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PATTERNS OF READINESS FOR ADAPTIVE ACTION

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The paper presents a fractal model of goal setting that is formally defined by a sequence of symbols in the goal-oriented prospects of a solution connected by the relationship of feasibility. The fractal model includes such elements as the "reserve of forces", confidence in oneself as a subject of future decisions, the preliminary assessment of the availability of a solution, a sense of reality (sanity), hope for a solution, and support of the environment. They are interpreted as *resources* of a solution. The relationship of feasibility is defined as an equivalent of "material implication". The listed elements that are connected by the relationship of feasibility, form *goal-oriented tendencies (aspirations*): the desire to solve the problem ("I want"), the assessment of the goal through mental action ("a mental trial of strength"), volitional efforts ("I must), and aspirations ("I claim"). The concept of *adaptability* is specified on the basis of three equalities: *'I want = I demand from myself' (I need), 'I demand from myself = the situation requires from me', 'I claim = I attain'*. Three types of adaptive goal-setting environments are described: ordered (as in experiments on the levels of aspirations), ordinary (regular) and provocative. In an ordered environment, the subject has information about the difficulty of tasks; in an ordinary environment, claims and the necessary resources are arbitrarily correlated in a previously unpredictable way; in a provocative environment, there is an equality of the subject's aspirations and "challenges" from the environment. Numerical solutions of equations describing the elements and fragments of goal-oriented perspectives of adaptive actions in the three environments are identified as *patterns of adaptability*. Based on the implementation of the method of personal possibleness (that includes the distinction between the three goal setting environments represented in original questionnaires on 'a problem of the day' and 'a problem to one's taste'), the hypothesis of the adaptability of the "majority" has been confirmed: in the sample, subjects, on average, apply adaptive strategies for goal setting.

Key words: fractal model, adaptability, implication, accumulated capabilities, environment

JEL: Z

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[1] National Research University. Higher School of Economics. Faculty of Social Sciences. Department of Psychology. Center for Fundamental and Advisory Personology. Professor; vpetrovsky@hse.ru

Introduction

This paper is focused on a special aspect in personality psychology, the subject's readiness for adaptive action, and motivational, reflective and environmental aspects of this readiness.

Considering the *readiness* for action, we create its mathematical model that combines the subject's reflective aspirations and resources that are dynamically associated with each other in the process of preparing and performing action, *the goal-oriented perspective of the action*.

The development of the model of bipolar choice in the reflective theory of V. A. Lefebvre (1996) has enabled a theoretical reconstruction of the goal-oriented perspective of action that forms the "inner contour" of behavior. The author of this theory and members of his school were able to mathematically describe and empirically substantiate the original interpretation of the structure of the subject's reflective acts, and to characterize the two-way connections (transitions) between subjective and objective manifestations of activity in a situation of choice. This was an unprecedented "breakthrough" in the interpretation of the connection between consciousness and behavior, see Petrovsky (2016).

Using this model as a basis and through its development, we consider the *adaptability* of action and assume that this way we will be able to find stable relationships between the elements that form its goal-oriented perspective of action, the *constants of adaptive activity* (their presence could be empirically confirmed).

In order to do this, we turn to the *problematic* environment (that in this case is considered quite specifically) aimed at the formulation and solution of intellectual tasks by the subject. There are varieties of it as "ordered", "ordinary" and "provocative" environment, and this list of "environments" is not complete. Beyond the scope of this study are still the "opposing" and "competing with humans" environments as determinants of decision making (P. V. Baranova and A. F. Trudolyubov (1969); Thagard, P. (1992); MacInnes, W. (2006) and others).

The purpose of this study is to characterize the structure and to propose a mathematical model of the subject's readiness for adaptive action; to consider the specifics of its goal-oriented structure in different environments; and to empirically confirm the parameters of this model.

The general hypothesis is that there are patterns of adaptability (that are specific to each of the environments) in the goal-oriented perspective of action; this is empirically manifested in a tendency towards adaptability of manifestations in each of the tested environments.

1. **Readiness; goal-oriented perspective of action**

Psychologists were able to find a general word that unites the concept of a person's *capabilities* ("I can do") and their *desire* for action ("I wish to do"); the same word describes the unity and mutual transition of *subjective* and *objective* manifestations of human activity. This is the word *readiness* in such phrases as "mobilization readiness", "motivational readiness", "intellectual readiness", "readiness for activity", etc. V.A. Lefebvre suggested a special interpretation for "readiness" (Lefebvre, 1992) as he attributed to this term the meaning of objectively recorded manifestations of activity initiated by the individual's subjective intentions that "impel" a choice.

1.1. **The interpretation of "readiness for bipolar choice" by V. A. Lefebvre; the fractal model of the goal-oriented perspective of action**

Although the motivational and environmental "variables" were unconventionally described by Lefebvre in terms of "positive" ("goodness") and "negative" ("evil") poles of choice, "environmental pressure", "the image of environmental pressure", "inclination" as contrasted to "readiness for choice", "intentional choices" and "freedom", and although his study was mainly focused on cognitive aspects of choice, Lefebvre's mathematical model had, in our opinion, a direct relationship to the problem of motivational and environmental factors of organizing activity and, more broadly, to personality psychology (Petrovsky, 2013).

Lefebvre described the agent's readiness for reflective choice as a numerically determined value. As noted above, the author of this theory was able to cross the line separating the "subjective" from the "objective" (this was a fundamental discovery) by connecting through material implication the subject's intention to choose and the choice itself that is measured by the probability of the preference of one pole ("goodness") over the other pole ("evil") (see Petrovsky, 2016). Lefebvre's formula is $A = (a_3 \rightarrow a_2) \rightarrow a_1$, where a_1 is the pressure of environment, a_2 is the image of the pressure of environment, a_3 is intentions of the agent of activity, and A is the readiness to choose the positive pole ("goodness" as opposed to "evil"); here the a_i variables have "clear" values equal to 0 or 1; $\rightarrow$ is a sign of material implication. The equality $1 - x + xy$ in Lefebvre's constructions is a generalization of the material implication $x \rightarrow y$. Later, other researchers used for this the terms *continual implication* (Volgin, 1996) and *meta-implication* (Petrovsky, 2002). The author of the theory worked with rational values of variables in the segment [0, 1], and the adequacy of the term "meta-implication" was substantiated by the author based on the apparatus of algebraic lattices. Both the terminological and the semantic continuity of "meta-implication" was emphasized in relation to the "material implication" that suggests "clear" values of the

variables 0 and 1 (Petrovsky, 2002; Petrovsky, Taran, 2002). In all fairness, we shall note that Volgin's "continual implication", unlike "meta-implication", is relevant for all numbers in the interval [0, 1] (however, the apparent semantic connection between the terminological innovation and the classical "material implication" is then lost). Further we will use the general term "implication" to denote all its varieties mentioned above.

The construct of "intentional choice" played a major role in Lefebvre's theory; this meant the numerical equality between the *intention a_1* and the *readiness to choose A*: $a_1 = A$. Lefebvre determined and mathematically described the fact that the intentions of an agent can generate a relevant readiness. In our study, the "Lefebvrian" readiness to make an intentional choice (taking into account some of the elaborations and assumptions being introduced) is defined as "readiness for *adaptive action in the environment"*.

We shall describe the essence of the innovations.

1) A new interpretation of "material implication" operating with "clear" and continuous meanings is proposed; 2) A new interpretation is given to the variables in Lefebvre's formulas and their number is expanded; 3) Reflection is considered in a more general way than in the basic model by Lefebvre (as a reflection of capabilities inherent both to the environment and to the subject).

As we describe readiness for action *phenomenologically*, from the point of view of its internal dynamic structure, we define it as a *goal-oriented perspective of action,* a series of successive fragments of the development of activity between the potential for attainment and attainment as such; before us is a sequence of transitions between the possibility of achieving and the desire to embody these possibilities at each stage of activity (in each element of goal-setting).

Formally, the goal-oriented perspective of action has a corresponding sequence of symbols connected by an operator of meta-implication:

$$((((((1)_{Start} \rightarrow a)_A \rightarrow b)_B \rightarrow c)_C \rightarrow d)_D \rightarrow e)_E \tag{0.1}$$

Each expression in the parentheses *on the left* indicates the goal-oriented state of an activity at different stages of goal-setting, while *on the right* we have the condition for the goal realization, or more, the 'external support' of the action. The only exception to the general rule is *1* in the parentheses: the symbol 1 both indicates the general potential of the subject's activity (a full scope of possibilities as a source of activity). Finally, the E symbol means "I attain", "I am experiencing self-satisfaction as I am approaching a solution".

Each of the fragments of the goal-oriented perspective is interpreted as a unity of possibilities **and** aspirations. As we can see, these fragments form a special structure in which the whole has the same shape as its constituent parts. In this regard, we name the proposed model a *Fractal Goal-Setting Model* (see Fig. 1).
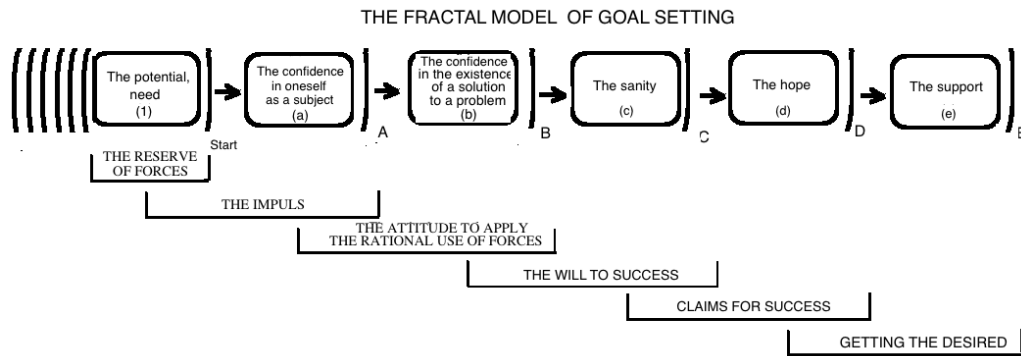

Figure: 1. Fractal model of goal-setting.

We shall consider in more detail each of the interleaved elements of the fractal model; in an earlier edition, it was called the "Model of Possibleness" (Petrovsky, 2002; 2013). The expression $w = x \rightarrow y = 1 - x + xy$ in each of the elements of the structure is interpreted as an incentive x to use one's *available capabilities* (at the level x), as the external resource is assigned to y. The difference $1 - x$ characterizes the levels of *reserve capabilities* (previously unclaimed) of the agent's internal resources. The product xy stands for newly acquired opportunities. The entire expression as a whole (reserve capabilities plus newly acquired opportunities) means *accumulated capabilities* denoted by the symbol w. The arrow "$\rightarrow$" indicates the direction of the upcoming use of actual resources x in the process of mastering situational resources. It is assumed that in this case the previously unclaimed internal possibilities ("dormant forces") are actualized ("awakened") to be joined with the resources just appropriated from the outside. Figuratively speaking, the implication "$\rightarrow$" is an "outflow" of available capabilities x from their source 1 towards an external source that provides an "influx" of new opportunities. Naturally, this interpretation has little to do with the interpretation of the material implication in the spirit of "if... then…".

Discussing the question of implications in the context of goal-setting, we cannot limit ourselves to metaphors such as, for example, the "outflow" and "inflow". It is required to identify

and, preferably, formalize the *psychological meaning* (by analogy with the *physical meaning*) of the symbols involved in the formula of implication.

We shall consider in more detail the theoretical constructs that enable the comprehension of the implication as a certain "mechanism" of goal-setting.

1. *The full reserve of the subject's internal resources* (hereinafter *the reserve of forces*, *the basic resource*). Phenomenologically, it is the inalienable "part" of "the I", the immanent property of the self. Everything that I am capable of, all that I can do myself, all that I possess as the subject of an action, all this is *the full reserve of forces*. We shall assume that the number 1 corresponds to the agent's "full reserve of forces" (capabilities, internal resources). The "transcendental I" is the philosophical analogue of the subject's full reserve of resources; the "oceanic I" and the "magical I" are the psychoanalytic equivalent. In humanistic psychology it is "all that I can become"; it is the "existential fulfillment" in existential analysis (or, to be more exact, *the potential* of existential fulfillment). The mathematical "metaphor" for the reserve of forces is Hilbert's (infinitely dimensional) cube, the focus of resources represented by the facets of the cube (Petrovsky, 2015).

2. *The reserve capabilities* are previously unclaimed resources of goal-setting that are being implemented at this stage with a view of their possible use in the future ("something that I have not used before and am not using it now, but I will be able to use it in the future"). They can be compared to passengers who have moved from the station forecourt to a waiting room, or (a closer analogy) to money relocated from a drawer to one's wallet.

3. *Situational resources* are external (including those reflected by the subject) conditions of goal-setting. Being associated with the situation of achievement, these resources exist not only in what we refer to as the "surrounding world", but they can also exist in the subject's consciousness as images of an environment independent of the subject or as images of the properties of the subject itself; for example, it is both the "pressure of environment" and "an image of the pressure of environment" (Lefebvre, 1996); both the individual properties of temperament and an idea of them ("reflective adaptations of personality traits" (see Shchebeteko, 2014)), etc. As we will see later, situational possibilities of achievement are represented in the implicative model of goal-setting in various ways: this is both the potential attractiveness of a task, the subjective probability of a solution, the rationality in assessing personal prospects, a conscious chance to achieve what is necessary, and, finally, the support of environment in the implementation of aspirations.

4. Before situational resources enter the group of immediate stimulators of a future action, they have to be owned by the subject; thus, we approach the construct of "*newly acquired (found) opportunities*". While the previously unclaimed resources of the subject are actualized, or, in terms of Heidegger, are "appropriated" by the subject, the situational resources are *acquired* and become their own.

5. The reserve and newly acquired opportunities together provide us with *available capabilities*. We also call them *accumulated capabilities* to emphasize that this is a "combined strength" of the actualized internal (subject's) resources and the acquired situational (external) resources.

6. There is an assumption (that makes a fundamental premise in building the implicative model of goal-setting) whereby at the earlier stage of goal-setting the accumulated capabilities induce activities aimed at acquiring situational resources at the next stage ("I can" becomes "I want"; like "I can", like "I want"); we consider the following maxim to be fair: not so much the "I can" lives in the street of the "I want", as "I want" lives in the street of the "I can").

Referring to any of the elements of the goal-oriented perspective, we shall consider the options for combinations of x, y and w with the exact values of variables (0 or 1):

a) $x = 0$, $y = 0$, which means $w = 1$. Indeed, $0 \rightarrow 0 = 1 - 0 + 0 \times 0 = 1$ (the subject does not seek to outwardly realize itself while relying on the zero situational resource, but at the same time it is actualizing the entire volume of previously unclaimed resources); the "non-doing" implies a bet on oneself that enables progress towards the result (a positive outcome, the OK state);

b) $x = 0$, $y = 1$, therefore $w = 1$. Here the situational resource does not matter, and a positive outcome is achieved in any case, the OK state;

c) $x = 1$, $y = 0$. We have $w = 1 - 1 + 1 \times 0 = 0$. The situational resource is failing expectations. Frustration is being experienced: the subject is feeling a loss and frustration (a negative outcome, the not OK state).

d) $x = 1$, $y = 1$. In this case, $w = 1 - 1 + 1 \times 1 = 1$. The expenditure of an internal resource is fully compensated by acquiring the situational resource (a positive outcome, the OK state).

Special cases of the relationship between *a, b, c, d, e* related to the subject's adaptability in the environment shall be considered further by constructing (on the basis of the $x \rightarrow y$ scheme) the elements of the proposed implicative (fractal) model of goal-setting in the environment.

Now we shall return to the original record of the goal-oriented perspective of action (0.1) and mark the stages of goal-setting in their continuity.

1.2. **The goal-oriented perspective in detail**

We shall consider the elements, clusters and fragments of the goal-oriented perspective more specifically (see (0.1) and Fig. 1).

(1)   (1)$_{Start}$ is the starting level of readiness that corresponds to **the potential for the activity and need for action (= "reserve of forces").** This is the full scope of the possible and the vital:
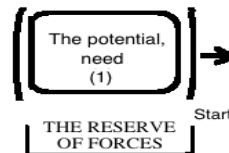
Strictly speaking, the record of the goal-oriented perspective of action could be supplemented on the left by entering the "starting" fragment of goal-setting as an implication (1)→1, where (1) is the potential for an activity, and 1 (on the right) is the subject's ability to ideally experience in oneself the availability of such a potential that would *be experienced as a general need for activity*, or an abstract prerequisite for achievement. Then, the formal record of the goal-oriented perspective would increase by one element on the left. But we "abbreviate" this initial stage, since *(1) → 1 = 1.*

(2) *a – trust in oneself as in the subject of a decision; an anticipatory assessment of oneself as the subject of successful decisions*. Let us explain the meaning of two polar values of *a*. If *a = 1*, this means a certainty in one's own abilities to solve a problem in these circumstances in general, even before becoming familiar with the specific conditions and requirements of the situation. If *a = 0*, this means that the person was initially convinced of his/her inability to cope with the task, whatever it was (later, as the person is learning a particular task, this feeling can be significantly transformed).

(3) *A = 1 → a = a* (readiness level A) – *I want; impulse*; *feeling empowered and eager to solve a problem* (or an opposite feeling, an internal rejection of effort); *interest in achieving* ("it is interesting to have a go at solving the problem" or "I feel like quitting without having a go at it"):
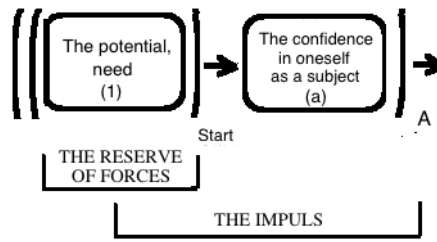
For example, first-graders raise their hands impatiently ("Ask me!") before they know the specific conditions and requirements of an assignment (or hide their arms so that not to be asked by the teacher, although they as yet do not know what the question is). Similarly, many professionals instantly feel that they will make an effort and will solve a problem having barely heard that "there is a problem" (although some would prefer to "relieve" the problem on hearing of it). Here we have *the anticipation of success* that prompts a solution, or *the premonition of failure* that is manifested in indifference and rejection of active involvement. It is implied that conditions of a forthcoming activity only foster a fraction of the volume of the possible ("I can") that motivates to attain at a certain level (varying degrees of the "I want").

Based on the formal properties of meta-implication, it follows that $1 \rightarrow a = 1 - 1 + 1 \times a = a$. Therefore, further we omit the combination of the symbols "$1 \rightarrow a$" in the records and replace them with the symbol a (hence the complete record of the goal-oriented perspective is reduced by one more element to gain a simpler form:

$$(((((a)_A \rightarrow b)_B \rightarrow c)_C \rightarrow d)_D \rightarrow e)_E$$

(4) ***b – the attainability of success;*** a preliminary (a priori) assessment of the ability to cope with the task. b is a value that is opposite to the known or assumed *difficulty* of the task. Some problems are now well known to have no solution ("squaring the circle", etc.). In such cases, $b = 0$. With respect to some problems, it is not known whether they can be solved or not (we can only predict to a certain degree the existence of a solution); in some formal theories there are solutions to statements that are unprovable and irrefutable, but when this has not yet been proved, we have $0 \leq b \leq 1$. Perhaps, only "school problems" are guaranteed to have solutions, $b = 1$. But in this case, the time to find a solution can be limited, and therefore $b = 0$. At any level of b, we deal with some "known value" or a value that the person sincerely takes as "known" (that is, having a certain probability). An example is the "levels of difficulty" in the experiments on the levels of aspiration in Levin's school (Heckhausen, 2003, pp. 405–409), starting with the work of Levin's student, F. Hoppe, that was focused on "success" and "failure" (Hoppe, 1930).

(5) ***B = A →b*** (readiness level *B*) *is a **mental trial of strength; a setting toward the rational use of one's capabilities;** and saving effort*:
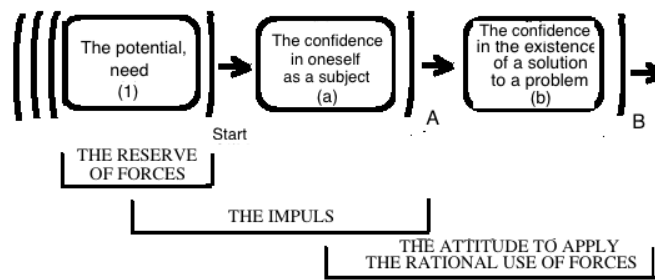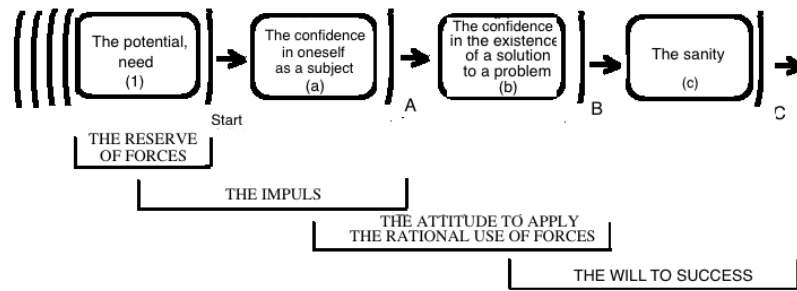
There are two possible extreme cases, the "pole of well-being" (a → b = 1) and the "pole of ill-being" (a → b = 0). Well-being can be attained in two situations: 1) the individual has either just completely "invested" in the situation and has used to obtain everything necessary for future actions (*a* = 1 and *b* = 1), or the person initially did not count on oneself and "refused all responsibility" (*a* = 0) and thus avoided a situation of a potential failure (then for any *b*, 0 → b = 1): "non-doing" eliminates the risk of defeat. *Ill-being* implies failure to believe the problem can be solved combined with a desire to solve it (for *a* = 1 and *b* = 0). This state stimulates the subject to compensatory mobilization of its own internal resources in the future. Appeal to oneself and the repetition of one's own attempts may be of unconscious nature ("determining tendencies" of N. Ach (Ach, 1910), the attitudes of D. N. Uznadze (1996), "higher automatisms" by P. Janet (1886), etc.).

(5.1) *c* – **sanity**; *the rational assessment of own prospects* (in short, *rationality*). We shall give more synonyms to the term, such as requirements to oneself, self-criticism; responsible self-control, etc. In a first-person statement, this could sound as: "I am taking responsibility onto myself". Obviously, rationality in assessing one's prospects corresponds to the "reality principle" in psychoanalysis. In the future, it would be important to find out the probable associations between this parameter of goal-setting and the "locus of control" (Rotter, 1954) and "vigilance" as interpreted by T. V. Kornilova (Kornilova, 2013), etc.

(5.2) *c′* = 1 – *c* is **belief in success** that is subject to the "pleasure principle", a irrational "addition" to sanity.

(6) *C* = *B* → *c* = (*a* → *b*) → *c* (readiness level *C*); ***"I need to do it"; volitional efforts based on requirements for oneself***; *the cost of success (costs)* **and** *the effort required to realize the desired;* "The effort that I am willing to make in order to attain the desired result":

The potential, need (1) → The confidence in oneself as a subject (a) → The confidence in the existence of a solution to a problem (b) → The sanity (c) →

Start — A — B — C

THE RESERVE OF FORCES

THE IMPULS

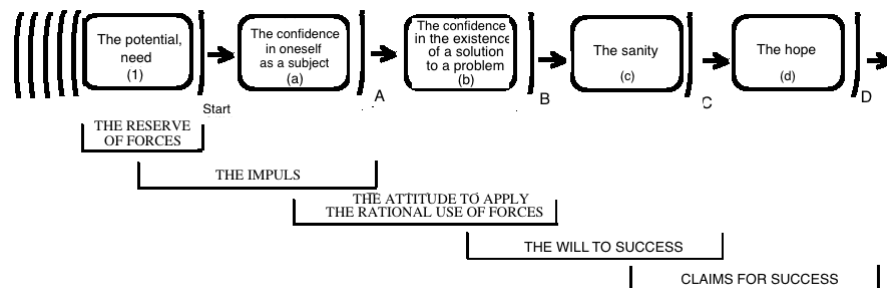THE ATTITUDE TO APPLY THE RATIONAL USE OF FORCES

THE WILL TO SUCCESS

In a similar, but somewhat different, interpretation of the symbol it is *self-control* (see Leontyev, Kifak et al., 2017).

(7.1) ***d – hope; a chance to find a solution at a given level of requirements to oneself***; surmountable barriers; unhindered progress towards the goal; the availability of an "Ariadne's clew". Hope is relevant to the *mythical environment* of designing an action. The presence of mythic layers in the minds of adult people was clearly demonstrated in the works (Subbotsky, 2010) and is supported by numerous observations of clinical psychologists who ascertain the presence of the *Child ego state* in the personality of adults (Berne and his school) (Stewart, Joines, 2012).

It has just been noted that the chance of finding a solution *d* can be dependent on C (that is, on the measure of the need for effort and requirements to oneself). It is intuitively clear that efforts can be especially necessary when the environment resists efforts, and vice versa, when the environment is pliable ("Treat them mean, keep them keen", A. Pushkin). This pattern is taken into account in the model of adaptive action (see further).

(7.2) ***d' = 1 – d, situation requirements recognized by the subject***; "noblesse oblige".

(8) $D = C \to d$ (readiness level *D*) – ***"I claim"; aspirations***:

The potential, need (1) → The confidence in oneself as a subject (a) → The confidence in the existence of a solution to a problem (b) → The sanity (c) → The hope (d) →

Start — A — B — C — D

THE RESERVE OF FORCES

THE IMPULS

THE ATTITUDE TO APPLY THE RATIONAL USE OF FORCES

THE WILL TO SUCCESS

CLAIMS FOR SUCCESS

(9.1) ***e, help***; *"support" of the environment;* it corresponds to an intuitive assessment of the availability of the necessary resources in the environment for the implementation of aspirations; etc.

(9.2) *e'*, *"challenge" from the environment, an intuitive assessment (that prompts action) of the lack of resources in the environment for the implementation of aspirations*;

It is assumed that the challenge and the support are complementary: *e' + e = 1*.

(10) **E = D → e** (readiness level E), ***"I attain"; "I am experiencing self-satisfaction as I am approaching a solution"*** (see Fig. 1).

Additionally, some combinations of the considered variables can be given quantitate and qualitative definitions (for example, *excess of energy, exceeding expectations, a sense of the efforts equaled by the result*, etc.).

We can move from the general implicative model of readiness for action to a special form of this model that we denote as the *Model of Adaptive Action* (*the Model of Adaptive Readiness*), which requires some restrictions to be imposed on the ratio of variables included in the general model.

Let us now consider in more detail what the manifestations of adaptive goal-setting in the environment are.

2. Adaptability; readiness for adaptive action

Although the concepts of "adaptation" and "adaptability" play a significant role in psychology, they are traditionally not defined. For example, there is no definition of "adaptation" in the theory of J. Piaget, although this is a central concept here (J. Flavell, 1967); the same is the case in the theory of "personal adaptations" developed by P. Ware (Ware, 1983). Dictionaries tend to offer tautological "definitions" of adaptation (adaptability), using words such as "adjustment to the environment". There are no traces of the desire to give any criteria for adaptability in the literature.

In this work "adaptability" is defined (in the context of the analysis of acts of goal-setting) as a specific characteristic of a subject's readiness to solve problems in situations of achievement. For this purpose, the concept of *the goal-oriented perspective of action* is introduced that combines different manifestations of the subject's readiness for action. Adaptability is considered as a structural characteristic of the goal-oriented perspective of action (see further for more detail in the context of the mathematical model of readiness for action).

We accept that *adaptability* in a situation of achievement is characterized by the coordinations "I want = I demand from myself (I need)", "I demand from myself = the situation requires from me", "I claim = I attain".

The necessary and sufficient signs (rules) of adaptability are presented below (in the description of the three coordinations the elements of adaptive action are marked with a subscript *a*):

(A1) A_a (an impulse, "I can and I want") = $(A_a \rightarrow b_a) \rightarrow c_a = C_a$, ("I demand from myself", the will to succeed)

(A2) C_a ("I demand from myself", the will to succeed) = d' ("the situation obliges")

(A3) D_a ("I claim") $\rightarrow e_a = D_a = E_a$ ("I attain")

The value of C_a that satisfies the characteristics (A1), (A2) and (A3) (Class A features), shall be called the *adaptation threshold*. "The adaption threshold" is the level of efforts of will ("I need", the will to succeed) that equally corresponds to the initial motivations of the subject ("I want") and the requirements of the situation that are acceptable for the subject ("the situation obliges"), that enables the subject to accomplish what he/she aspires to achieve ("I attain"). This understanding seems to us to be intuitively acceptable and, moreover, it allows us to quantify the adaptation threshold in various environments.

The distinction between the *environments* of action, the specific features of the situations of achievement, is an essential feature of the proposed model of adaptability. In one case the action takes place in a situation where the relationship between the resources of the environment (necessary for the subject to fulfill their aspirations) and the aspirations as such, is fundamentally unpredictable. In another case, the situation of achievement has a balance between the two.

3. **Environment**

In this study we focus on *the problematic environment* of the formulation and solution of intellectual tasks by the subject, rather than on the environment "in general". We hypothetically consider the "orderliness", "regularity" and "provocativeness" of the problem environment as a possible factor in setting and achieving the goals of action by the agent. Here *orderliness* means the level of complexity of the problems to be solved (according to the models of experiments in Levin's school) known to the subjects in advance; *regularity* is the expected balance between the available and absent resources for solving problems (or tasks that are said to be set before a person

by "life itself"); and *provocativeness* means here a *minimum* of resources corresponding to the subject's aspirations that allow to fulfill the requirements ("challenges") of a situation in conditions of free choice of tasks (or problems preferred by the subject that require them to be fully involved in the solution, in other words, "problems to one's taste").

We also distinguish the nature of the subject's *expectations* manifested in various environments. This is an initial idea of the complexity of the task to be solved in a *known* environment; in a *fantasy* environment, it is a belief in luck that makes up for a realistic assessment of one's own abilities; in a *hypothetical* environment it is the foreseeable requirements of the situation that give hope for a solution; and a *real* environment suggests a previously unknown nature of the requirements that is correlated with the subject's aspirations and the possible resources for their implementation. In some cases, this is one and the same environment (the case of a *provocative* environment). In other cases, the "environments" can significantly differ from each other. For example, a *known* environment gives rise to doubts about the parameters of the *real* environment: Taleb's Black Swan (Taleb, 2007) is an example of that. The objective significance of "calculations" and the subject's willingness to rely on "luck" decrease through the patterns described in the works of D. Kahneman, P. Slovik and A. Tversky (Kahneman, Slovic, Tversky, 2001).

We believe that the difference in "environments" should be reflected in the parameters of readiness for adaptive action. An analogy with Gibson's approach seems to be acceptable here (D. Gibson, 1979). Gibson's ecological theory that is focused on the processes of perception, describes the embeddedness of perception in the environment and the "direct" vision of the environment by the subject. Gibson is known to ask the question, "Why do we perceive things as they are?" And his reply is because they are what they are. When interpreting a problematic environment, we believe that a person, before "attaining" something with their decisions, conforms to the parameters of the environment that obviously applies both to perceptual processes, as in Gibson's ecological approach, and to the solution of intellectual and practical problems. At the same time, there is an inevitable reflection (a certain "inventory count" or "review") of one's own capabilities and expectations that manifest in the readiness to solve problems.

It may be assumed (although this requires additional substantiation) that the patterns of adaptability, as a result of an individual's experience), are actualized simultaneously (immediately as a whole), but do not unfold in time "element by element"; besides they, being components of the structure of readiness, are also invisible and as stable as the laws of the organization of the perceived environment discovered by Gibson (we shall take the liberty to note that this Gibsonian world is "visible", but the laws of its structuring can be seen only by Gibson and his followers).

4. **Preparedness for adaptive action in an orderly environment**

An example of an orderly environment for goal-setting is the experimental situation in the research of aspiration levels (Hoppe, 1930). Under these conditions the subjects know in advance, (from the experimenter), the level of difficulty of the tasks that should be selected and solved. Here we will be interested in the *first* choices of the subjects. According to the well-known model of "risk choice" of J. Atkinson (Atkinson, 1957; Atkinson, 1964), there should be two groups of subjects that manifest themselves in distinctly varying ways. The subjects who have the motive for achieving success dominating over the motive for avoiding failure, will choose the levels of difficulty of a problem to be solved, but if the motive for avoiding failure dominates in the subjects, they choose either very easy or very difficult tasks. Atkinson's model suggests an "approximately correct" prediction for the behavior of people in a situation of free choice of problems. Many researchers are known to have tried to get more accurate predictions (see Heckhausen, 2003). The real stumbling block was that subjects motivated by success rather than by failure, prefer not the *average* levels of difficulty of problems (0.5), as predicted by Atkinson's model, but *increased* levels of difficulty of problems with the probability of solving in the interval *(0.3 – 0.4);* accordingly, the difficulty of the selected tasks is in the interval *(0.6 – 0.7).* Various researchers proposed changes in order to explain the facts of deviation of the choices from the calculated average value; the rich history of the alterations is set forth in the aforementioned monograph of Heckhausen.

The proposed model of goal-setting contains a different way of dividing the two groups. In addition to the features (A1), (A2) and (A3) common to all adaptive actions in all environments, we add a general feature (B) expressed by four features that indicate the mutual complementarity of the goal-oriented trend *X* and the resource *y* in each fragment of the goal-oriented perspective *(X → y),* which means *y = 1– X.* These features are interconnected by recursion:

(B1) $A_a \rightarrow b_a = A_a \rightarrow (1 - A_a) = 1 - A_a{}^2 = B_a$

(B2) $B_a \rightarrow c_a = B_a \rightarrow (1 - B_a) = 1 - B_a{}^2 = C_a$

(B3) $C_a \rightarrow d_a = C_a \rightarrow (1 - C_a) = 1 - C_a{}^2 = D_a$

(B4) $D_a \rightarrow e_a = D_a \rightarrow (1 - e_a) = 1 - e_a{}^2 = E_a$

The features (B1), (B2), (B3) and (B4) are determined by the specifics of an ordered goal-setting environment, when b (the level of availability of the selected task), d' (recognized requirements of the situation) and e' (expected requirements of the environment) may be known in advance. In this case, in accordance with the features (A1), (A2) and (A3), there are equalities: $(A \to b) \to c = A = C$ ("I want" = will to succeed), $A = d'$ (will to succeed = "the situation requires"), $D \to e = D = E$ ("I claim" = "I attain", "I am experiencing self-satisfaction as I am anticipating a solution").

By first defining A_a ("I want"), we easily complete the goal-oriented perspective in all other fragments. Due to (A1) and (B1), $(A_a \to b_a) \to c_a = A_a \to (1 - A_a) = A_a.$ Through the necessary transformations we arrive at the equality: $A_a^4 - 2A_a^2 + A_a = 0$. We find three real roots of this equation: $A_{a1} \approx 0.618$; $A_{a2} = 1$; $A_{a3} = 00$. Now, relying on the "successors" (B2), (B3) and (B4), we can define three variants of adaptive goal-setting in an environment ordered by difficulty:

(1) $(0 \to 1) \to 0) \to 1) \to 0 = 0$

(2) $(1 \to 0) \to 1) \to 0) \to 1 = 1$

(3) $(0.618 \to 0.382) \to 0.382) \to 0.382) \to 0.382 = 0.618$

As we can see, the proposed theoretical model enables the interpretation of the division of subjects in Hoppe's experiments into those who choose ultra-easy (1) and super-difficult (2) tasks, on the one hand, and those who choose tasks of increased difficulty (3), which corresponds to the "golden section", 0.618.

5. Readiness for adaptive action in a regular environment

This is about situations of accomplishment "on a case-by-case basis", when it is not known in advance what "challenges" (e'_a) and "support" (e_a) the subject will face, realizing their aspirations in the environment (D_a), or, in other words, to what extent the subject's claims will be justified by what the situation will demand from them and what the necessary resources are (although, as a rule, usually, that is in many life situations a person achieves what they claim). It is essential that in this trend a person achieves what they aspire for in a variety of life situations. In addition, it is natural to accept that, when a person is adapting to numerous life situations, they

confirm their ability to cope with them, as is attested many times the person will solve the problem (and can rely on themselves and their abilities). It is precisely this state of affairs that is typical of situations in everyday life for solving problems "that we face in life".

So, we accept two assumptions, one of which comes from the concept of a pro and contra balance of possible "pluses" and "minuses" of resolving the situation, and the other from the idea that good events anticipated come true in everyday life:

(B1) $e'_a = e = ½$ (the concept of balance)

(B2) c'_a (anticipation of success) $\rightarrow c_a$ (sanity) $= c_a'$ (optimism of expectations).

Let us calculate what the aspirations (D_a) should be ("*the situation obliges*" = *d'*) so that they are adequately implemented in a regular environment.

According to the previously accepted condition A3 ("I attain what I claim") and B1 (the concept of balance), we have D_a (*aspirations*) $\rightarrow ½$ (*support of environment*) = E (*achievement*) (=D_a). Here *aspirations = achievements*, from which it follows that D_a (*aspirations*) = 0.666… $\approx$ 0.667.

Based on B2 (optimism of expectations), we calculate the level of *anticipated success*: c'_a (*anticipation of success*) $\rightarrow c_a$ (sanity) $= c_a'$ (*confirmation of faith*). Since $c_a = 1 - c_a'$ (5.2), we have: $c_a' \rightarrow (1 - c_a') = c_a'$, which implies that $c_a' \approx 0.618$ and, therefore, c_a (sanity) ≈ 0.382.

Now we can calculate *C (expected requirements of the situation)*. According to (A2), they are equal to the *will to succeed*: C = (a $\rightarrow$ b) $\rightarrow$ c, and the will to succeed (according to A1) is equal to the *desire* ("*I want*"): (a $\rightarrow$ b) $\rightarrow$ c = a. Since *the expected requirements of the situation are equal to the aspirations ($C_a = D_a$ = 0.667)*, then in the end we have: *a $\rightarrow$ 0.382 = (a $\rightarrow$ b) $\rightarrow$ c = C = D = 0.667 (requirements of the situation = I claim)*, which implies a ("*I want*") *= 0.577* and, accordingly, C ("*I claim*") = *0.577*.

Now we can calculate b_a (confidence that a solution exists). Based on (A1: "*I want*" = the *will to succeed*) and the just calculated c_a (= 0.382) (*hope*), we have: $(0.577 \rightarrow b_a) \rightarrow 0.382 = 0.577$, from which it follows that b_a (confidence that a solution exists) = 0.453.

Thus, the required goal-oriented perspective of adaptive action in *a regular environment* is:

$$(((0.577 \rightarrow 0.453) \rightarrow 0.382) \rightarrow 0.423) \rightarrow 0.5 \approx 0.667 \text{ (“I attain”)} \tag{0.2}$$

The threshold of adaptation and, accordingly, the goal-oriented perspective of adaptive action in a provocative environment are different.

6. Readiness for adaptive action in a provocative environment

This is about an environment that encourages achievement. The resources in a provocative environment (as in the first of those considered) that are expected to be supplied by the environment (support of environment), according to (A3), also provide the subject with the opportunity to fully realize their aspirations as D_a *(aspirations)* $\rightarrow e_a$ *(support of environment)* = D_a *(=E_a, self-satisfaction)*.

One more condition is accepted that is called the "rule of opposition". It suggests that *aspirations* (D) fulfilled in a provocative environment, meet *challenges* of the environment:

(C1) D_a *(aspirations)* = $e_a' = 1 - e_a$ ("challenge" from the situation), or $e_a = 1 - D_a$

Through the comparison of (A3) and (C1), we have: D_a *(aspirations)* = $e_a' = D_a \rightarrow (1 - D_a) = D_a$, from which it follows that D_a *(I claim)*) ≈ 0.618 (which corresponds to the "golden ratio", $D_a^2 + D_a = 1$).

Evidently, a person can realize higher aspirations in a provocative environment than a regular environment could prompt them to do ($D_a = 0.618 \gg 0.5$), and at the same time the person has less support than in everyday life ($e_{\text{provoc}} = 0382 \ll 0.5$)). Thus, it is an environment that prompts achievement (hence the term "provocative environment").

Now the value of C_a can be calculated (will to succeed) and, accordingly, A_a (I want), and d_a (hope): D_a *(I claim)* = $C_a \rightarrow d_a = C_a \rightarrow (1 - C_a) = 1 - C_a^2 = 0.618$, from which follows C_a *(requirement for oneself)* = *0.618*, and therefore $D_a = C_a \rightarrow d_a = 0.618 \rightarrow d_a = 0.618$, hence $d_a = 0.382$. Further, according to (A1), we have: A_a *(I want)* = C_a *(will to succeed)* ≈ 0.618.

Now it is necessary to determine the level of simulated efforts B ($= 0.618 \rightarrow b_a$) ("mental trial of strength"). We accept the *assumption* that refers to the principle of functioning of the subject of adaptive action, this time in a provocative environment. We will assume that in this case, at the start of an activity, a person cannot know in advance whether their experience of action will be successful or not (that is, the probability of success is equal to the probability of failure, $p_+ = p_- = 1/2$); however, we assume that the effort simulated by the subject is expectedly adaptive, which means the following:

(C2) B_a (*simulated effort*) $\rightarrow$ ½ (*probability of a positive outcome*) $= B_a$ ("*the estimation is justified*").

As a result, we have $B_a \rightarrow ½ = (0.618 \rightarrow b_a) \rightarrow ½ = (0.618 \rightarrow b_a)$, from which it follows that $0.618 \rightarrow b_a \approx 0.667$ and further b_a (*a priori estimate of the attainability of success*) ≈ 0.461.

Based on (A1), $(0.617 \rightarrow 0.461) \rightarrow c_a = 0.618$, and therefore c_a (*sanity*) $= 0.427$.

Accordingly, the goal-oriented perspective of adaptive action in a *provocative environment* appears as follows:

$(((0.618 \rightarrow 0.461) \rightarrow 0.427) \rightarrow 0.382) \rightarrow 0.382 (= 0.618). (0.3)$

Thus, we have deductively come to the idea of the existence of the **constants of adaptive action** in an ordinary environment and provocative environment, (0.2) and (0.3).

It remains to check to what extent the proposed theoretical model is supported by empirical data. Our *general hypothesis* is that the empirical means that characterize the goal-oriented perspective of action correspond to the parameters of the theoretical model of adaptive action.

7. **Methods and main results of the research**

The method of personal possibleness by V. A. Petrovsky (2010, pp. 402-404) was used in the study. We proceeded from the distinction between ordinary and provocative environments in the construction of the research methodology.

It is assumed that the *ordinary environment* is associated with situations of problem solving by a person in a variety of situations of their daily life. On average, we can accept the condition, $e = e' = ½$, that is typical for an ordinary environment of goal-setting (according to condition B1). Such tasks, in general, are called "**problems of the day**."

A different category of problems corresponds to a *provocative environment*. These are tasks that a person independently sets for themselves (or, being inspired by "problems of the day", he/she begins to see their own interest in them); the tasks fully meet the person's inclinations and interests. We accept that, as a rule, the need to use environmental resources in these tasks fully meets the requirements of the *subject*, while what the *subject* claims is embodied, $D = E$. We call these tasks "problems to one's taste".

The methodology of V. A. Petrovsky includes two questionnaires related to the situations of the "problem of the day" and the "problem to one's taste". From the content point of view, the questionnaires are identical to each other. The difference lies only in the instructions offered to the person before filling them in. In one case, it is emphasized that this is an interesting task chosen independently, and in the other case it is an everyday task that "life itself" sets for people.

At the beginning of the questionnaire, there is a general question: "How often, when solving such problems, do you…?", which is followed by eight statements that reflect the frequency of experiences and thoughts associated with solving such a problem; the response of a subject is marked on the "rarely–often" scale. When processing the responses, the beginning of the scale (the leftmost point) is given a value of 0%, and the end of the scale (the rightmost point) is set to 100% (intermediate values are calculated proportionally).

The statements are constructed so that they have three elements of possibleness encrypted in them: the impulse ("I can solve it and I want to solve it"), the "confidence in the existence of a solution" and the "irrational belief in success". Possible manifestations of each of the elements are the presence or the absence. Each of the elements is represented by a positive (presence) or a negative (absence) pole; the presence or absence is marked, respectively, by the attributable values of 1 and 0.

It is assumed that the level of manifestation of these elements in a problem situation is determined by the frequency of their presence in the mind (see the detailed description of the technique in the paper, Leontyev, D. A., Kifak, L. S., et al., 2017).

The element A of the goal-oriented perspective of action, "I want", is characterized by how often the subject is inclined to take active action leading to a solution, which corresponds to the average frequency of the states "in spite of", "hope springs eternal", "forget your doubts", "forward to victory"; *the attainability of success (b)* is determined by how often the subjects experience the feeling that "there are keys at the end of the textbook", "it will solve itself", "forget your doubts", "forward to victory" (the more often such feelings arise, the more likely the subject believes in the existence of a solution); the *belief in success* (c') is described by the average

frequency of experiencing such states as "hit or miss", "it will solve itself", "seek and ye shall find", "forward to victory" *sanity* (*c*) is determined by the frequency of $1 - c'$.

The research was organized and the results were presented by the author (Petrovsky, 2013) and E. V. Doroshenko, Master of the Department of Personality Psychology at the Higher School of Economics (Doroshenko, 2018). The methodology was presented in hard copy (the research by V. A. Petrovsky) and electronically as an online survey (E. V. Doroshenko). A total of 153 people took part in the study. The average age of respondents was 26 years.

The *general hypothesis* was that the empirical means that characterize the goal-oriented perspective of action correspond to the parameters of the theoretical model of adaptive action; it is assumed that this is equally true for the "problem of the day" and the "problem to one's taste" situations.

There is only one empirical hypothesis-consequence of this general hypothesis in this study: it designates the possible consistency/inconsistency of the parameters *A* ("I want"), *b* (confidence in the existence of a solution) and *c* (sanity), on the one hand, and the average values of the corresponding values of the participants of the experimental sample (bearing in mind the amounts of these values, we shall in the future refer to "the average representative of the sample", while being aware of the conditionality of this expression).

It is assumed that in the average representative of the sample the ***empirically recorded*** indicators "*I want*" (to solve the problem) (*A*), *confidence in the existence of a solution* (*b*) and *sanity* (*c*) (a critical assessment of personal capabilities) statistically coincide with the parameters of the goal-oriented perspective of the **theoretical model** of adaptive action, A_a, b_a и c_a

In addition, there was an assessment of the statement within the theoretical model of adaptive action that the empirically documented and calculated goal-oriented prospects of action for the "average representative" of the sample were determined by the type of the subjective organization of the environment.

Let us compare the parameters of the theoretical model of adaptive action, on the one hand, and the empirical data (as well as its combinations), on the other (see Table 1 and Table 2).

Tab. 1. The results of testing the empirical hypothesis for the "problem of the day"

	"I want"	The attainability of a solution	Sanity

Elements of the goal perspective **(empirical average)**	0.581	0.468	0.396
Elements of the goal perspective : **parameters of the theoretical model**	0.577	0.453	0.382
Differences	0.004	0.015	0.014
The significant differences *p (N=156)*	0.618	0.468	0.078
Cohen's coefficient *d (N=156)*	0.040	0.183	0.143

So, the results of the empirical research confirm the hypothesis put forward: the indicators of intentions, of the subjective possibility of a solution and those of sanity (averaged over the sample), as well as the estimated (according them) indicators of attitudes, the necessary efforts, aspirations and achievements fully correspond to the parameters of the theoretical model. The results found, being anticipated, may even exceed the experimenters' expectations: the average of the sample represented by the polygon in the figure, is almost indistinguishable from the corresponding elements of the theoretical model (see Figure 2).
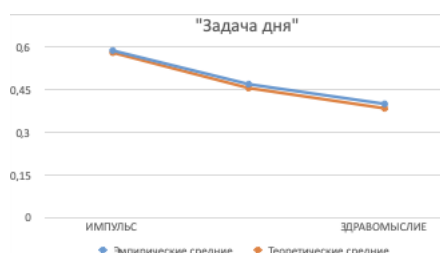
Figure 2. Comparison of the values average for the sample and the theoretical values of the goal-oriented perspective of adaptive action in the "problem of the day".

There is a no less accurate correspondence that can be traced in the "problem to one's taste" situation (p-level$\gg$0.05; Cohen's $d \ll$ 0.2) (see Table 2).

Tab. 2. The results of testing the empirical hypothesis for the "problem to one's taste".

	"I want"	The attainability of a solution	Sanity
Elements of the goal perspective **(empirical average)**	0.603	0.470	0.427
Elements of the goal perspective : **parameters of the theoretical model**	0.618	0.461	0.427
Differences	- 0.015	0.009	0
The significant differences **p** *(N=156)*	0.065	0.057	0.995
Cohen's coefficient **d** *(N=156)*	0.150	0.154	0.004

Figure 3 gives an idea of the accuracy of the expected fit of the two pictures of adaptability (one based on empirical research and the other presented in the theoretical model). The empirical and theoretical values merge in some fragments of the goal-oriented perspective.

Figure 3. Comparison of the values average for the sample and the theoretical values of the goal-oriented perspective of adaptive action in the "problem to one's taste".

It is important to emphasize that other hypothetical values of the parameters of adaptive action (attitude, effort, hope, aspirations and self-satisfaction) are calculated based on the empirical values of the "I want" (impulse), "the problem can be solved" (confidence in the existence of a solution) and the "critical view of oneself" (sanity). The comparison of these values *deduced* from the axioms is not of special interest (see Note 12), although the empirical data is in fact such that the coincidence with the theoretical parameters is not accidental: Cohen's $0.063 \leq d \leq 0.174$ (for the "problem of the day") and Cohen's $0.015 \leq d \leq 0.179$. Additional studies are needed to confirm the correspondence of the calculated values determined by the fractal model, on the one hand, and the empirical data that corresponds to the psychological meaning of the model elements, on the other.

Thus, in general, the hypothesis of the "adaptability of the majority" is confirmed; at the same time, there are differences in the goal-oriented perspectives of action in the "problem of the day" and "problem to one's taste" situations (see Table 1 and Table 2, as well as Figure 2 and Figure 3; these differences that are obvious "by sight" can be easily statistically established).

The above confirms the possibility of qualifying theoretically selected elements and fragments of the goal-oriented action perspective as *constants of the subject's adaptability in the environment*.

Considering goal-setting, it is convenient to use the record *<1, a, b, c, d, e>*, with the traditional use of angle parenthesis in this case to denote a sequence of a finite number of elements. This record or, in terms of mathematics, "tuple", we "fill" with the adaptability constants determined as a result of the research. We shall call this tuple the ***pattern of adaptability in the environment***.

In *an ordered environment*, patterns of adaptability have three forms:

a) $<1_{start}; 1_a; 0_b; 1_c; 0_d; 0_e>$,
b) $<1_{start}; 0_a; 1_b; 0_c; 1_d; 1_e>$,
c) $<1_{start}; 0.618_a; 0.382_b; 0.618c; 0_d; 0_e>$.

In *a regular environment*, the pattern of adaptability is:

$<1_{start}; 0.577_a; 0.453_b; 0.382_c; 0.423_d; 0.5_e>$

In *a provocative environment*, the pattern of adaptability is:

$\langle 1_{start}; 0.618_a; 0.461_b; 0.427_c; 0.382_d; 0.382_e \rangle$

Conclusions

1. In formal terms the fractal model of goal-setting is represented by a sequence of symbols, *the goal-oriented perspective of action:*

$$((((((1)_{Start} \rightarrow a)_A \rightarrow b)_B \rightarrow c)_C \rightarrow d)_D \rightarrow e)_E$$

The symbol $(1)_{Start}$ corresponds to the full scope of capabilities to solve a problem ("reserve of forces") and yet the need to attain; *a* is confidence in oneself as a subject of future decisions; *b* is confidence in the existence of a solution to the problem; *c* is sanity (a sense of reality in the perception of one's own ability to solve a problem); *d* corresponds to hope; *e* is "support" (the subjective sufficiency of resources) of the environment.

The "$\rightarrow$" symbol corresponds to the implication operator defined by the equality $x \rightarrow y = 1 - x + xy$, где $x, y \in [0, 1]$.

The symbol *A* corresponds to the levels of possibleness: "*I want*" ("impulse", the feeling of empowerment and the desire to solve the problem); B, *a mental trial of strength; a setting toward the rational use of one's capabilities;* C, *"I need to do it"; volitional efforts based on requirements for oneself;* D, *"I claim" (aspirations);* and E, *"I attain"; "I am experiencing self-satisfaction as I am anticipating a solution".*

3. We assume that *adaptability* in a situation of achievement possesses the coordinations "*I want = I demand from myself", "I demand from myself (I need) = the situation requires from me", and "I claim = I attain".*

4. Three types of adaptive goal-setting environments are described: ordered, regular and provocative environments. *Orderliness* of an environment means a level of complexity of the problems to be solved known to the subjects in advance (similarly to the experiments exploring levels of aspirations). In *a regular environment* the subject's aspirations and the necessary resources are connected in an arbitrary, previously unpredictable way. In *a provocative environment*, aspirations and "challenges" of the environment are equal.

5. The numerical solutions of the equations that describe elements and fragments of the goal-oriented perspectives of adaptive action in the three considered environments have been determined, with their tuple forming the *patterns of adaptability*.

In *an ordered environment*, patterns of adaptability have three forms:

a) $<1_{start}; 1_a; 0_b; 1_c; 0_d; 0_e>$,

b) $<1_{start}; 0_a; 1_b; 0_c; 1_d; 1_e>$,

c) $<1_{start}; 0.618_a; 0.382_b; 0.618c; 0_d; 0_e>$.

In *a regular environment*, the pattern of adaptability is:

$<1_{start}; 0.577_a; 0.453_b; 0.382_c; 0.423_d; 0.5_e>$

In *a provocative environment*, it is:

$<1_{start}; 0.618_a; 0.461_b; 0.427_c; 0.382_d; 0.382_e>$.

6. The implementation of the method of personal possibleness (developed by V. A. Petrovsky, 2002) that includes the distinction between three goal-setting environments represented in the questionnaires by the "problem of the day" and the "problem to one's taste" situations, enabled the confirmation of the hypothesis of the adaptability of "the majority": the subjects (on average in the sample) adhere to the adaptive goal-setting strategy: the *averaged empirically recorded* indicators of the desire to solve a problem, the confidence in the existence of a solution, and sanity statistically coincide with the elements of the goal-oriented perspective in the *theoretical model* of adaptive action, a_a, b_a, c_a

7. The numerical values for patterns of adaptiveness in the environment that were theoretically defined and empirically estimated can work as "starting points" in establishing the relationship of adaptability/non-adaptability to other personality variables (tendency towards risk taking, creativity, life well-being, motivation, communication styles, self-awareness features, behavior deviations and others). This forms prospects for further research on the processes and effects of the subject's goal-setting.

10. **Discussion**

When we talk about the constants of adaptability, the existence of which is confirmed by the "adaptability of the majority", we do not assert that every individual "adapts". In fact, we adhere to the exact opposite version, as we assume that the "constants of adaptability" are nothing more than *conditional trajectories* of goal-setting of an *abstract* ("average") person; real individuals are "transgressors" of these constants. They "rise" above the requirements of the situation (Petrovsky, 2010).

Going beyond the given can have the character of "soft non-adaptability" as it is fully consistent with the values of society, which, unlike norms, do not require a person to have a certain attitude or behavior in the world. For example, "joie de vivre" and "high achievements" are welcomed, but optional, and the lack of joy and achievements is not disapproved by society.

From this point of view, they represent the facts of "soft" non-adaptability that were obtained in a joint study with a group of co-researchers (Leontiev, Kifak et al. 2017). In particular, it was shown that there is a significant positive correlation between such indicators of an individual's activity as "supra-situational intentions" (the prevalence of the "I want" over "the situation requires"), on the one hand, and "life satisfaction" (according to Diener, Emmons et al., 1984), as well as "self-efficacy" (according to the scale in Schwarzer, Jerusalem, Romek, 1996), on the other; respectively, $r = 0.455, p < 0.01;$ and $r = 0.399, p < 0.01$). In other words, "being adaptive" (while embodying the features of an "average" person") does not make people happier.

No less interesting and valuable for us are the phenomena of "acute" non-adaptability (in our works it is called *active non-adaptability*) that have been studied by the author since the beginning of the 1970s (Petrovsky, 1971) and were summarized in books (Petrovsky, 2010; 2013) and subsequent publications by the author. The idea of the phenomenon of active non-adaptability is that subjects are motivated by setting a goal that threatens frustration in the event of an error, and they are motivated by the very opportunity to take risks regardless of the pragmatic value of the result of self-trial ("risk for the sake of risk"). Indirectly, the benefit of active non-adaptability (as a condition for experiencing success as such, rather than just a balance between the desirable and the necessary), is evidenced, for example, by significant *negative correlations* between sanity and life satisfaction: the *lower* the levels of sanity, the *higher* the levels of life satisfaction in the subjects; for different problems they are r = - 0.377 ("problem of the day"), p < 0.000, and r = - 0.353, p < 0.001 ("problem to one's taste") (Leontyev, Kifak et al., 2017).

In the last 20 years, studies of the positive aspects of non-adaptability have been based on mathematical models of generating action, and now, based on the patterns of adaptability,

"constants of adaptability", we can determine the *measure* of non-adaptability of subjects and possible interrelationships between non-adaptability and other manifestations of activity, such as "risk-taking" and creativity (Kozeletsky, 1979; Kahneman, Slovik, Tversky, 2005; Petrovsky, 1971; 2010; 2013; Druzhinin, 1995, Bogoyavlenskaya, 1983; Kornilova, 1994, etc.), subject-genesis (Ognev, 1997), actual genesis of sense formation and goal formation in thinking (Babaeva, Berezanskaya, Vasiliev, Voiskunsky, Kornilova, 2008), creativity in children (Kudryavtsev, 2008), financial solvency (Doroshenko, 2018; Doroshenko, Petrovsky, 2018), the ratio of the subjective and objective difficulties in life situations (Bityutskaya, Petrovsky, 2016), "defense mechanisms", "coping" and "coping behavior" (Petrovsky, Shmelev, 2019), self-regulation (Konopkin, 1995; Morosanova, 1998); conscious and unconscious representations of the personality in the dimension of "possibilities" (Starovoitenko, 2018), redundancy in the formulation of problems (Velichkovsky, Krotkova, Sharaev & Ushakov, 2017; Ognev, Petrovsky, Likhacheva, 2018).

Quoting, after A. G. Asmolov (Asmolov, et al., 2017), the words of Gilles Deleuze (Deleuze, 1998, p. 302) and paraphrasing them, we should say that we still do not know "what individual differences are capable of", and "we still do not know where they can lead in combination with natural selection"; in our context, such selection is performed by patterns of adaptability in goal-setting and through the "norm" of the subject's aspirations being relevant to conditions of their realization in the environment. Meanwhile, individuality (while manifesting itself in non-adaptability) determines going beyond the limits of a set course, the "*pre-adaptation to uncertainty*" (A. G. Asmolov et al., 2017) and "active non-adaptability" (Petrovsky, 1976; Petrovsky, 2013).

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Vadim A. Petrovsky

National Research University. Higher School of Economics. Faculty of Social Sciences. Department of Psychology. Center for Fundamental and Advisory Personology. Professor;

E-mail: vpetrovsky@hse.ru