



Goal-Setting as a Metacognitive Ability of Personality

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Abstract

The relevance of the problem is due to the search for a holistic systemic education that underlies the personality's ability to set goals. The purpose of the article is to describe metacognitive ability of a person, combining integrative qualities and "secondary" psychological processes of a person. The leading approach and methodological basis for the study is the concept of a psychological system of activity with an invariant structure, and metacognitism as a branch of modern theoretical psychology. The empirical part of the study describes the development of metacognitive ability of a person to set goals using a diagnostic transformational game. The materials of the article can be applied for systems assessing the metacognitive ability of a person to set goals and for the formation of correctional programs or metacognitive trainings.

Keywords: Goal-Setting, Metacognitive Ability, Secondary Psychological Processes, Diagnostic Transformational Game, Goal-Setting Strategies.

1 Introduction

The study of goal-setting as a metacognitive ability of an individual has a number of methodological prerequisites.

First, it is the concept of the psychological system of a person's professional activity in terms of determining the content of the component structure of the metacognitive ability to set goals (21, 26). Secondly, it is the development of metacognitivism which explores integrative processes and personality traits: creativity, intelligence, reflexivity and others (9). The central construct of metacognitivism is metacognitive processes. They are aimed at their own content of the psyche, therefore, they are "secondary" processes. The range of metacognitive formations is constantly expanding. Metacognitive qualities are investigated together with metacognitive processes (2, 5, 7, 13, 19).

Abilities (personality traits) and metacognitive processes are in fact closely interconnected and naturally interact with each other, forming metacognitive abilities. There are no experimental studies of metacognitive processes and abilities

relation (8). It determines the relevance of studying goal-setting as a metacognitive personality trait.

Goal-setting as an ability or personality traits has been studies in various psychological directions.

- Methodological principles of building goal-oriented systems, based on the meta-ability of person's goal-setting have been defined (1).

- A number of leading psychological concepts have identified components of goal-setting in the invariant structure of activity (3, 21).

- Secondary psychological processes of self-regulation and reflection of the personality in goal-setting have been described (10, 14, 18).

- Rules of formation of secondary mental processes and metacognitive abilities of a person have been stated (9).

Goal-setting is a metacognitive ability of a person, formed by the interaction of person's metacognitive qualities (will, independence, reliability and others) and secondary mental processes (motivation, reflection, self-regulation). Its function is to maintain the context of the goal in consciousness - its

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content, situational determination (correlation with internal and external conditions), regulation of the internal balance of achievement and self-determination criteria in relation to one's own life. That is, goal-setting is a secondary process in relation to achievement. Secondary processes are complex and aimed to organize, coordinate, regulate the content and functional dynamics of person's internal mental processes. Goal-setting is a high-order psychological process. Goal-setting is difficult to operationalize due to complex organization of meta-ability. It is especially difficult to fix the transition point of the operational metacognitive ability of goal-setting to the operational meta-ability of activity - goal achievement.

Goal achievement is associated with the organization and implementation of an activity program (selection of means, indicators, evaluation criteria). It is decision enactment, a characteristic of the subject of activity, focused on parameters "goal-result", "goal-achievement" and formation of intentions to fulfill the program.

The study of goal-setting as meta-ability is more complex and more relevant for psychological science.

The study aims:

- to define the invariant structure of the metacognitive ability to set goals, which is, according to V.D. Shadrikov, isomorphic to the components of the structure of the activity system (21);
- to describe interaction of indicators of the structural components of the goal-setting ability as secondary processes and personality traits;
- to give an empirical characteristic of the metacognitive ability of goal-setting;
- to identify empirical types of strategies for manifesting the goal-setting ability.

2 Materials and Methods

The purpose of the empirical research is to study the metacognitive ability of goal-setting of unemployed citizens and undergraduate students of technical faculties who are making a vital choice - setting life and professional goals.

100 people - 50 students and 50 unemployed (22-56 years old) took part in the experiment. The average age of the respondents was 20 years old among students and 35 years old among unemployed.

The methodological apparatus for studying the goal-setting structure includes the following psychodiagnostic techniques:

– *questionnaire "Style of behavior self-regulation with a reliability scale"* by V.I. Morosanova for diagnosing the degree of development of conscious self-regulation and its individual profiles. The questionnaire consists of 52 statements, which are part of 8 scales of planning, modeling, programming, evaluation of results with regulatory and personal properties of flexibility, independence, reliability. At the same time, the questionnaire contains a generalized indicator characterizing the process of self-regulation in general - the general level of self-regulation (18).

– *questionnaire "Diagnosis of person's volitional qualities"* by M.V. Chumakov (4) for diagnosing manifestation of emotional and volitional qualities of a person. The aim of the methodology is to evaluate the degree of

development of emotional-volitional regulation, which is a base for overcoming difficulties and obstacles in achieving the goal through the coordinated work of volitional and emotional regulatory processes. The questionnaire consists of 78 statements which are part of 9 scales: responsibility, initiative, determination, independence, endurance, will, energy, attentiveness, determination;

– *questionnaire "Differential type of reflection"* by D.A. Leontiev for diagnosing the type of reflection as a stable personality trait. The questionnaire consists of 30 statements, rated on a 4-point Likert scale. Statements are grouped into three scales that do not have common points: introspection associated with focusing on one's own state, one's own experiences; systemic reflection associated with self-distance and looking at oneself from the side which allows to simultaneously cover the subject and the object; quasi-reflection related to the separation from the actual situation of being in the world and aimed at an object that is not related to the actual life situation (16, 24, 25);

– *test "Motivational Profile"* by S. Richie consists of 12 scales: reward; working conditions; structuring work; social contacts; relationship; confession; achievement; influence and power; diversity; creativity; development; demand. The test makes it possible to quantify the relative importance of these needs for a particular person and graphically present his motivational profile in goal-setting (20, 27);

– *multidimensional professional psychological personality test (MPPLT)* by A.V. Sidorenkov aims to research and evaluate professional-personal qualities. This technique allows diagnosing first-order parameters: motivation of approval, motivation to achieve a goal / success, responsibility - irresponsibility, practicality - dreaminess, orientation towards the future - situation, orientation towards formal - informal communication, self-confidence - uncertainty, prosocial - asocial normativity, social and psychological stability - instability, emotional stability - instability, social thinking, objective thinking (22, 28).

– *diagnostic transformational psychological games "Master of the Goal" and "Goal"* (17) are aimed to identify conditions for the implementation of the metacognitive ability to set goals. The objectives of the games are: to form a personal goal, taking into account the potential capabilities of the participant and his willingness to realize these opportunities in a game format; to determine the hierarchy of components of the goal-setting structure. The game "Master of the Goal" has five levels: blocking (bodily, behavioral, emotional, mental, evaluative); motivational "needs", strong-willed "unexpectedness", program "way", reflective "assembly". Effectiveness, efficiency, satisfaction with the result as a ratio of the criteria for the parameters of the goal were also fixed. An empirical study was in group form (17). The transformational game "Goal" means a detailed formulation and verification of the subject's goals for vitality and reachability.

The mechanics of transformational games is a combination of random and "regular" methods of modeling the flow of events, which makes them an ideal random generator. As a process, it is a dynamic projection of participants in the interaction of external, gaming "uncertainty" and internal uncertainty of the participants within the framework of their

real, significant goals of everyday life. Their achievement (as a process and as a result) in the game is metaphorical, but the process activates familiar models, including assessments and unconscious reactions. It allows the participant to discover problem areas and find solutions. As a technique, a transformational game is a system of organizing the game process and accompanying participants to achieve methodological goals. It has following functions: motivational, diagnostic, research, educational, developing, transformative, integrative;

– test “*Catching the Ruler*” by S.A. Dumanin (6) is aimed to diagnose sensorimotor readiness, the ability to quickly respond to various signals, to rebuild forms of motor actions in accordance with changing external conditions.

A statistical analysis of the results of an empirical study was carried out in the SPSS 15 software environment (TrialVersion) using the following methods:

- Pearson correlation analysis;
- exploratory factor analysis by the method of principal components using Varimax rotation;
- confirmatory factor analysis.

Let us consider the results of the study.

3 Results

The goal-setting structure was described in the context of the characteristics of the psychological system of activity, which has an invariant and isomorphic content of components. According to V.D. Shadrikov, each functional block within the psychological system of activity has the same functional components, but specific content (21).

Motivational goal-setting block. Motivation determines and encourages the subject to set the goal. Motives give the goal-setting process an orientation, turning it into a reality that exists in the consciousness of the subject, and make it possible to determine the nature of the content of the goal.

The goal setting block contains the definition of specific parameters for the formation of the goal: specificity, measurability, reachability, relevance, limited time. The more clearly the goal is described, the easier it is to measure and understand how to achieve it.

The informational basis of goal-setting is determined by the analysis of the current situation conditions, sources of information, typical cognitive strategies that a subject can use to set a goal and determine its criteria.

The functional block of the goal-setting activity program determines what the subject must do to achieve the set goal, the steps that must be taken to achieve it. Having a clear step-by-step plan makes the goal achievement process a technical procedure.

Decision making in the goal-setting activity can be expressed in the choice of a conscious alternative, fixing the goal as a starting point for the beginning of active actions.

The block of the subsystem of individually significant qualities necessary to achieve the goal includes behavioral and personality traits that can help to achieve the goal and the resources that the subject can rely on. Such qualities may be:

- functional sets of individual qualities that are significant for the formulation and achievement of the goal;

– development of individual important qualities in achieving the goal, which will be used in the future;

– systemic manifestation of important individual qualities of achieving a goal.

These significant qualities include the ability to set goals, which has the following characteristics:

– it is a basic ability as goal-setting is a component of any activity, and, therefore, any activity cannot be successful without a developed ability to set goals;

– it provides effective solution when there is multiple choice;

– provides the generation and selection of goals, regardless of their scale, focus, nature;

– it characterizes a person as a subject of activity and it is one of the components of indicators of subjectivity as an integral ability to build life in accordance with their own goals and values;

– it determines the effectiveness of building an individual way of life.

During activity, abilities lead to a qualitative change of the subsequent one, that is, they regulate the activity and change its substantial characteristic.

Goal-setting as an ability fulfills the role of an organizing link when the components of the activity functionally serve the main purpose of the whole system. Thus, goal-setting is a complexly organized system that requires analysis of the interaction of all components.

The interaction of indicators of structural components of the goal-setting ability as secondary processes and personality traits is described on the basis of a correlation analysis of empirical data of diagnostic results of unemployed. According to the connections between the components, the structure of the goal-setting ability has six levels. The metacognitive ability of goal-setting is isomorphic to the components of the activity system and is represented by following levels: goal, emotional-reflexive, operational-informational, program-transformational, motivational-reflexive and regulatory-volitional.

In order to statistically confirm the assumption of a complex interaction of system components (processes and qualities), the authors used the factor analysis method which allowed to single out the content of each level of system development. Table 1 presents results of factor analysis of unemployed citizens for whom the goal-setting ability is vital due to life circumstances and job search.

Factor 1 is represented by the following indicators: general level of self-regulation (0.884), purposefulness (0.770), modeling (0.715), motivation to achieve (0.706), energy (0.704), reliability (0.660), flexibility (0.655), self-confidence (0.649), initiative (0.641), will (0.600), planning (0.545), evaluation of results (0.540), responsibility (0.521), independence (0.514), attentiveness (0.512), determination (0.481), self-control (0.442). As we can see, factor 1 is positive, it includes only positive factor loadings.

The leading indicator of factor 1 is the "general level of self-regulation", which means a willingness to regulate, adjust own actions in setting and formulating goals. According to the correlation analysis, there are significant direct relationships between the general level of self-regulation and other indicators of the first factor.

Table 1: Matrix of factor loadings after a Varimax rotation

Factors					
1	2	3	4	5	6
General level of self-regulation 0,884	Motivation of stability 0,593	Initiative -0,635	Motivation of approval -0,533	Emotional stability 0,573	Situation orientation -0,527
Purposefulness 0,770	Need to develop -0,564	Need for demand 0,619	Result satisfaction 0,502	Introspection 0,477	Dreaminess -0,496
Modeling 0,715	Need for structuring 0,546	Need for reward 0,568	Need for relations -0,494	"Assembly" (reflection) 0,447	Need for structuring 0,482
Motivation to achieve 0,706	Emotional block 0,521	Attentiveness 0,542	Mental block -0,438	Good working conditions -0,428	Social thinking -0,475
Energy 0,704	Need for power -0,507	Good working conditions 0,493	Systemic reflection -0,424	Need for social contacts -0,420	Sensorimotor readiness 0,462
Reliability 0,660	Quasi-reflection -0,483	Need for diversity 0,459	Social intolerance -0,411	Behavioral block 0,363	
Flexibility 0,655	Need to create -0,450	Responsibility 0,436	Need for demand -0,406		
Self-confidence 0,649	Effectiveness 0,427	Need for recognition 0,410	Need to achieve goals -0,406		
Initiative 0,641	Subject thinking 0,412				
Will 0,600	Performance -0,391				
Planning 0,545	Energy -0,399				
Evaluation of results 0,540					
Responsibility 0,521					
Independence 0,514					
Attentiveness 0,512					
Determination 0,481					
Self-control 0,442					

So, the general level of self-regulation is associated with modeling ($r=0,771$, $p\leq 0,01$), programming ($r=0,760$, $p\leq 0,01$), flexibility ($r=0,702$, $p\leq 0,01$), reliability ($r=0,726$, $p\leq 0,01$), energy ($r=0,617$, $p\leq 0,01$), purposefulness ($r=0,629$, $p\leq 0,01$), motivation to achieve ($r=0,511$, $p\leq 0,01$), self-confidence ($r=0,575$, $p\leq 0,01$). Taking into account all indicators, we have:

- all factor indicators are aimed at goal setting, goal modeling, forecasting the probability of its achievement, the formation of energy potential for its achievement, which means the formed goal-setting activity and multidimensional internal elaboration of the goal formulation process;
- the goal-setting strategy is built primarily due to the rational evaluation of alternatives, enumerating options, choosing the most reliable option, self-regulation, will, which ensure the reliability of goal-setting;
- with such features of goal-setting, the subject most likely uses each goal as a step towards the formulation of new goals. As for characteristics of the unemployed, respondents with similar characteristics are ready to start their professional

path since the beginning, manifesting themselves and gaining the authority necessary to obtain a higher status and position subsequently.

So, the cognitive act is the focus of indicators of the first factor. We define this level of goal setting as a secondary *regulatory-volitional process*.

Factor 2 is represented by the following indicators: motivation of stability (0.593), need for a clear structuring of work (0.546), emotional block (0.521), efficiency (0.427), subject thinking (0.412), need for diversity (-0.564), need for power (-0.507), quasi-reflection (-0.483), need to create (-0.450), energy (-0.399), effectiveness (-0.391). As we can see, factor 2 is bipolar, since it includes both positive and negative factor loadings. The division into positive and negative loadings does not contain any estimation, but shows opposite sides.

According to the correlation analysis, there is a moderate inverse relationship between motivation in long-term stable relationships and motivation in diversity ($r = -0,430$, $p\leq 0,05$),

a direct relationship between motivation in long-term stable relationships and emotional block ($r=0,460$, $p\leq 0,05$), motivation in diversity and motivation in creativity ($r=0,526$, $p\leq 0,01$). There is a significant inverse relationship between motivation in a clear structuring of work and motivation in power ($r = - 0,544$, $p\leq 0,01$), motivation in diversity ($r = - 0,525$, $p\leq 0,01$), motivation in creativity ($r = - 0,412$, $p\leq 0,05$).

These indicators mean the following:

- unemployed people are looking for work with clear structuring, feedback and information on the performed activities, without uncertainty, rules and directives how to do;
- unemployed people avoid work that requires power, will, desire for competition, constant changes, various tasks, being always happy, open to new ideas and thinking outside the box;
- unemployed citizens are characterized by a narrow functional vision of professional activity, simplified representation of professional demands, doing simple easy tasks;
- a subject with similar features is more interested in the process of setting goals, analyzing the smallest details, digging in oneself, but there is no stage of active realization of goals. Wish for stability and certainty does not contribute to the development of goal-setting and the transition to goal-achievement.

Therefore, there is every reason to determine this level of goal-setting ability as a secondary *motivational-reflexive process*.

Factor 3 is represented by the following indicators: need for demanded useful work (0.619), motivation in high wages (0.568), attentiveness (0.542), motivation for good working conditions (0.493), motivation in diversity (0.459), need for recognition (0.410), responsibility (0.436), initiative (-0.635). According to the correlation analysis, there is a significant inverse relationship between initiative and motivation for good working conditions ($r = - 0,411$, $p\leq 0,05$) and a direct relationship between motivation in demanded useful work and motivation in diversity ($r=0,417$, $p\leq 0,05$).

The obtained indicators show a low degree of awareness of strategies that would satisfy the need for diversity, good working conditions and demanded useful work, since unemployed people have a passive position and do not want to change the situation. They believe that they are limited in finding a job: a lack of jobs, unsuccessful interviews, and disbelief in their own professional abilities, social exclusion. Therefore, according to the analysis, we can interpret this level of goal-setting described by the indicators of the third factor as *program-transformational*. Reliability of goal-setting should increase due to this level. However, among the unemployed goal-setting loses its reliability due to the lack of formation of the secondary program-transformation process.

Factor 4 is represented by the following indicators: satisfaction with the result (0.502), need for approval (-0.533), motivation in long-term stable relationships (-0.494), mental block (-0.438), systemic reflection (-0.424), social intolerance

(-0.411)), motivation in demanding, useful work (-0.406), motivation in setting complex goals (-0.406).

According to the correlation analysis, there is an inverse relationship between satisfaction with the result and block at the level of thoughts ($r = - 0,412$, $p\leq 0,05$), between need for approval and motivation in setting complex goals ($r = - 0,408$, $p\leq 0,05$). The data obtained indicate a focus on the satisfaction of the result and the rejection of awareness of their activities. With such peculiarities of the subject's goal-setting, the goal looks like desire, fixation on the result, but it is not connected with the developed process of setting the goal and transition to goal-achievement. The operational system of personality traits does not become operational due to the lack of the ability to implement. Therefore, according to the analysis, we can interpret this level of goal setting described by the indicators of the fourth factor as *operational-informational*.

Factor 5 is represented by the following indicators: emotional stability (0.573), introspection (0.477), "assembly" (reflection) (0.447), evaluating block (-0.594), need for good working conditions (-0.428), motivation in social contacts (-0.420), behavioral block (0.363). According to the correlation analysis, there is a direct significant relationship between emotional stability and introspection ($r=0,633$, $p\leq 0,01$).

These indicators mean:

- emotional stability is aimed to maintain the balance of the inner world;
- reflection is introspective;
- goal-setting is carried out in isolation from the context of the real situation;
- a person can turn into a closed psychological system, there is no interaction with the external environment (social exclusion).

Therefore, there is every reason to determine the level of goal-setting, described by the indicators of the fifth factor, as a secondary *emotional-reflective process*.

Factor 6 is represented by the following indicators: motivation in a clear structuring of work (0.482), sensorimotor readiness (0.462), long-term orientation (-0.527), dreaminess (0.496), social thinking (-0.475), motivation in setting complex goals (-0.450). The results of the correlation analysis showed the presence of a direct significant relationship between the orientation to the situation and low social thinking ($r=0,529$, $p\leq 0,01$), which is close to the manifestation of social exclusion. It leads to the degradation of the content of the goal. The factor is called the "*target*" regression.

Thus, the psychological structure of the metacognitive ability to set goals has a structure that is invariant to the structure of the psychological system of activity. It presents all the components and its qualitative manifestations.

Figure1 "Psychological secondary processes and metacognition of metacognitive goal-setting ability of unemployed people" presents interpretation of empirical data.

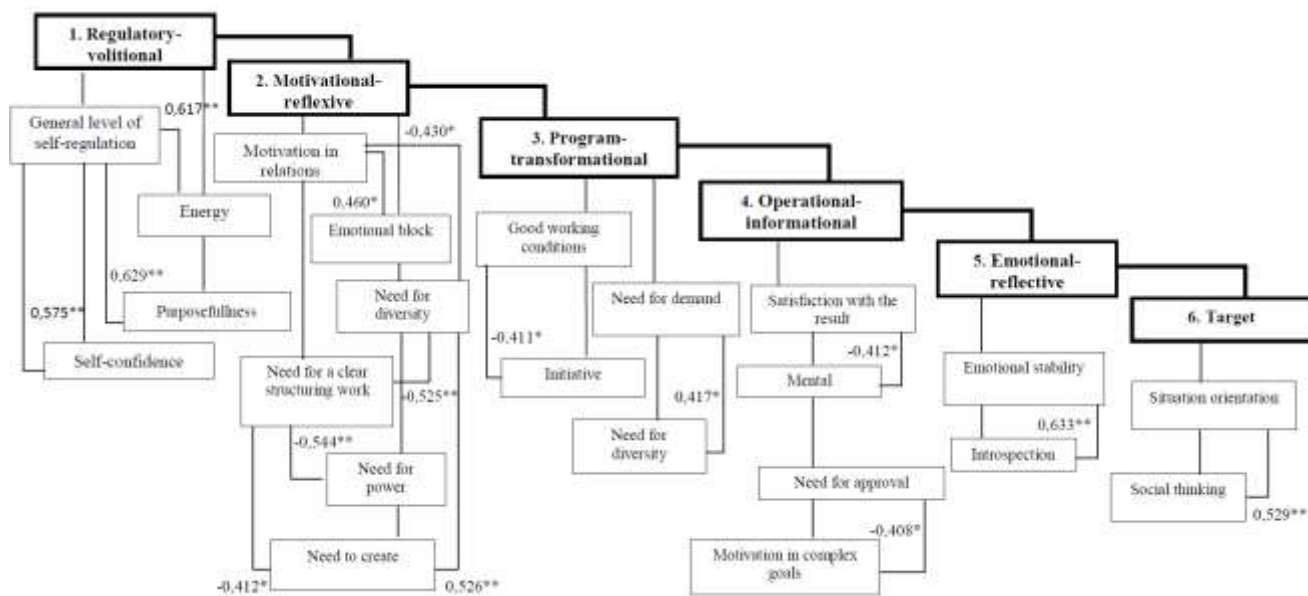


Figure 1: Psychological secondary processes and metacognition of metacognitive goal-setting ability of unemployed people

The psychological structure of the metacognitive ability of goal-setting process of unemployed people has its own development logic, where mechanisms of the goal-setting ability disappear and can create conditions for a psychological facilitation of a person in the process of finding a job.

Psychological strategies for regulating goal setting can be defined on students who are also searching for a job.

The authors used the exploratory factor analysis and a method for identifying the main components in order to analyze the manifestation of students' metacognitive ability to set goals. For a differential analysis of the goal-setting structure, the sample of students was "split" according to the criterion of achieving the goal, which was measured in the transformational game methodology "Goal" (17). Two unique structures for regulating the goal-setting ability were obtained.

The group of students who "have not reached" the goal has a six-factor structure of goal setting regulation, which is represented by six types of students.

"Ambitious" students have the potential for professional development, but low motivation to achieve the goal, unwillingness to take responsibility and the lack of reflective mechanisms, which together means doubt in the success of professional activities. They strive for a certain educational and career benefit, but at the same time, they are completely unable to correlate the external and internal parameters of a given goal.

"Performers" are characterized by discipline and responsibility. They are able to qualitatively and professionally realize their goals only in the context of the usual stable activities. Non-standard conditions are difficult for them, and therefore they are not able to adequately respond to the versatility and uncertainty of their professional goals.

"Team workers" are characterized by a focus on social interaction, which is also a destabilizing factor. Perhaps they are focused on supporting the group or team and are able to get involved in the work only with social approval. The motivation

for achievement will decrease in proportion to the interest of the professional group.

"Contradictory" students are deprived of independence and initiative. The dominant of the external over the internal is observed, which prevents to fully model their activities, replacing their own interests and goals with random ones.

"Weak-willed" students are characterized by low development of skills of self-regulation, will and reflection. It is difficult for such people to generate and achieve their goals, because they are more interested in the surrounding reality, they do not seek to achieve great results in professional activities.

"Smart" students are deeply in a specific area of technical skills. Intellectual motivation is important to them, so they are only interested in what they are interested in, where they can satisfy their professional curiosity. They are not interested in a career, a high salary and complex goals.

The group of students who "have achieved the goal" has an eight-factor structure, which indicates a more complicated model of regulating goal setting in professional activities. Successful students use a wider range of strategies in the process of regulation and reflection in goal setting.

"Independent" students have a high level of development of self-regulation skills, which gives a conscious character to their activity. The volitional mechanism of independence acts as a system-forming component, which allows students to mobilize their full potential in the process of achieving goals. Students who are able to withstand external obstacles in achieving goals have motivation to achieve the goal. Comparing with the levels of goal-setting discussed above, the regulatory-volitional level of goal-setting clearly dominates here.

"Professional" is characterized by developed systemic reflection and self-regulation which allows to perform work efficiently and effectively. Goal-setting is at the regulatory-volitional and motivational-reflective levels.

“Decisive” students use volitional mechanism, decisiveness in achieving the goal. Such people are more active, persistent and confident in setting and achieving goals, relying on the program-transformational and operational-transformational levels of goal-setting.

“Successful” students are characterized by an orientation towards obtaining high results and overcoming difficulties. Their activity is focused on satisfying material needs, but thanks to responsibility, such employees bring high profit and benefit to themselves and organization. Apparently, goal-setting is based on the motivational-reflexive, program-transformational and operational-informational levels.

“Straight-forwarding” students are uncritical of various situations and persistently pursue their goals. When setting goals, the operational-informational level clearly dominates.

“Reflexive” students have systemic reflection as a dominant component, which allows to see the situation from all sides, including the pole of the object and the pole of the subject. Here emotional-reflective level of goal setting is dominant.

“Motivated” students are characterized by high motivation in wages and responsibility, which determines success in achieving goals. This type of students is able to adjust the algorithm of actions depending on external conditions due to the high level of general self-regulation. Therefore, the prevailing level is motivational-reflective.

“Cautious” students first analyze the situation in order to avoid unpleasant things, which allows to adjust the activity to obtain the greatest success. These features mean the reflective component prevails in goal setting.

So, the authors come to the following conclusions according to theoretical and empirical data.

The metacognitive ability of goal-setting is a complex psychological formation that arises from the interaction of person’s metacognitive qualities (will, independence, reliability, etc.) and secondary mental processes (motivation, reflection, self-regulation). The metacognitive ability of goal-setting is represented by a system of secondary processes aimed to organize and maintain consciousness of the context of the goal and its content, situational determination (correlation with internal and external conditions), regulation of the internal balance of achievement and self-determination criteria in relation to one’s own life. That is, goal-setting is secondary process in relation to goal achievement.

According to V.D. Shadrikov, the invariant structure of the metacognitive ability of goal-setting is determined and is isomorphic to the components of the structure of the activity system (21).

The interaction of indicators of the structural components of the goal-setting ability as secondary processes and personality traits is represented by the system of the following secondary processes that are relevant for goal-setting: regulatory-volitional; motivational-reflexive; program-transformational; operational-informational; emotional-reflective and target.

The dominance of structural blocks in the goal-setting of the subject is expressed in the manifestation of typical goal-setting strategies.

4 Discussion and Conclusion

The analysis of goal-setting as a metacognitive ability of a personality is carried out in modern psychological theory in fragmentary form. Goal setting is often studied as an independent phenomenon outside the context of the activity system which leads to blurring of the boundaries of the subject area (23). For example, only separate characteristics of goal-setting (will or motivation to achieve) are described (11, 12, 15).

A.V. Karpov considers goal setting as a metacognitive process of personality more constructively. In his study of metacognitive processes, he states methodological prerequisites for the conceptualization of goal-setting as a metacognitive ability of a person in solving life problems (8).

The study identifies and describes person’s metacognitive ability to set goals as an interconnection of secondary processes of personality and meta-qualities that determine goal setting strategies.

An important result of the research is the structure of the metacognitive ability of goal-setting, which makes it possible to predict the success of person’s decision-making in various areas of life, including professional. The idea of goal-setting as a metacognitive ability provides the basis for building corrective work systems to prevent social exclusion of a person. Practical conclusions of this research can be the basis for the development of metacognitive trainings on the goal-setting of a person, the conceptualization of the subject area of goal-setting as a metacognitive ability of a person.

5 Recommendations

In the course of the study, the following theoretical and empirical problems were solved. The authors have defined and described invariant structure of the metacognitive goal-setting ability. Its components are isomorphic to the components of the structure of the activity system. They are: goal, motives, decision-making, information basis of the activity, program and professionally important personality traits. Based on empirical data, the authors characterize the interaction of indicators of the structural components of the goal-setting ability as secondary processes and personality qualities. It is presented in the table and figure. The authors give an empirical characteristic of the metacognitive ability of goal-setting of unemployed people and students engaged in professional self-determination. The description reflects the specifics of the manifestation and types of strategies for the metacognitive goal-setting ability. The materials of the research can be used for the conceptual design of complex decisions on the implementation of programs of professional demand; for the development of new interactive formats of psychological assistance to people focused on self-determination and the formation of meta-ability of goal-setting. The results of an empirical study can be used in methodological recommendations and trainings on professional success, overcoming crises of social and professional implementation. The research can be continued searching for the invariant structure of the metacognitive ability of the individual. The description of the metacognitive ability of goal-setting of the system of secondary processes and personality traits makes it possible to fully understand and develop this phenomenon taking into account the dynamics of its components and relationships between them.

Ethical issue

Authors are aware of, and comply with, best practice in publication ethics specifically with regard to authorship (avoidance of guest authorship), dual submission, manipulation of figures, competing interests and compliance with policies on research ethics. Authors adhere to publication requirements that submitted work is original and has not been published elsewhere in any language.

Competing interests

The authors declare that there is no conflict of interest that would prejudice the impartiality of this scientific work.

Authors' contribution

All authors of this study have a complete contribution for data collection, data analyses and manuscript writing.

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