = .32$; $p < .001$), assessment of the likelihood of its realization ($r = .38$; $p < .001$), frequency of thoughts about it (r

= .21; $p < .001$), and how important this possibility is to the person ($r = .31$; $p < .001$) (Table 7).

As for other indicators of self-regulation resources, Resilience, the overall score of Autonomy, Mastery, Meaning, and Optimism were found to be positively correlated with all qualitative characteristics of hoped-for Possible Selves. Subjective well-being was also found to be related to all assessments of hoped-for possibilities.

In turn, Negative Agency was negatively correlated with how important a person considers their hoped-for Possible Self to be ($r = -.22$; $p < .001$).

Table 7 - Results of correlation analysis of qualitative characteristics of the hoped-for Possible Self and characteristics related to the self-regulation resources

Methods	Ability to embody the hoped-for PS	Probability of realization of the hoped-for PS	Frequency of thoughts about the hoped-for PS	Importance of the hoped-for PS
SoA – Positive Agency	.33**	.39**	.14**	.26**
SoA – Negative Agency	-.05	-.04	-.03	-.20**
BRS – Resilience	.25**	.25**	.04	.06
IAF – Overall score	.21**	.18**	.26**	.19**
CIT – Mastery	.49**	.50**	.25**	.23**
CIT – Subjective Well-being	.44**	.43**	.08	.18**
BFI – Extraversion	.32**	.27**	.09	.12*
BFI – Conscientiousness	.17**	.28**	.16**	.22**
BFI – Neurotism	-.32**	-.32**	-.02	-.04
BFI – Openness to Experience	.23**	.22**	.14*	.03

$p < .05^*$, $p < .001^{**}$

Positive Agency was found to be negatively correlated with respondents' assessments of lost Possible Selves – to what extent this possibility hinders their life planning ($r = -.17$; $p < .001$). Negative Agency demonstrated a positive correlation with all qualitative characteristics of lost Possible Selves: regret for not realizing this possibility ($r = .15$; $p < .001$), the extent to which this possibility hinders current life planning ($r = .36$; $p < .001$), frequency of thoughts about lost Possible Self ($r = .31$; $p < .001$), and the importance of this possibility ($r = .32$; $p < .001$). All indicators of self-regulation, as well as subjective well-being, were negatively correlated with all characteristics of lost Possible Selves (Table 8). In turn, indicators of psychological 'unhealthiness' such as anxiety, depressive symptoms, and the trait of neurotism (BFI) were positively correlated with all qualitative characteristics of lost opportunities.

Table 8 – Results of the correlational analysis of the qualitative characteristics of the lost Possible Self and personality traits associated with self-regulation resources

Methods	Regret about the unrealized lost PS	Evaluation of how lost PS interferes with future planning	Frequency of thinking about lost PS	Importance of lost PS
MSTAT – Tolerance to Uncertainty	-.25*	-.25**	-.28**	-.19**
SoA – Negative Agency	.12	.35**	.27**	.22**
BRS – Resilience	-.18**	-.35**	-.22**	-.14*
IAF – Susceptibility to control	.27**	.33**	.33**	.28
CIT – Autonomy	-.10	-.26**	-.26**	-.14*
CIT – Subjective well-being	-.16*	-.33**	-.19**	-.19**
BFI – Conscientiousness	-.04	-.25**	-.14*	-.16*
BFI – Neurotism	.20**	.29**	.16*	.22**

Methods	Regret about the unrealized lost PS	Evaluation of how lost PS interferes with future planning	Frequency of thinking about lost PS	Importance of lost PS
GAD-7 – Anxiety	.17*	.41**	.27**	.23**
PHQ-9 – Depressive symptoms	.18**	.42**	.30**	.23**

p< .05*; p< .001**

The results of the correlation analysis confirmed the proposed hypotheses. Focusing on the study of the resource role of the Possible Self and agency, a path analysis was conducted using the Jamovi software for statistical data processing.

Resilience

To clarify the role of Resilience in relation to respondents' attitudes towards their desired Possible Self, a path analysis was conducted. The dependent variable was the respondents' assessments of how capable they are of embodying the possibility into reality, the perceived likelihood of its realization, and the importance of this Possible Self, with the level of Positive Agency as the mediator (Figure 2).

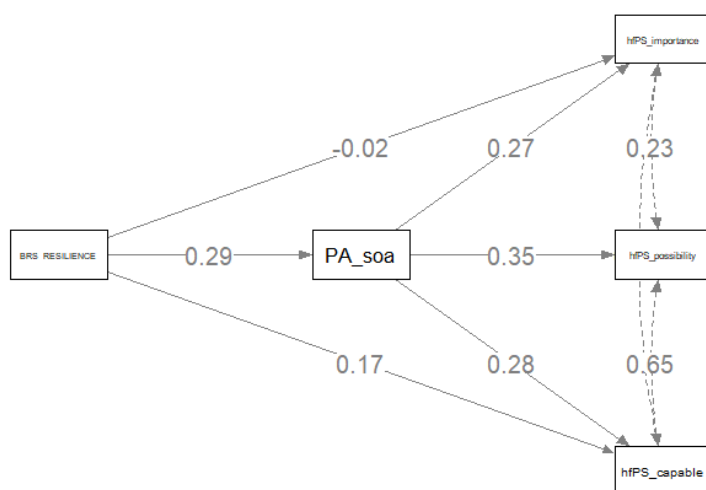


Figure 2 – Path analysis of the attitude towards the hoped-for Possible Self, resilience, and positive agency

The analysis confirmed the assumption that Positive Agency is only a partial mediator of the relationship between Resilience and ratings of the ability to embody

($\beta = .081, p < .001$) and the likelihood of realizing ($\beta = .10, p < .001$) the hoped-for Possible Self.

The Positive Agency variable also exerted a full mediation between the Resilience variable and the importance rating of the hoped-for Possible Self (indirect effect: $\beta = .08, p < .001$).

The model was satisfactory: $\chi^2 = 295 (3;0; p < .001)$, and model fit indices showed a full fit to the data (CFI = 1; RMSEA = 0). Such a result may be a consequence of the fact that the model was formed based on theory and strictly made assumptions.

Thus, high levels of resilience correlate with the high estimates of the hoped-for Possible Self importance at high levels of positive agency. Regarding the ability and probability of realization scores, in this case other variables besides positive agency may also mediate.

Anxiety

Anxiety symptoms have an indirect effect on Possible Self importance scores ($\beta = -.08, p < .001$) through the full mediation of the Positive Agency (Figure 3).

The model was satisfactory: $\chi^2 = 41.3 (3;0; p < .001)$, model fit indices showed a full fit to the data (CFI = 1; RMSEA = 0). Such a result may be a consequence of the fact that the model was formed based on theory and strictly hypothesized assumptions.

For example, high levels of anxiety with decreased experiences of Positive Agency lower the importance of one's hoped-for Possible Self.

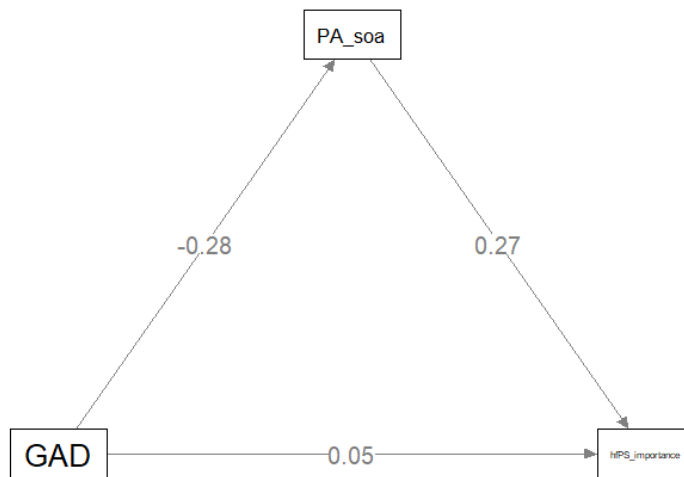


Figure 3 – Path analysis between the levels of anxiety symptoms and Tolerance to uncertainty, the degree of Positive agency, and the assessment of the hoped-for Possible Self importance

The level of Positive Agency feeling acts as a full mediator between the composite score of Tolerance to Uncertainty and the importance rating of the hoped-for Possible Self (indirect effect: ($\beta = -.08$), ($p < .001$) (Figure 4).

The model was satisfactory: ($\chi^2 = 40.6$) ($df = 3$; $p < .001$), and the model fit indices showed a perfect fit to the data ($CFI = 1$; $RMSEA = 0$). This result may be due to the fact that the model was formed based on theory and strictly advanced assumptions.

Thus, the high level of tolerance to uncertainty associates with the prominent importance of the hoped-for Possible Self at a high level of Positive agency.

This translation reflects the findings related to the role of Positive Agency in mediating the relationship between Tolerance to Uncertainty and the perceived importance of one's desired Possible Self, as well as the satisfactory statistical model fit. If you need further assistance or have more to translate, feel free to let me know.

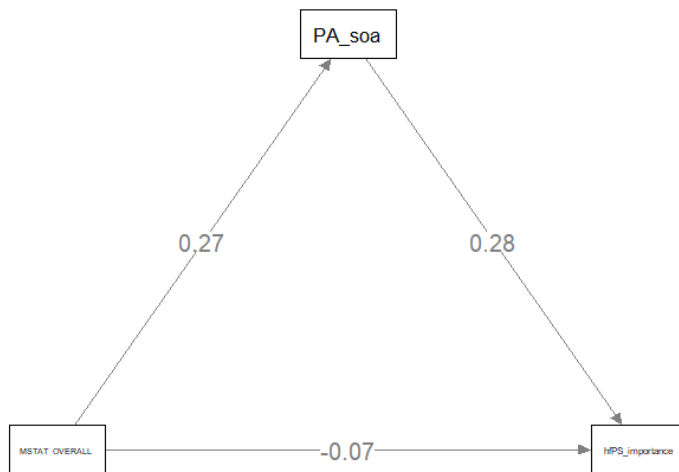


Figure 4 – Path analysis between the tolerance for uncertainty indicator, the degree of positive agency, and the assessment of the importance of the hoped-for Possible Self

Personality Traits

The presence of the Conscientiousness trait has an indirect effect ($\beta = -.10, p < .001$) on the assessments of how capable a person feels in preventing the embodiment of a lost Possible Self into life through the presence of partial mediation by the parameter of Negative Agency (Figure 5). In turn, Negative Agency acts as a full mediator in the indirect influence of Conscientiousness on the importance rating ($\beta = -.06, p < .05$) and the frequency of thoughts about the lost Possible Self ($\beta = -.08, p < .001$).

The model was satisfactory: $\chi^2=342$ ($df = 10; p < .001$), and the model fit indices showed a perfect fit to the data ($CFI = 1; RMSEA = 0$). This result may be a consequence of the model being formed based on theory and strictly advanced assumptions.

A pronounced trait of conscientiousness, with a low level of negative agency, reduces the assessment of how important the lost Possible Self is and the assessment of the frequency of thoughts. However, in influencing the assessment of how much the Possible Self interferes with planning further life, in addition to negative agency, there are potentially additional mediators.

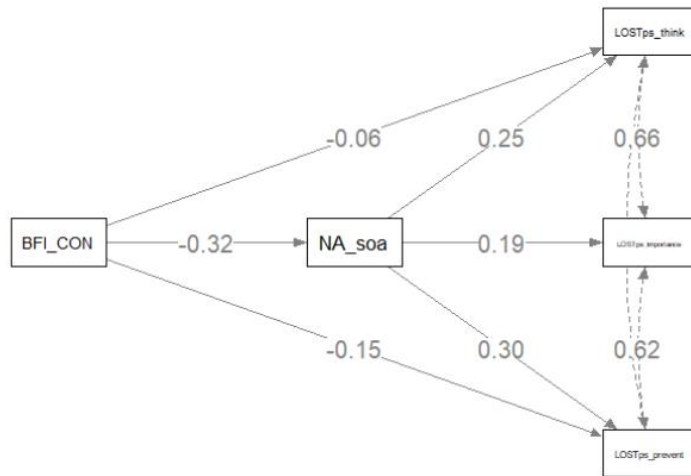


Figure 5 – Path analysis of the attitude ratings towards the lost Possible Self, the trait of Conscientiousness, and negative agency

Positive Agency also allows full mediation, through which the trait of Conscientiousness indirectly affects the assessments of the ability to realize ($\beta = .16$, $p < .001$) and the assessment of the likelihood of realizing the Possible Self by oneself ($\beta = .17$, $p < .001$) (Figure 6). The conscientiousness trait influences the evaluations of the hoped-for Possible Self through the high level of positive agency feeling.

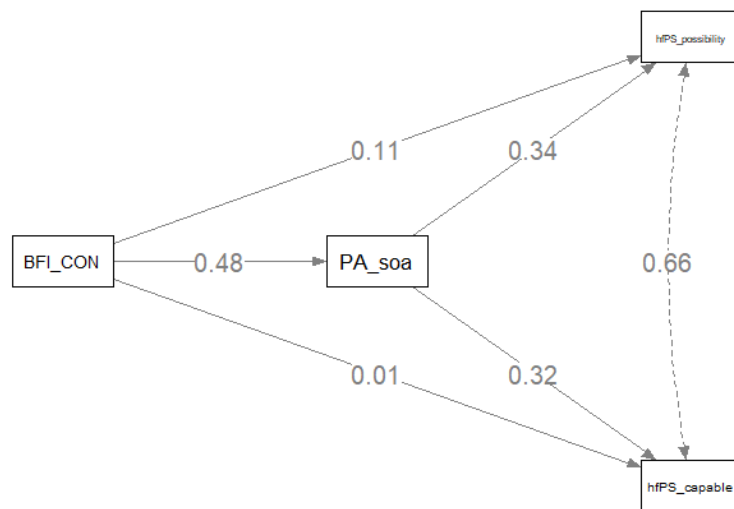


Figure 6 – Path analysis of the evaluations of the attitude towards the hoped-for Possible Self, the trait of Conscientiousness, and Positive agency

Neurotism

There is full mediation by Positive Agency, where the trait of Neuroticism indirectly affects the evaluation of importance ($\beta = -.12$, $p < .001$) of the Possible Self (Figure 7).

The model was satisfactory: $\chi^2 = 71.0$ ($df = 3$; $p < .001$), and the model fit indicators showed full correspondence with the data ($CFI = 1$; $RMSEA = 0$). Such a result may be a consequence of the model being formed based on theory and strictly advanced assumptions.

A pronounced trait of neurotism reduces the evaluation of the importance of the hoped-for Possible Self at a low level of positive agency.

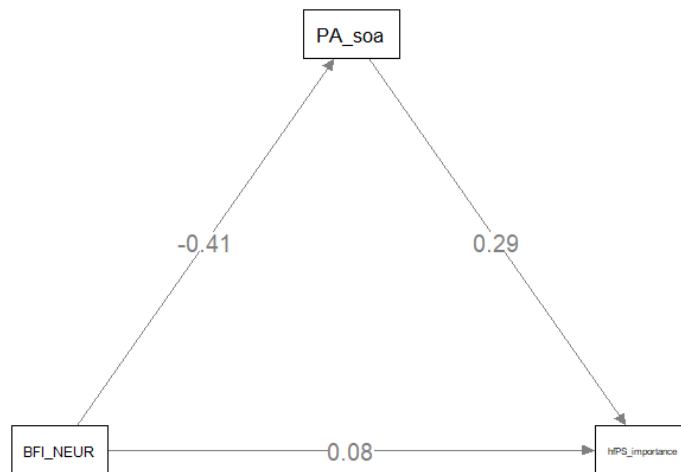


Figure 7 – Path analysis of the evaluations of the attitude towards the desired Possible Self, the trait of Neuroticism, and positive agency

Neurotism also indirectly affects the evaluation of the importance of the hoped-for Possible Self through full mediation by Negative Agency ($\beta = -.04$, $p < .05$) (Table 8).

The model was satisfactory: $\chi^2 = 22.4$ ($df = 3$; $p < .001$), and the model fit indicators showed full correspondence with the data ($CFI = 1$; $RMSEA = 0$). Such a result may be a consequence of the model being formed based on theory and strictly advanced assumptions.

A high level of neurotism reduces the evaluation of the importance of the hoped-for Possible Self at a low level of negative agency.

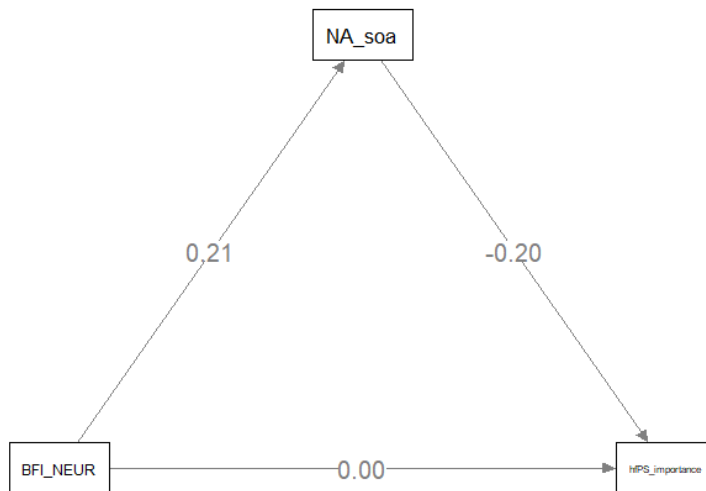


Figure 8 – Path analysis of the evaluations of the attitude towards the desired Possible Self, the trait of Neuroticism, and negative agency

Autonomy (IAF)

The overall level of Autonomous Functioning affects the evaluation of the ability to realize, the probability of realization, and the importance of the hoped-for Possible Self (Figure 9).

With full mediation by Positive Agency, Autonomy indirectly affects the evaluation of the ability to embody ($\beta = .14, p < .001$), the probability of realization ($\beta = .18, p < .001$), and the importance of the Possible Self ($\beta = .10, p < .01$).

The model was satisfactory: $\chi^2 = 329$ ($df = 10; p < .001$), and the model fit indicators showed full correspondence with the data ($CFI = 1; RMSEA = 0$). Such a result may be a consequence of the model being formed based on theory and strictly advanced assumptions.

A high level of autonomy, supported by positive agency, increases the evaluations of the ability, probability, and importance of the hoped-for Possible Self.

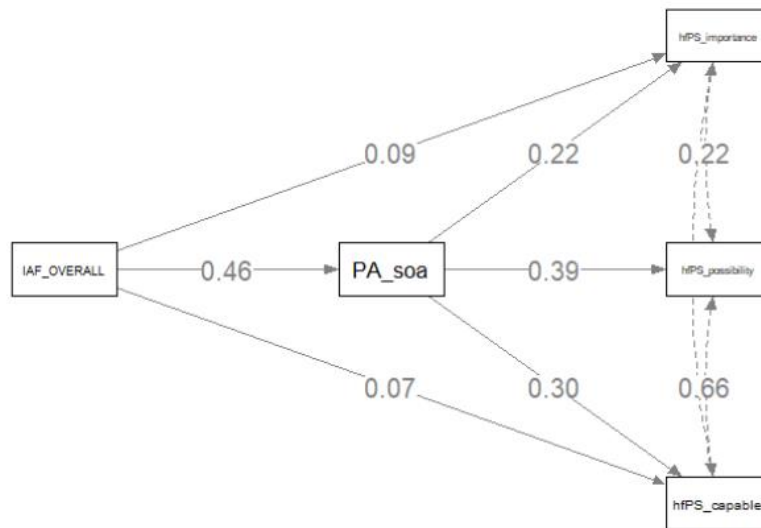


Figure 9 – Path analysis of the evaluations of the attitude towards the hoped-for Possible Self, Autonomy, and Positive agency

The opposite picture emerges for Negative Agency (Figure 10). Thus, the indicator of Autonomy has an indirect influence on the evaluations with full mediation by Negative Agency: the evaluation of how much it hinders ($\beta = -.07, p <.01$), the frequency of thoughts ($\beta = -.07, p <.01$), and the importance ($\beta = -.05, p <.05$).

The model was satisfactory: $\chi^2 = 331$ ($df = 10; p <.001$), and the model fit indicators showed full correspondence with the data ($CFI = 1; RMSEA = 0$).

This result may be a consequence of the model being formed based on theory and strictly advanced assumptions.

High autonomy reduces the influence of the lost Possible Self at a low level of negative agency experience.

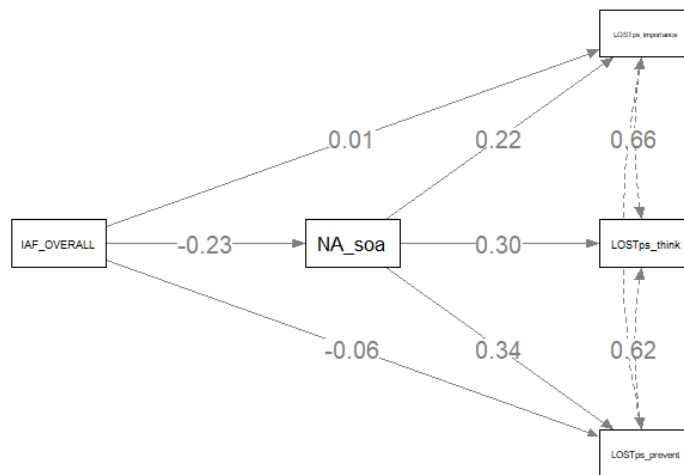


Figure 10 – Path analysis of the attitude evaluations towards the lost Possible Self, Autonomy, and Negative Agency

Based on the results of Study 3, a latent profile analysis was conducted. For the first stage of the analysis, the following variables were used: evaluations of the ability to embody, the probability of realization, the frequency of thoughts, the importance of the hoped-for Possible Self, and the level of Positive Agency experience. In the second stage, evaluations of how much a person regrets the loss of this Possible Self, how much it interferes with planning for the future, the frequency of thoughts, its importance, and Negative Agency were used.

In the first stage, for the hoped-for Possible Selves, the analysis showed that three types of profiles with distributions across high, medium, and low evaluations of the characteristics of hope-for Possible Selves and the indicator of Positive Agency were most successful.

In the second stage, where evaluations of the lost Possible Selves and the indicator of Negative Agency were involved, two types of profiles were chosen.

Subsequently, the indicators (separately for the model of desired Possible Selves and the model of lost Possible Selves) were used as variables for grouping in the analysis of the average studied personality characteristics by One-way ANOVA.

For each variable that demonstrated significant results, averages were calculated for each profile, and the indicators were converted into z-scores to standardize the scores. A graph of each profile was then constructed (Figure 11).

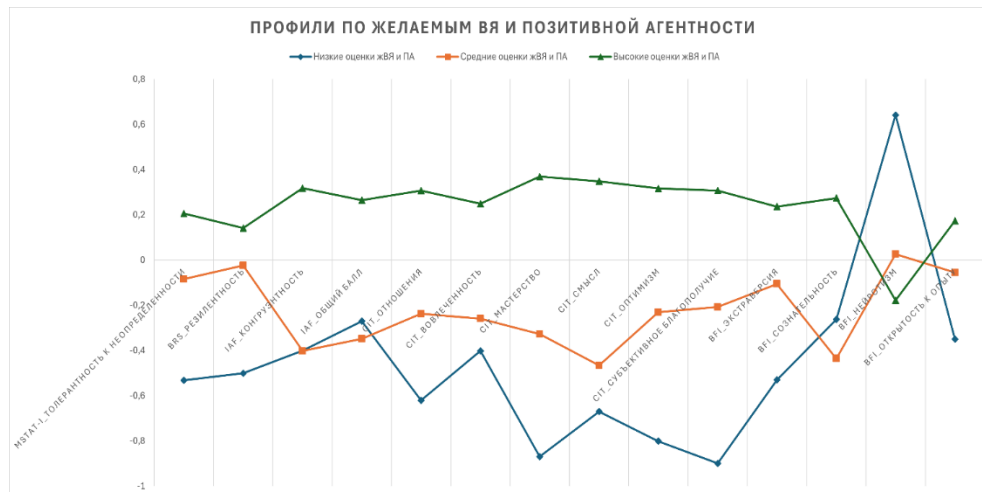


Figure 11 – Representation of two profiles based on the assessments of hoped-for Possible Selves characteristics and Positive agency

Thus, the division was based on the levels of expression of the selected elements. The profile with high scores on the characteristics of the Possible Self and the level of positive agency is defined by the highest degree of expression of all the selected indicators of personality phenomena, except for the trait of neuroticism, which was at the lowest level among the three groups. This profile can be associated with what is designated as high personal potential by D.A. Leontiev (Leontiev, 2011).

The profile with medium scores on the characteristics of the Possible Selves and positive agency demonstrated an average (among the three groups) across various indicators of personality phenomena, except for the Commitment Inventory Test (CIT) and the trait of Conscientiousness. In the highlighted cases, the level of expression was lower than in the other profiles. This is an unexpected result, as specific confirmations in the existing literature are difficult to find, so presumably, this could be a particular characteristic of the specific sample.

The profile with low scores on the characteristics of the Possible Selves and positive agency is of great interest. The lowest scores across all indicators (except for the level of social relations and the trait of Conscientiousness) and the highest score for the trait of Neuroticism indicate that this profile may illustrate a personality

possessing an Impossible Self. Based on the existing definition of the phenomenon, where the Impossible Self is "a manifestation of the desired Possible Self of the personality, subject to the influence of neuroticism and rumination, and associated with high levels of negative affect and self-blame" (Grishutina, Kostenko, 2019, p.16), certain correspondences can be traced. A high level of neuroticism, low scores for the characteristics of the most desired Possible Self, and additionally low scores for the degree of expression of personality phenomena that could be defined as resourceful and included in the definition of personal potential, may form the description of a person who may have Impossible Selves. Prior to this study, this phenomenon was difficult to define because it is based on the idea of restrained agency. Due to the lack of methods for diagnosing the sensation of agency, the definition of this characteristic could only be made by assessments of the attitude towards the Possible Self. Thanks to the expansion of the methodological toolkit, we were able to more accurately touch upon the phenomenon, as well as expand knowledge about the characteristics accompanying its formation. It is precisely the low level of positive agency, that is, the deficit of the sensation of control over one's actions and decisions, when the energy of agency is "in a cage", thereby restraining the attitude and advancement towards one's own possibility.

In the same way as in the previous stage, averages were calculated for each profile, and the indicators were also converted into z-scores to standardize the scores. A graph of each profile was then constructed (Figure 12).

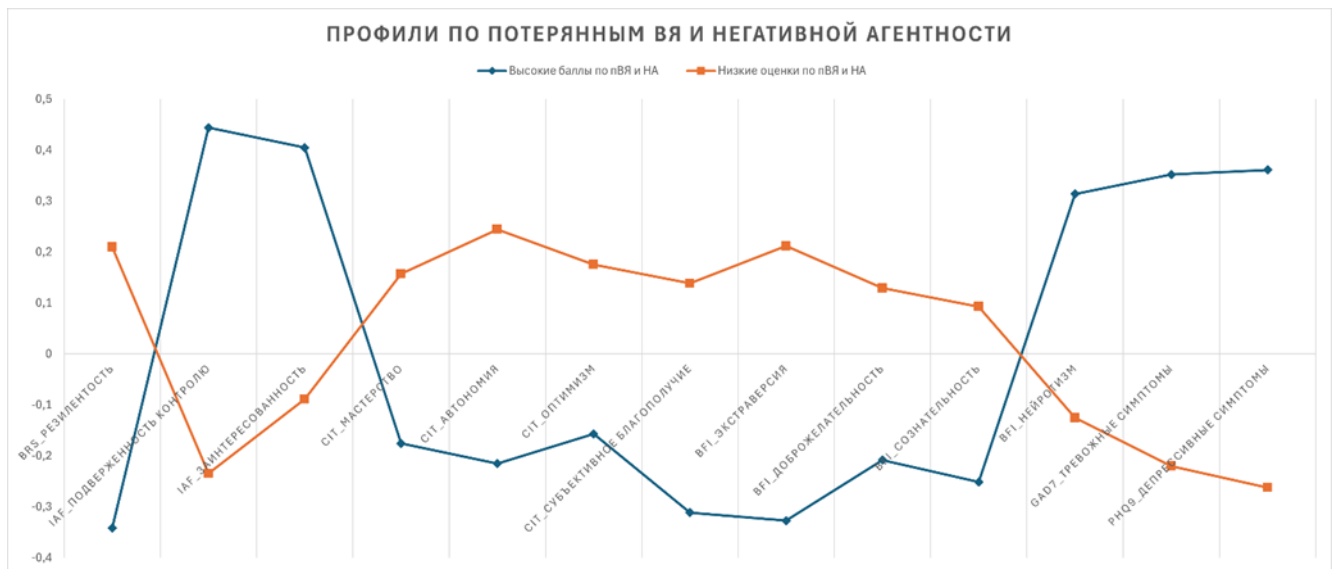


Figure 12 – Representation of two profiles based on the assessments of lost Possible Selves and Negative Agency

The group with high scores on the characteristics of lost Possible Selves and high negative agency was characterized by high levels of susceptibility to control, interest in activity, conscientiousness, depressive and anxiety symptoms. The rest of the variables were at low levels. Individuals who are high on the impact of a lost Possible Self on their actual life, as well as experiencing feelings of helplessness, rely on external motivation and over-reflect on their actions and reactions. Such characteristics are accompanied by depressive and anxiety symptoms, as well as high levels of neuroticism. Concentration on one's lost possibility with the lack of control feeling over one's actions may serve as an obstacle to the development of phenomena related to the potential of the personality, which, in turn, opens the way for negative experiences.

Low assessments of lost Possible Selves parameters and negative agency demonstrate the opposite profile. This group is characterized by pronounced resilience and autonomy, as well as low levels of negative experiences. The presence of inner resilience and a sense of freedom in decision-making are important aspects in resisting the influence of the lost Possible Self on a person's life.

Based on the results of extensive statistical analysis, the hypotheses proposed in this paper were confirmed. Positive and Negative agency play significant roles in the functioning of different types of Possible Self.

High levels of Positive agency and assessment of the hoped-for Possible Self parameters form the profile of a person with high personality potential, while high levels of Negative agency and prominent influence of the lost Possible Self on one's life allow us to form a more accurate picture of what happens to people who hang on to past images of the future.

The latent profiles that emerged from the resulting analysis pieces together findings from this study. The **conclusions** allow for a more complete understanding of the overall picture that emerges because of all the statistical procedures that were conducted.

Conclusion on the theses submitted for defense

1. The explanatory potential of the Possible Self is determined by the role of agency in its construction and realization process.

When formulating the Possible Self, an individual creates a space for potential activity in which they act as an agent making decisions and taking actions to achieve a specific possibility. The extent to which agency is experienced is related to how capable the individual feels to move along the chosen trajectory. Based on this, a person can take actions that ultimately determine the outcome of their aspirations.

2. The experience of agency determines the influence of personal resources on the individual's evaluation of their desired and lost Possible Selves.

The experience of agency plays a key role in the functioning of the Possible Self and can act as a «buffer» in the relationship between resource phenomena (e.g., resilience, tolerance for uncertainty) and the individual's attitude towards the parameters of the Possible Self. Thus, a low level of resource phenomena can be «enhanced» by a high level of positive agency, which can collectively influence the attitude towards the parameters of the Possible Self (in the context of the current study: both with the hoped-for and the lost Possible Self).

3. Both positive agency (the experience of the ability to influence events and control) and negative agency (the experience of helplessness and impersonal causality) engage the individual in the realm of the possible; however, only positive agency facilitates the realization of possibilities.

The two types of agency allow a person to navigate differently and move towards achieving their Possible Self. When feeling control (a high level of positive agency), a person's attitude towards their Possible Selves is positive, thereby opening up the space for planning their steps towards the outcome. Helplessness proves less effective, and the attitude towards the Possible Self is formed either neutrally or even negatively. Negative agency limits the ability to view oneself and the entire process with doubt, not valuing the parameters that determine the potential attainability of the goal. Thus, positive agency, through the feeling of control and a more positive attitude, serves as a condition for moving towards the realization of one's Possible Self.

4. Negative agency supports the individual's involvement in «lost Possible Selves» and is accompanied by signs of distress (low well-being, high levels of depression and anxiety).

Lost Possible Selves are characterized by mental and emotional «stuckness» on a possibility once seen for oneself but which can no longer be achieved. The person does not shift focus to the present, thereby using the energy of agency to relive a story once imagined but never realized. The sense of helplessness, defining a high level of negative agency, keeps the person trapped in a cycle of these experiences. Consequently, the emotional-affective sphere also suffers, in this context, without being supported by positive affects and experiencing dissatisfaction with life.

5. The degree of experience of agency and the attitude towards one's Possible Selves allow for the identification of personality profiles that determine individual differences in resource and anti-resource characteristics.

The Possible Self, with characteristics such as the involvement of the agency phenomenon and the individual's attitude towards it, turns out to be more deeply

engaged in personal processes. Identified connections with resources and anti-resources, as well as the identification of the «buffering» function of agency experience, demonstrate certain patterns within differences between groups of people. Specific indicators of high levels of resource expression, combined with the experience of subjective life satisfaction, are characteristic of individuals who have a high level of positive agency and a positive attitude towards their hoped-for Possible Selves. Results for groups with an average level of agency experience and a neutral attitude towards Possible Selves are associated with similar levels of resource experience. For the group with low levels and a more negative attitude, corresponding indicators are observed, with high levels of the trait Neuroticism. For lost Possible Selves, two groups are distinguished, considering the level of negative agency experience and the individual's attitude towards their lost Possible Selves. High expression of negative agency experience and a persistent presence of lost Possible Selves in a person's life are associated with low levels of personal resources and a pronounced trait of Neuroticism, along with depressive and anxious symptoms. The second group shows opposite values. Thus, the level of experience and type of agency, as well as the attitude towards one's Possible Selves, are related to the predominance of high or low levels of personal resource phenomena.

The **Conclusions** list the main findings of the study:

1. This study provides data that, at a new level of complexity, supports the thesis on the significance of experiencing agency as a phenomenon that «energizes» the Possible Self with the activity needed for its functioning.
2. The «Differential Questionnaire of Agency Experience» was also adapted, offering a direct way to test the assumptions about the role of agency experience within the context of the Possible Self theory.
3. Attitudes toward Possible Selves through evaluations of specific characteristics of the construct were investigated in conjunction with data on levels of positive and negative agency. It was found that experiencing agency plays a buffering role in the interaction between parameters related to resources (in the

context of hoped-for Possible Selves) or anti-resources (in the context of lost Possible Selves) and attitudes toward opportunities.

4. High levels of agency experience enhance the influence of these parameters on the evaluation of not only the Possible Self but also one's own abilities to realize (or avoid) a given possibility.

5. Extensive statistical analysis identified personality profiles based on attitudes toward Possible Selves and levels of agency experience. The description of these profiles reveals patterns where the Possible Self, supported by agency, can act as either a resource or an anti-resource in the framework of self-regulation.

6. The results of the study confirm the extensive role of the Possible Self phenomenon not only within the framework of self-concept but also in the overall structure of personality. They advance our understanding of how the Possible Self functions within self-regulation. Currently, we have evidence that the characteristics of the Possible Self may exhibit certain patterns related to specific phenomena associated with personality self-regulation.

Articles published by the author on the topic of the PhD dissertation

1. Grishutina M.M., Kostenko V.Yu. Vozmozhnye Ya v romanticheskikh otnosheniyah: ih ob"yasnitel'nye kachestva i vozmozhnosti intervencii [Possible selves in romantic relationships: their characteristics and intervention potential]// Psihologicheskie issledovaniya: elektronnyj nauchnyj zhurnal [Psychological Studies]. 2023. Vol. 16. № 91. P. 1-33. doi: 10.54359/ps.v16i91.1451

2. Grishutina M., Kostenko V. Variety of Possible Selves: The Role of Agency and Empirical Evidence Review // Psychology. Journal of the Higher School of Economics. 2022. Vol. 19. No. 2. P. 405-423. 10.17323/1813-8918-2022-2-405-423 [in English]

3. Grishutina M. M. Kachestvennoe razvitie psihologii lichnosti za poslednie tridcat' let [Continuous development of personality psychology over the past thirty years]// Mir psihologii. Nauchno-metodicheskij zhurnal [World of Psychology]. 2022. № 4. P. 140-145.