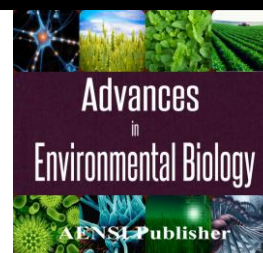




AENSI Journals

## Advances in Environmental Biology

ISSN-1995-0756 EISSN-1998-1066

Journal home page: <http://www.aensiweb.com/AEB/>

## Mental State Image of People with Various Poles of Cognitive Styles

Lira Vladimirovna Artishcheva

Kazan (Privolzhsky) federal university, Russia, 420100, Kazan, Kremlevskaya Street,18

### ARTICLE INFO

#### Article history:

Received 25 May 2014

Received in revised form

12 June 2014

Accepted 25 June 2014

Available online 15 July 2014

#### Keywords:

Mental state image, cognitive styles, temporary continuum.

### ABSTRACT

Interrelation of mental state image with personality's cognitive styles is considered in this article. Concepts "mental state image" and "cognitive styles" are revealed in a theoretical review. It has been found out that testees' mental state images with different poles of cognitive styles demonstrate definite dynamics and specifics in the expressiveness of indicators, i.e. in the intensity. There have been revealed substructures which are considered leading in testees' mental state images with different style poles. The significance of mental state image distinctions between adjacent poles of cognitive styles has been defined. It has been found that state images of all testees' groups are steady in a temporary continuum.

© 2014 AENSI Publisher All rights reserved.

**To Cite This Article:** Lira Vladimirovna Artishcheva., Mental State Image of People with Various Poles of Cognitive Styles. *Adv. Environ. Biol.*, 8(13), 349-353, 2014

Mental state image is understood as a sensual image that is seen as the reflection of situations, events, experiences in person's consciousness, and at the same time as a mental image which is a bearer or a form of internal representation, allowing to transform information about experienced states [1,2]. It is formed as a result of person's experience of a specific state [3,4]. A.O. Prokhorov defines mental state image as the complex of perceptual characteristics that reflect in the form of structured combination psychological, somatic, behavioural and other indicators of a subject presented in consciousness, isomorphic to an experienced mental state [5].

For the first time mental state image began to be studied within the frames of L.G. Dikaya and A. O. Prokhorov's models of state self-regulation. The results of researches showed that state image is one of the major psychic formations, it possesses complex structure, multidimensionality, polyfunctionality, it interacts with other functional systems. Being a complete and multicomponent formation, it produces a regulating impact on subject's mental states, behavior and activity [6].

Regulating complexes are built according to a person's ability to integrate sensations, representations, and feelings into personally significant state images. The representation of a required positive state increases belief in success, self-confidence, improves physiological characteristics [8].

The level of image formation impacts its reflected state isomorphism. Impressions, perception processes, representations participate in the course of mental state image formation and fixing; subjective experience is a key component. On the one hand, actual image formation takes place under the influence of experience structures, i.e. it bears their elements in itself, on the other hand, image itself is a structural element of experience, it enriches it in the course of person's life activity [9,10]. State image formation can be understood as gaining experience. Recognizing that image is a cognitive product, result and process of reflection which is formed in mental space and possesses subjectivity, then there arises a question about internal personal mechanisms promoting its formation. What else, except personal, semantic, situational, and age peculiarities can influence the formation of mental state image? It is known that all levels of reflection penetrate cognitive styles - individual ways of information processing. They are the criterion of preferences for the creation of the image of the world, self-image and image of other people, cognitive image [11-13]. Considering mental states as the object of knowledge, it is possible to say that cognitive styles also take part in mental state image formation.

Cognitive styles, being a personality characteristic, are not only determined by features of subjective experience organization, but they also influence individual distinctions in perception, they adjust the behaviour of cognitive processes which the formation of mental state images can be referred to [14]. Expressiveness of these or those cognitive styles testifies to the availability of unique individual specific mechanisms of its intellectual activity regulation "inside" individual's experience [11]. Cognitive styles allow to describe more precisely regularities and features of a personality psychological development, and also mechanisms of its integrity, as styles are found between its procedural and structural, cognitive and motivational aspects [14,15].

**Corresponding Author:** Lira Vladimirovna Artishcheva, Kazan (Privolzhsky) federal university, Russia, 420100, Kazan, Kremlevskaya Street,18

Cognitive styles are individual original ways of information processing about environment in the form of individual differences of perception, analysis, structuring, categorization, events' estimation [11].

According to these representations we have conducted the research to study the interrelation of mental state image and personality cognitive styles.

#### Methodology:

Research was aimed to reveal phenomenological and structural features of state images of testees that have various ways of information processing, i.e. cognitive styles; a temporary continuum "past-present-future" was taken into consideration.

93 students took part in the research. On the first day testees estimated the actual mental state that they were experiencing at present sampling time; there was applied the technique "The mental state relief", developed by A. O. Prokhorov. The technique includes 40 indicators studying the main aspects of mental state: psychical processes, physiological reactions, experiences and behavior. Representations of mental states and their main components as hierarchical structure make the basis of the technique.

Individual work was carried out at subsequent meetings with each testee. The following poles of cognitive styles were studied: Impulsiveness – reflexivity (technique "Comparison of similar drawings" J. Kagan); Field-dependence – field-independence (technique "Gottschaldt's figures"); Wide – narrow range of equivalence (technique "Free sorting of objects"); Verbal – sensory-perceptual way of information processing (technique of a verbal-color interference which is also known as Stroop Test, Stroop Task).

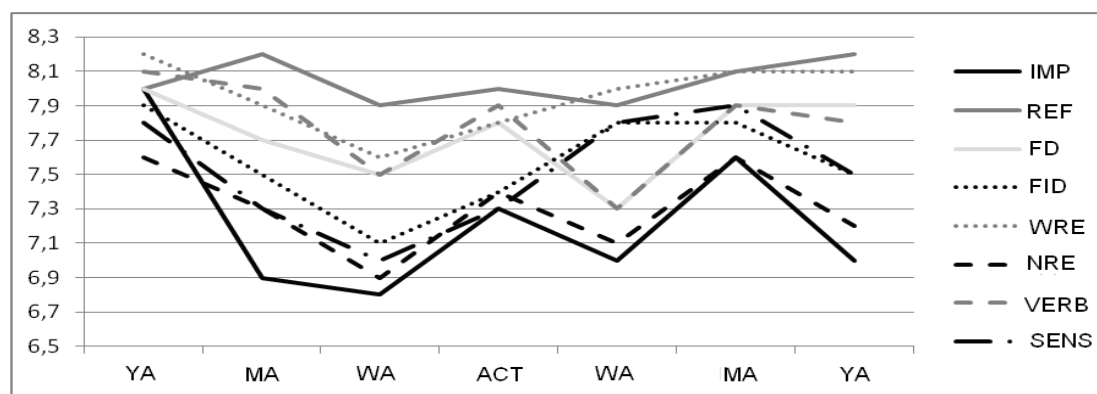
The obtained data analysis included: comparison of indicators' expressiveness degree on average arithmetic, on the coefficient of indicator variability; comparative analysis of indicators' expressiveness.

The coefficient of indicators' variation was calculated with SPSS-16 program application.

Comparison of temporal series of state image indicators was carried out with the application of nonparametric statistics "Criterion of signs" [16].

#### Results:

Let us consider a complete picture of testees' mental state image specifics according to the expressiveness of this or that cognitive style in a temporary continuum "past-present-future", reflected in figure 1. For this purpose we calculated average values of forty indicators for each group of testees according to style criteria in each temporal span.



Symbols: IMP – Impulsive, REF – Reflexive, FD – Field-dependent, FID – Field-independent, WRE - Wide range of equivalence, NRE - narrow range of equivalence, VERB – Verbal way of information processing, SENS - sensory-perceptual way of information processing. YA – a year ago, MA – a month ago, WA – a week ago, ACT – actual, WA – a week ahead, MA – a month ahead, Y – a year ahead.

**Fig. 1:** Complete picture of objective data.

Testees' state images with studied poles of cognitive styles have different expressiveness in time.

Let us analyze groups of testees with poles *reflexivity – impulsiveness* in a temporary continuum. State images of reflexive testees show the greatest intensity of their characteristics; they have less expressiveness in state images of impulsive testees. Thus in the section *a year ago* testees' state images of each group tend to bring together their values and to increase their intensity.

Further we will consider testees' state images with the cognitive style *field-dependence-field-independence*. Field-dependent testees, unlike field-independent, have high intensity of state images in sections of past and in actual time. In the continuum "future time" state images of field-dependent and field-independent demonstrate interchange of their characteristics' expressiveness. So, field-dependent testees have a more intensive presentation of remote future state image (a month ahead, a year ahead) than field-independent testees.

Let us analyze testees' state images with a **wide and narrow range of equivalence**. It should be noted that state images of both groups achieve the smallest intensity in the section *a week ago*. Thus in the whole temporary continuum testees' state images with a wide range of equivalence are characterized by the greatest intensity.

Let us consider the expressiveness of state images characteristic for testees with **sensory-perceptual and verbal way of information processing**. Testees' state images with verbal way of information processing differ by the greatest intensity in actual time and in past spans. Interchange of intensity growth of state images is observed in the spans of future. So, for example, testees' state image with sensory-perceptual way of information processing achieves the greatest intensity in the span *a week ahead*, and testees' state images with verbal way of information processing – in the span *a year ahead*, and in the span *a month ahead* image intensity is leveled.

The comparative analysis according to Criterion of signs has been applied to detect distinctive features (data are reflected in table 2). Let us analyze further expressiveness of differences between state images of adjacent groups of testees: *field-dependent – field-independent, impulsive – reflexive, verbal – sensory-perceptual way of information processing, narrow – wide range of equivalence*.

**Table 2:** General picture of differences of mental state images in a temporary continuum "past-present-future" (Criterion of signs).

p	YA	MA	WA	ACT	WA	MA	YA
FD - FID	---	0,05	0,001	0,001	-0,01	---	0,01
IMP - REFL	---	-0,001	-0,001	-0,001	-0,001	-0,001	-0,001
VERB - SENS	---	---	0,01	0,01	-0,01	---	0,05
NRE - WRE	-0,001	-0,001	-0,001	-0,01	-0,01	-0,01	-0,001

Symbols: YA – a year ago, MA – a month ago, WA – a week ago, ACT – actual, WA – a week ahead, MA – a month ahead, Y – a year ahead.

FD – Field-dependent, FID – Field-independent, REF – Reflexiveness, IMP – Impulsiveness, NRE - narrow range of equivalence, WRE - Wide range of equivalence, SENS - sensory-perceptual way of information processing, VERB – Verbal way of information processing,

The image of **field-dependent** testees is more intensive than the image of field-independent ones, and only in the section *a week ahead* a converse tendency is registered. It was found that in the sections of past there is the same number of distinctions between images as in the sections of future. The state image of **reflexive** testees is more expressed ( $p \geq 0.001$ ) than the image of **impulsive** ones, in all sections but *a year ago* the distinctions have not been revealed. The significance value of distinctions is higher in the sections of past and in actual time. The state images of testees with **sensory-perceptual** way of information processing is more expressed than state images of testees with **verbal** way of information processing, in the sections *a week ago, actual time, a year ahead*, a converse tendency has been revealed in the section *a week ahead*. Distinctions have not been revealed in other time intervals. In the group of testees with **narrow and wide range of equivalence** the latter has the most expressed state images within entire time continuum ( $p \geq 0.01, p \geq 0.001$ ).

To identify the level of state images variability/stability there has been calculated the coefficient of average value variation of forty indicators from the technique "The mental state relief" to consider the integral picture of images. All calculations have been conducted for each group of testees and with due account for a temporary continuum (table 3).

**Table 3:** General picture of mental state image variation coefficient.

	YA	MA	WA	ACT	WA	MA	YA
IMP	19,4	20,8	26,2	22,1	24,1	22,9	26,8
REF	20,7	19,1	21	24,1	18,7	21,6	23,3
FD	25,9	24,2	27,1	28,5	27,4	26,8	26,7
FID	20,6	19,3	22,6	21,7	11,4	12,2	19,6
WRE	21,4	19,3	22,4	24,9	12,7	15,1	15,2
NRE	24,3	23,6	27,1	25,2	24,8	24,2	29,6
VERB	17,6	13,6	19,3	17,7	19	15,7	17,1
SENS	26,5	26,1	28,6	29,7	19,6	22,7	27,1

Note: all values in the table are expressed in percentage.

Symbols: YA – a year ago, MA – a month ago, WA – a week ago, ACT – actual, WA – a week ahead, MA – a month ahead, Y – a year ahead.

IMP – Impulsive, REF – Reflexive, FD – Field-dependent, FID – Field-independent, WRE - Wide range of equivalence, NRE - narrow range of equivalence, VERB – Verbal way of information processing, SENS - sensory-perceptual way of information processing.

Mental state images of testees' each group in a temporary continuum demonstrate the stability of its structure (variation coefficient is no more than 33%). Let us compare in which group of testees, the state image is steadier along adjacent poles of cognitive styles. So, there has been specified a general tendency for poles *field-dependence – field-independence, wide - narrow range of equivalence, verbal – sensory-perceptual way of information processing* – a high stability of one of the poles is preserved within the entire temporary continuum. So, in groups of testees with *a narrow range of equivalence, with sensory-perceptual way of information processing and field-dependent* the state image is less steady, i.e. it is more variable than in groups with

corresponding adjacent poles. Groups of testees with poles *impulsiveness – reflexivity* have another picture. The state image of *impulsive* testees is steadier only in sections *a year ago, actual time*.

#### Discussion:

The question of the problem of the image of mental state has been put in the work of our scientists [3,4,17,18], which marked the regulatory role of image of mental states. It was noted that the construction regulatory complex depend on the representation of the image of mental state in the mind. Further studies showed that the formation of the image of mental states can be understood as the acquisition of subjective experience, image of mental states has different characteristics, including mental [19].

The cognitive aspect of forming mental images of a person Richardson T.E. noted in his works. He revealed that the creation, experience and changing of images depends on the coordinated work of mechanisms, structures and processes of the brain. Other studies have shown that the image of mental states of persons with a wide range of equivalence has the greatest intensity and smooth dynamics, in contrast to the image of mental states of persons with a narrow range of equivalence [19]. This study revealed the existence of differences in the structure and dynamics of image of mental states, depending on the poles of cognitive styles.

#### Conclusions:

1. State images of testees with various poles of cognitive styles demonstrate specified dynamics and particular characteristics of indicators expressiveness, i.e. intensity. State images of *field-dependent, reflexive* testees with a *wide range of equivalence, with verbal way of information processing* achieve the greatest intensity in the intervals of past and actual time. Testees with a *wide range of equivalence, with sensory-perceptual way of information processing, reflexive, field-independent* have the greatest intensity of state images in sections of future. The growth of state image intensity is reached due to the intensity of various substructures.
2. State images generally demonstrate distinctions in the closest borders of past and future (actual time, week and monthly intervals) in all groups of testees. The more intensive state image characterizes the following testees: *field-dependent, reflexive, with verbal way of information processing, with a wide range of equivalence*.
3. Mental state images of all groups of testees on adjacent poles of cognitive styles within the entire temporary continuum are steady.

In **conclusion**, our study confirms the impact of cognitive structures on the formation of image of mental states, expands the understanding of the mechanisms of formation, changes of image of mental state. But remain undisclosed number of questions about the structural features of image of mental states, depending on the cognitive styles. In particular, what characteristics of the image of mental states correlate with cognitive styles and what characteristics are structure.

#### REFERENCES

- [1] Leont'yev, A.N., 1983. Selectas psychological works. Pedagogics, Moscow, 1: 320.
- [2] Richardson, T.E.J., 2006. Mental images: Cognitive approach. Kogito-Centre, Moscow, pp: 175.
- [3] Artishcheva, L.V., 2011. Comparative characteristics of subjective mental states images: "past", "present", "future". Scientific notes of the Kazan university, 153(5): 17-24.
- [4] Artishcheva, L.V., 2014. Mental characteristics of psychic states images within the temporal continuum "past-present-future". Middle-East Journal of Scientific Research, 20(12): 1755-1760. DOI:10.5829/idosi.mejsr.2014.20.12.21087.
- [5] Prokhorov, A.O., 2011. Mental state image. Psychology of mental states. Collected works. Kazan. Publ., 8: 6-14.
- [6] Dikaya, L.G., 2004. The system-activity concept of individual's psycho-physiological state self-regulation. Psychology of states. Chrestomathy. Rech', St. Petersburg, pp: 483-495.
- [7] Dikaya, L.G., V.V. Semikin, 1991. The regulating role of functional state image in experimental conditions of activity. Psikhol. Zh., 1: 55-65.
- [8] Prokhorov, A.O., 2005. Functional structures and means of mental state self-regulation. Psikhol.Zhurnal, 2: 69-79.
- [9] Gostev, A.A., 2007. Psychology of secondary image. Institute of psychology of the Russian Academy of Sciences. Moscow, pp: 512.
- [10] Neisser, U., 1981. Cognition and reality. Principles and implications of cognitive psychology. Progress, Moscow, pp: 204.
- [11] Kholodnaya, M.A., 2004. Cognitive styles. About the nature of individual mind. Piter, St. Petersburg, pp: 384.
- [12] Shkuratova, I.P., 1994. Cognitive style and communication. Rostov pedagogical university, Rostov-on-Don, pp: 156.
- [13] Allakhverdov, V.M., 2006. Cognitive styles in contours of cognition process. Cognitive styles, 17-20.

- [14] Shkuratova, I.P., 2004. Cognitive styles as personality perception regulators of the world. First Russian Conference on Cognitive Science, Kazan, KSU, pp: 256-257.
- [15] Clauss, G., 1978. Zur Psychologie Kognitiver Stile. Neue entwicklungen in grehzbereich vonallgemeiner und personlich- keitpsychologie. Zur psychologischen personlichkeits for- schung. Berlin, N1: 122-140.
- [16] Zaytsev, G.N., 1973. Technique of biometric calculations. Mathematical statistics in experimental botany. Nauka (Science), Moscow, pp: 256.
- [17] Prokhorov, A.O., 2004. Systemic-functional model of regulation of mental states. Psychology of states. Chrestomathy. Rech' (Speech), St. Petersburg, pp: 496-512.
- [18] Prokhorov, A.O., 2012. The image of the mental state: phenomenological features. Questions of social psychology. Collection of scientific papers, 8(13): 39-51.
- [19] Artishcheva, L.V., 2014. Temporal features of the image of mental state of the subjects with a wide and a narrow range of equivalence. Education and self-development, 1(39): 38-44.