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TARGET-ORIENTED RESEARCH OF THE STRATEGIC PROGRAMMES ON CHESS ACTIVITIES AS SPECIALIZED EXPERIMENTAL PLATFORM FOR DYNAMIC DEVELOPMENT OF PUBLIC EDUCATION

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ABSTRACT

The Republic of Armenia, as a world superpower in chess, is engaged in continuous development and implementation of specific strategic programmes which are aimed not only at providing high achievements in chess, but also at (1) ***modernizing*** *the educational sphere in the Republic of Armenia, (2)* ***increasing*** *the quality indexes of chess education – as a basic resource in the context of global educational system, (3) considerable* ***deepening*** *of education subjects' cognitive interests towards education through the possibilities provided by chess, (4)* ***developing*** *learners' educational-cognitive motivation, (5)* ***creating*** *conditions for activating learners' mental potential and the abilities to expose them, as well as promoting the awareness of the social value of chess in interpersonal relations.*
Key words: education, research, school, chess.

The process of widening and enriching the modern teaching technologies and innovative IT resources throughout the world has opened up new opportunities for promoting the formation of professional and personal competences, in particular, on the basis of the headway of new methods and ways of teaching, and widening the underlying guidelines of educational activities. Nevertheless, because of either scarce, limited potential, insufficient executive efforts made or utterly complicated and persistently revised and changed procedures, the schemes of efficient teaching/learning models at certain time hindered or slowed down the implementation of the cognitive, executive and operational constituents of perception, understanding and assimilation in teaching/learning. This is evidenced in a variety of researches published in different countries on the difficulties and typological analyses in the realm of education.

The psychological analysis of the models of teaching moves us into **the field of activating learner's own activities** taking into consideration the necessity of learner's new cognitive and exploring possibilities activating the reflexive field as well. The development of new concepts is based on a series of fundamental ideas which might be important for the activation of cooperative component in organizing effective joint activities. The concept proposed is exclusively based on the idea that chess, due to its structural-functional potential, may **procure the role of a stimulating model for teaching/learning**, comprising, in a concise format, at least, the following instances: 1) the perception of educational situation (situations typical of chess), sorting out the intermediate problems involved in the given situation, 2) the stability and proportion of emotional tension and attention (sustained attention is a key factor for organizing teaching/learning processes), 3) the presence of **persistent spontaneous feedback** in teaching/learning different from other educational processes, 4) the control over the situation and your own activities, 5) the continuous monitoring and evaluation of the situation and your own position in it.

Although the constituents mentioned above are significant, from the perspectives of providing the relevant constituents of teaching/learning process, they do not suffice for giving a comprehensive explanation for the ways that the structural and system-based peculiarities of this model are expressed under the circumstances of harmonious integration of cognitive and social realms. While discussing the subject matter from this standpoint, we should separate the essential components of educational system which would be reckoned as sufficient for setting forward new models in teaching/learning, with one precondition reserved: the educational involvement of chess activities or the intellectual possibilities of the game of chess taken apart, still cannot claim to single out the real role of chess in teaching/learning processes, unless the models developed encompass the learner's unique age and individual characteristics. Consequently, if the teaching/learning through the academic subject of chess is referred to, there is a need to develop certain pattern-based configuration, which, besides being an open one, should also comprise the components of age development and proportion of pertinent abilities. Furthermore, the researches on the psychological processes – based on general methodological orientation – might conventionally be classified into three major phases: researches which refer to (1) the intellectual potentials of chess, (2) the educational value of chess, and (3) the social value of chess. It goes without saying that all the phases declared appear interconnected and mutually completing, however, as we perceive it, the target-based researches of the aspects announced would enlarge the field of evaluation of the educational and cultural functions of chess. The functions mentioned are introduced below together with the current situation of the research of these components, as well as, the possibilities to enlarge them in accordance with the vision of the expert group of the Chess Academy of Armenia. Thus, (a) while analyzing the current state of the **research issues of cognitive or epistemological resources of chess**, it was confirmed that the sphere had been submitted to a considerable number deep

researches in different countries. It particularly refers to the surveys into the processes connected with attention, concentration, memory, thinking, imagination (with particular reference to the case studies on such chess masters as José Raúl Capablanca y Graupera, etc.). (b) **The exclusive role of the game of chess is revealed in the ways of expression of higher psychological activities**, more precisely, the intellectual value of chess is shown from **the standpoint of public consciousness**, in particular, which yet does not comprise **the presence and the real picture of subjective or individual awareness of the level of perception and evaluation of the intellectual value of chess**. In our opinion, what should be shown explicitly is the demonstration of the real itinerary that the process of interiorization or transformation of the evaluation of intellectual values covers under intercultural integration. Meanwhile, taking into consideration that it has been for only some years since chess was involved in the education system of the Republic of Armenia, we consider it necessary to provide certain illustration of certain peculiarities of psychological processes, including the age peculiarities of intellectual development starting from the early schooling age. The present series of researches has been carried out through psychological and sociological methods covering the research domain ranging from the interest towards chess – noticed among the population of the Republic of Armenia –to the chess itself as an integrative transferor of intellectual values. For surveying into the peculiarities of subjective perception of intellectual values of chess, a series of target-oriented researches has been carried out in different provinces of the Republic of Armenia, and together with the brief description and analyses of the surveys, the researches embark the vision of advanced progress as well.

Chess as an educational value. Education, as a universal human value, has been highlighted and evaluated all over the world from the perspectives of social consciousness, while the issue of subjective or individual awareness of the importance or significance of chess education in child's educational activities still needs further investigations.

In his "Why offer chess in schools" Jerry Meyers discusses all the advantages that serve to ground the integration of chess within the school curriculum. To his view the curricular enhancement in favour of chess helps to increase children's academic progress, as this game enhances the development of the following skills: (1) **concentration of attention**: the students become aware of the advantages of attentive observation and concentration (i.e. irrespective of their abilities, if children do not keep focused on what's going on, they certainly won't be able to react); (2) **virtualization**: students are usually reminded to draw beforehand the imaginative picture of stepwise successions. However, Jerry Meyers does not make a special reference to the learning difficulties that constantly emerge at the lessons of chess or while completing the pertinent home assignments. The surveys and discussion organised with 500 teaches of chess in some provinces of Armenia evidenced that the major educational difficulties in assimilating chess, as a curriculum discipline, are mainly related to the following objective units: (1) "low concentration degree", (2) "assessment", (3) "organization of group work", (4) "inclusive class management".

In the Chess Academy of Armenia with the help of *Egoscope* (50 millisecond record) the peculiarities of attention (from the perspectives of attention stability, ability to follow a moving object, intellectual flexibility and other criteria) of schoolchildren of low, average and high academic progress among the students with certain experience of playing chess between the 2nd and 4th grades of secondary schools number 50 and 60 in Yerevan (Armenia), as well as among the 4th-grade students in Nagorno-Karabagh Republic without any experience of playing chess (in total: among 450 students) were studied. Besides that, with practical use of the version for children of Burdon-Ruddick test [1] the peculiarities of the attention of the schoolchildren between the 2nd and 4th grades were studied – but with one difference:

instead of the images "house" (instead of the image of house the image of window was asked to be added) and "tree" (the missing part of a leaf was asked to be added) determined by the method mentioned above, were substituted by the chess pieces. The quantitative analysis of the diagnosis of the degree of attention focusing showed that in the group of the 2nd-grade students the degree of concentration resulted in 91%, among the 3rd-grade students it was 85% and among the schoolchildren of the 4th grade it turned out to be 58%. A propos, a similar picture of decreasing indexes may concurrently be observed in the dynamics of educational motivation. It might be stated that among the 4th-grade students the decrease in attention stability is motivated not only by the increase of the number of academic disciplines at that very grade, but also by the decrease of interest towards learning: peculiarities of the age crisis which was evidenced by parents as well. The individually organized interviews with parents, in particular, have supported that children spend less time on home-assignments and tasks. Consequently, certain educational difficulties that occur at that age hinder the schoolchildren's mental development which, as a matter of fact, adds up certain indifference in children's attitude towards learning. Thus, there are all the possible bases to conclude that the educational difficulties, that occur on regularly basis, considerably obstacle the "crystalisation" of the positive educational instances and motives and deepen the educational failures fixed. The daily increasing educational failures result in a decrease of children's self-esteem. Using numerous scholars' perceptions and concepts set forth on the role of chess activities aimed at increasing attention stability, we carried out a special experiment to clarify mainly the following two issues: (a) children's reaction to moving objects and (2) the interconnections between the above mentioned reactions and some individual characteristics (self-confidence, psychologically balanced nature, tolerance, etc.).

There is a need to find out the time of reaction among 2nd-4th-grade students in the conditions of the application of "Reaction to moving object" method. While completing 20 assignments, the speed of angle completion maintained at the rate of 100 degrees per second. The 3 cases recorded (reaction before the time set, timely reaction, reaction delayed) evidence considerable changes in various answers; however, the reaction to the moving object (15 and more) prevailed in every case. It turns out that measuring the reaction time allows envisaging children's social values as well. The discussion of the issue from this viewpoint sets us closer to Meyer's and other authors' statements and claims according to which in the course of time it's 1) tolerance, 2) sensibility, 3) balanced judging, 4) analysis through specific method, 5) planning, 6) abstract way of thinking, 7) multi-factor judgment skills that develop in children [ ].

Nevertheless, none of these skills taken in isolation is typical of chess, as they are drilled in different aspects of the game [ ]. Consequently, the methodology of developing the educational value of chess must be based on a number of fundamental proofs. It must be explicitly evidenced by: (1) the relationship between the education motives and teaching/learning chess, (2) the comparative analysis of the indexes of academic progress in assimilating chess and other subjects involved in the curriculum of primary classes (3) the transference of intellectual abilities through chess (that is to say, complex of actions) to the domains of other parallel subjects taught at the same grade. In both the provinces of the Republic of Armenia and in Nagorno-Karabagh Republic in the period from 4 to 6 months from the standpoint of this approach through a large number of investigations carried out with the help of *Egoscope* among the schoolchildren of the age between the 2nd and 4th grades it became evident that there is a close linkage between the psychological activities and educational motivation. The major achievements registered among the children playing chess were the cause-and-effect relations mastered by the children investigated, and to which we referred to in details in the interviews immediately after the experiment. The interviews were constantly based on "why?", "how?", "what for?", "when?" and other types of

inquiry, however, in the course of the interviews it became clear that the complex nature of verbal communication did not allow the children to think aloud and express their thoughts and viewpoints during the game. This seems to be the possible reason why the whole process of game was persistently monitored and methodologically guided by a category-holding chess player. The aim of the game was to teach the children of the focus group not only to bring the game initiated to the end, but also to make decisions on the priorities previously determined for every single step taken, as well as the step or steps to be necessarily taken in future. The aim addressed does not seem to be really difficult in the case of the game, nevertheless, actually, the decision made on certain step in the game, as well as, the appropriate comparison of the step to be taken in 3 positions facilitated by the experienced chess instructor, results rather difficult; and, from the perspectives of the results, it provided with pertinent guarantees for objective chess consultancy aimed at the formation of the reflexion on the process proper.

The problem is that within the group format of the lessons of chess it is impossible to model the pertinent activities in a relevant way that it could involve more components of consultancy and monitoring over the process. In reality, during a real-time game the category-holding chess player in charge of the monitoring, assessment and correction of mistakes, due to his immediate participation, provides the young learner with the opportunity to interiorize the set of activities embraced in different processes enabling her/him to perform in future similar functions all by herself / himself.

This quality gets even more consolidated as schoolchildren are trained to keep separate “pieces” of situation in memory (one by one). The schoolchild is actually taught to think first and then act. The succession of actions is maintained and assessed by the category-holding chess player. The child also gradually learns to address questions to himself/herself: (1) “If I do this, what will happen and how can I tackle the consequences”[ ]. As at early ages school children’s memory is mainly mechanical, the category-holding chess player-instructor is obliged to reiterate the questions and verify whether the child has understood it or not. As a result, it becomes clear not only that the child’s cognitive search is not only guided, but also that there is a relevant basis for the child to combine the elements of convergent and divergent thinking. Due to the immediate participation or support of the category-holding chess player, who appears in the roles of consultant, corrector and opponent, the detailed clarification of the basis of the activities performed by the child gradually results in a productive choice of plan-based and target-oriented steps. Though the experiments initiated in the realm of the subject matter have not been completed yet, the results obtained show that the inner planning or mental envisaging of the strategy of stepwise activities proceeds in an incomparably quick way when the consulting chess player simultaneously addresses similar questions to at least two players, irrespective of the fact who is playing at the given moment. Consequently, every player shows his/her own variant (alternative) to act taking into account the presence of opponents and proof claimer. The three separate standpoint roles of one and the same player (his/her own, his/her rival’s and his/her instructor-chess player’s) naturally create a cognitive dissonance which might find an optimal solution if the instructor-chess player does not insist on the idea of final winner or loser, at least, in the first stage of teaching/learning. Considering the enrichment of the chess experience as the main achievement, the schoolchild gets focused on separate processes, and not on the result proper, as there appears awareness that the processes scheduled correctly are more likely to result in the outcomes expected. Furthermore, the simultaneous performance of different roles grows into an authentic chess activity and not into separate pieces of instruction which, in the course of time, are likely to be reshapes or forgotten because of a disproportional application or combination of the components of control/monitoring, testing and assessment.

The mechanisms of activation of specific components and functions of cognitive searching activities open up actual paths for developing a model aimed at uplifting the educational and cognitive activities, which has been referred to as a hypothesis at the beginning of the present paper. We reckon the development of such a model necessary, from both activity management and correction perspectives, for facilitating the transmissibility of knowledge from sphere to sphere. In this respect, a close connection between chess and mathematics there has been discovered, expressly, from the perspectives of algorithm-based thinking.

The educational value of chess is emphasised by other scholars as well, as, for instance, by F. Kazemi and his colleagues in their respective researches (Kazemi, 2011)**, the results of which point out that the students who play chess gain more achievements in both metacognitive skills and solving math problems. Moreover, there is a considerable and definitely positive correlation between the students' metacognitive and problem-solving mental skills. Thus, chess can change into an effective means if there is certain objective to develop higher-category mental skills.

Chess as a social value. In point of cat, we think that, though the game participants establish no direct verbal interaction, their actual planning is guided through the inner speech and non-verbal means of communication (gestures, facial movements, etc.), expressing, thus, in the unity of speech and thinking the expression of interpersonal and intrapersonal ways of thinking (claimed by Gardner). In the case of social value, we have prioritized the will-based qualities which are expressed primarily as decisiveness, readiness for autonomy and self-control. We think that the above mentioned qualities play a crucial role in interpersonal relations, as well as in the process of their management. Through the experiment real-life situations have been observed allowing the schoolchildren to make use of hints, prompts or peers' or group-mates' assistance. We were particularly interested in the conditions and the types of assistance that the schoolchildren opted for (some details, tools, strategy ways and methods of performance, etc.) for joint interaction. As it became clear, schoolchildren's reflexive and rational judgements are based on the activation of the processes of performance (see Ferguson, 1986)*.

To sum up, we must state that, establishing connections between the chess activities and the further development of chess education, motivated by those activities, with the simultaneous investigation and implementation of the results of the investigation of the three groups of closely interconnected spheres (intellectual, educational and social values of chess), we may verify in practice the bases for developing the empirical models aimed at instigating the educational activities meant to convert chess in education into a platform for consolidating the interdisciplinary links.

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