Thinking Style as a Factor of Variable Cognitive Education

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\textbf{Abstract}

The article considers thinking style as a form of self-regulation and self-organization of thinking activity. According to these ideas the author distinguishes four functions by means of which self-organization of collaborative thinking activity is carried out: function of ideas generation, selective function, function of sense transfer, function of realization. According to the types of functions dominating in functional securing of collaborative thinking activity self-organization by a group performing mental decision task, the author distinguishes four types of thinking styles: initiative style, critic style, managing style, practical style.

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\section{Introduction}

The article introduces the concept of thinking style that considers the thinking style as a factor determining the potential of unique, unusual decisions, proposals and ideas. Consideration of stylistic originality of thinking of students creates conditions for the organization of more successful teaching and improves the quality of education. Variable cognitive education, in our opinion, is a variant of free educational model, whereby a teacher, first, given the intellectual originality and initiative of students, creates the conditions and opportunities for their intellectual self-development. Second, understanding of intellectual originality, specificity of information processing and problem solving by students with different thinking styles, allows teachers to identify the individual trajectories of cognitive competencies formation, as well as to identify possible issues of interaction and mutual understanding during the educational process, thereby affecting the success of educational and training activities. Cognitive
competences of person represent one of the major psychological resources by which person actualizes oneself, exercising initiative and creative behavior, on which depends the achievement of performance effectiveness.

2. Notion of variable cognitive education

Nowadays many scientists, politicians pay attention to the fact that there is a gap between the requirements of a society to a personality, its intellectual, creative and personal peculiarities and those peculiarities, strategies and educational principles which are implemented in present-day education.

That is why there is the necessity to organize such an education, which would enable a person to search for individual ways of development.

Conception of variable education offered in the middle of 90s presupposes that it is necessary to form the conditions for realization of aims and tasks of different types of education in the society. In each type of education the problem of an individual’s education is viewed from different angles. Although there are some common principles in these angles, so it is the necessity in developing technologies with the help of which education turns into the institute of personality acculturation. Search for such ways are based on individual peculiarities of human cognitive sphere and these peculiarities are manifested in the usage of various methods, strategies of cognitive activity by a person.

Irrespective of the fact which education type is obtained by a person, one of the main aims for the society and pedagogue is to teach a person to study for him to expand his intellectual and personal abilities and to create most favorable conditions for personal and professional socialization.

In this connection we think it is suitable to talk about variable cognitive education. Indeed, peculiarities of human cognitive sphere formation differ in their tempo, dynamic (tempo, process speed) and informative and structural characteristics (psychological process formation, level of concept development, perceptions, establishment of regulative structures and etc.). In other words human cognitive sphere due to its direction, structure, maturity of certain methods and strategies, the human cognitive sphere is developing in its unique way and it leads to the fact that during the education process we can witness declines and raises in productivity of human cognitive processes, which characterize heterochrony formation of a person's cognitive sphere. At the same time methods, ways, intellectual mechanisms, which are used by a person to achieve cognitive activity production can differ. In conditions of independent activity, which influences the wide range of conditions, life circumstances, a person gets a chance for the development of style characteristics of human cognitive sphere and other cognitive strategies with the help of which a person gets an opportunity to achieve aims using his/her own individual unique way of perception and thinking.

3. Cognitive and style approach

In studies of G. Witkin, R. Gardner, J. Kagan, G. Kelly (Kholodnaya, 2002) we found a diverse repertoire of psychological methods and ways used by a person in cognitive activity. Thus we can speak about the fact that the thrust of cognitive direction studies has humanist nature since it emphasizes unique originality of intellectual and personal potential development of a person who achieves high performance using various methods and strategies. It is reflected in education since it showed that regardless of this or that cognitive style predominance people achieve high performance in study. Perhaps, that is why one of the main principles for the study of cognitive style is the non-grade principle (Kholodnaya, 2002). From our point of view the essence of this principle consists in the necessity to take into consideration individual unique peculiarities of human cognitive activity and to accept a person in that specification of cognitive methods which is characteristic for him/her. In conditions of independent activity, which influences the wide range of conditions, life circumstances, a person gets a chance for the development of style characteristics of human cognitive sphere and other cognitive strategies with the help of which a person gets an opportunity to achieve aims using his/her own individual unique way of perception and thinking.

Thus scientists of cognitive and style approach came to the conclusion that there is some difference in psychological mechanisms which enable the ability of intellectual development in cognitive education. Analysis of works in cognitive style: G. A. Berulava (2001), A. V. Libin (1999), M. A. Kholodnaya (2002), I. P. Shkuratova (1998) allow to distinguish the following cognitive styles which are directly aimed at studying of various thinking
peculiarities: similarity-difference in classification of objects (narrow — wide range of equivalence), width-narrowness of used concepts (narrowness — width of categories), level of concept development (precise-abstract conceptualizing), simplicity-complexity of used categories (cognitive simplicity — complexity), attitude to something new, contradictory. M. A. Kholodnaya (2002) writes that the given styles show the difference in the sphere of thinking.

The similar point of view is accepted by A. B. Libin (1999) who directly refers cognitive styles to style characteristics of thinking: abstractiveness – concreteness, conceptual integrity, magnitude of cognitive equivalence range, rigidity- flexibility, narrowness-width of categorization.

Actually, the given styles: narrow-wide range of equivalence, narrowness-width of categories, precise-abstract conceptualizing, cognitive simplicity-complexity, in spite of quite complex terminological constructions study peculiarities of thinking which is taken from the point of concept formation. In other words, the given cognitive directions can be considered as directions in thinking if we use peculiarities of psychological mechanisms and formation methods of conceptional sphere as a criterion. Thus we can consider four cognitive directions out of existing repertoire as a direction in thinking, though they are usually not used in such a handling.

4. Conception of thinking style

We proceed from the fact that nowadays one of the most important factors for variable education development is the usage of such an individual and psychological peculiarity of a person as thinking style.

Present-day level of knowledge development, IT, knowledge expansion, which is near to timelessness, create increased requirements to learning ability, i.e. to the processes of creation and formation of something new, different intellectual and personal innovations. Indeed, the processes of human acculturation either to the society or to the profession, the necessity in usage of either new informational, social or humanitarian technologies are practically impossible without intellectual activity, which is the basis for their acceptance which means the formation of something new.

At the same time we should be aware that the necessity in formation of abilities to the origination and formation of something new is different for the representatives of various professions and various statuses. In the conditions of variable cognitive education one can change requirements to the level and peculiarities of human thought development and intellect. Studying of psychological mechanisms and direction in thinking peculiarities will allow to understand how we should schedule the education process taking into consideration individual and unique methods of reflection and information processing which are peculiar to students.

Regarding thinking styles as well as cognitive styles we can say that there are no good or bad styles. Each thinking style has its advantages and restrictions. Speaking about thinking styles we mean individual and unique peculiarities of innovations creation which are characteristic for a person. It means that that a person with any thinking style potentially due his/her abilities can achieve the aim, accomplish a task but he/she will do it in other way than the rest.

We consider thinking style as the factor which is the basis for individualization of education and education of a person on the whole. We suppose that established forms and methods of education in the educational system do not always correspond to those thinking styles, which are developed. Although educational system, education technologies are largely one of the factors which influence thinking styles formation.

Nowadays there are several approaches to the research of thinking style. The first approach differentiates thinking styles depending on philosophical system of perception (A. F. Harrison, R. M. Bramson- synthesizer, idealist, pragmatist, analyst, realist) (Alekseev & Gromov, 1993). The second approach is connected with research of thinking peculiarities depending on hemisphere predominance: sinistrocerebral, dextrocerebral, mixed style of thinking (Alekseev & Gromov, 1993). The third approach is developed by R. Sternberg (2002) who similarly to mental autonomy of a state, distinguishes in the structure of mental human autonomy the following elements: functions, forms, levels, spheres, trend. All these elements of mental autonomy are the basis for the formation of correspondent thinking styles.

We adhere to the opinion of R. Sternberg and in continuation of the dialogue we would like to say that we understand human thinking not only as autonomous system, but also as self-organizing system. In individual
thinking activity, as it was shown in the studies of V. E. Klochko (2000), emotional-attitude complex is a controller which provides self-organization of thinking activity in individual thinking activity. Emotional-attitude complex represents integral component of psychological system, in which a person and his/her correspondent part of world are included. Emotional-attitude complex provides transformations of thinking activity, its dynamics and innovation production. In this integral component in emotions there is not only evaluation of received information, but potentially further action, i.e. already formed mindset for its realization. Integrity of emotional-attitude complex consists in the fact that in the human response there is already a mindset: emotional response to the contradiction can contain various mindsets - at settling disagreements or shift from the decision. As it has been shown before, in the conditions of collaborative thinking activity the mechanism similar to emotional-attitude complex is being built (Belousova, 2002). From the point of attitude to something new and contradictive in the group people solving problems behave differently: one people see mostly contradictions and problems, others criticize anything new, the third try to explain to all everything they have learned themselves from other people and try to coordinate other participants, the fourth try to act. Thus collaborative problems solution is conducted by the functions of generation, selection, sense transfer and realization, distribution of which between people fulfils the function of a controller of thinking activity. In other words, self-organization of thinking activity occurs round the opportunity to state and gain aims. We consider that collaborative thinking activity is the place where exteriorization and resocialization of these functions happens. It is supposed that these functions were internalized by a human being in ontogenesis during social development.

In other words, we think that primarily if one considers the given problem in genetic aspect the given functions were distributed among participants of collaborative activity (a child and an adult, among children) and only then were internalized and individualized by a person in such a way creating a system controller – emotional-attitude complex. Emotional-attitude complex in individual human thinking activity is represented as a combination of functions: generation, selection, meaning rendering and realization, which are united inseparably. In individual thinking activity a person self-organizes his/her own activity fulfilling all the functions, but each of them is represented in different degree. The profile of this functional set forms certain correlation of functions, which is characteristic of a separate person. In the basis of these functions lies the attitude to the new information for the opportunity to state and to achieve the aim. In our opinion peculiarities of perception (generation), adoption (selection), integration (sense transfer), realization of new information, which are characteristic for individual thinking, define the thinking style content.

The settled correlation of functions which are characteristic for a certain person is manifested in the direction and dynamics of individual thinking and represents the thinking style. Thus we consider that the thinking style represents the profile of correlation of generation, selection, sense transfer, realization functions in the innovation creation processes in accomplishment of thinking tasks.

So we come to the opinion that the style of thinking represents manifestation of individual emotional-attitude complex as a common controller of psychological system in human thinking activity. In this case the thinking style acts as one of the controllers, which determines dynamics and stability, nature of activity.

5. **Thinking style classification**

Theoretically one can single out 24 possible correlations of functions, which can be reduced to four more capacious trends in development of thinking styles connected with predominance of one of the functions among the others in the structure of human individual emotional-attitude complex manifestation.

The thinking style which is defined by essential features of the functions of generation was called *initiative*. One of these features is reflection of contradiction, realization of a problem and statement of the aim, the second one - connection with the generation of different suppositions, offers, and variants of decisions. That is why initiative thinking style is characterized by aimed search of contradictions, finding problems and it is manifested in the ability to put forward different offers, suppositions. The most characteristic thing for this thinking style is attempts to initiate thinking, striving to catch the essence, to understand the problem, but to find and realize it beforehand.

The thinking style which is characterized by essential features of selection function was called *critical*. In this case evaluating human activity which anticipates productive, generating effects is in the foreground. The most essential and illustrative thing is striving to evaluate plans, suppositions, aims, knowledge, personality and activity
of another person (or other persons) on the whole. Reduction or elimination of generating innovation of effect often leads to the fact that in the intellectual sphere people with such type of direction in thinking can have some kind of intellectual fruitlessness.

The thinking style which is characterized by essential features of sense transfer function was indicated as managing. At the same time there are two trends: sense transfer in subject field, on the material of certain task — sense transfer of new knowledge; and sense transfer aimed at other people, connected with the sense of meaning of activity, its value. In other words sense transfer is necessary firstly to integrate people round a certain matter and secondly to choose common supposition, aim, i.e. any common subject reason of activity. For people who fulfil these functions, the following things are characteristic: coordination of individual contribution and participant's activity which results to the process administration. It is the primary activity fulfilment in the given trends that gave the name to this style — managing. Thus for people who posses managing style the most characteristic features are: striving for coordination of participants’ activity, its organization, integration of others, realization of administrative influence, i.e. for such people the most preferable things are organization and work administration.

The thinking style which is determined by basic characteristics of realization function was called practical. The essence of this function is embodiment of worked out and selected ideas on practice, i.e. direct actions and operations on their concretization. Achievement, realization, implementation of ideas on practice is essential for this style. We would like to stress that function of realization and appropriate practical direction are not the last in significance in structure of thinking functions, they only underline appropriate trend of style. Such thinking style presupposes actual transformations in practice, during which new suppositions, hypotheses appear by natural way and develop, but their generation is connected with practical embodiment of some ideas. In this case we can say that thought is implemented in action. We suppose this was meant by G. P. Shchedrovitsky (1995), when he singled out thought activity as one of the steps in task accomplishment. Using his terminology one can say that practical thinking style is thought activity which became predominant. It is important to try to accomplish the task in practice, in empirical way for people with marked realization function.

6. Conclusions

Four singled out trends in thinking style development stress the predominance of certain function in subdominant position of other ones. Their presence and the level of development testify that thinking processes, innovation production are developed in any style. However difference in the thinking style is firstly the difference in dynamics and direction of innovation production.

In this case we understand thinking style as a combination of functions characteristic for a person. They are directed on production and development of innovations, which is manifested in dynamics and trend of thinking activity of a person.

Thinking style exists as a characteristic of individual originality of human cognitive sphere and so it provides unique fulfilment of thinking activity, solution of practical, applied and theoretical tasks. We suppose that thinking style is one of the factors which provide individualization of education and one of the reasons to implement variable cognitive education.

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