
COMPARATIVE ANALYSIS OF USING INTELLECTUAL GAMES IN THE EDUCATIONAL PROCESS

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Annotation. *Purpose:* to explore the experience of World Mind Games in the educational process. *Material:* 26 literary sources have been analyzed. *Results:* there is a degree of intellectual development of sports in the world. The kinds of intellectual games, which are used in the educational process in schools. Found that in accordance with the cultural traditions of the East and the West the greatest distribution in the school environment received Go and chess. The directions of application of chess, checkers, Go, bekgemmona, tangram in teaching practice and especially the impact of these games on the development of the child. *Conclusions:* Identifying promising implementation of intellectual games in the learning process as a means of enhancing cognitive mental processes and the general culture of the individual. Subject attempts to introduce the teaching of intellectual games in school educational process in many countries.

Keywords: *mind games, chess, checkers, Go, backgammon, tangram, the educational process, schoolboys.*

Introduction

The development of humans' playing activity led to the appearance of a special kind of games that mostly at the XX century became known as mind games. Perhaps the phrase "mind games" was for the first used by K.Groos, who spoke about their special function "add-on" to the existence of people who are engaged in manual labor and M. Lazarus, who distinguished between games related to physical activity, shows, gambling and mind games [17, p.44].

At the beginning of XXI century a jump in the development of mind sports has seen. This is especially typical for countries of South-East Asian, whose economies are rapidly progressing. For example, there are four national channels in South Korea, that broadcast game of Go and in Japan Go tournaments are as well widespread as sumo. The undoubted leader in popularizing of mind sport is China.

World Mind Games are conducted by the patronage of International Mind Sports Association (IMSA). The main games in this competition are chess, draughts, Go, and bridge. But the country, which holds the competition, may include an additional mind sport. Thus, at the World Mind Games, that have been conducted in China, to the four main mind games Chinese chess (Xiangqi) have been added to the program of competition.

In 2013 the educational project "Moscow mind games" has started in Russia. It provides an open master classes, festivals and marathons at the leading universities and schools. At the program of the project there are classic and Chinese chess, backgammon and Sport Bridge, and Japanese board games - Go, Renju and Shogi.

In addition to the competitive aspect, mind games, as a tool of development for cognitive mental processes, have started to be used in the educational process in many countries. Therefore the interest of teachers and psychologists has increased to the scientific study of the features of mind games, possibilities of their application in education. Thus, comprehensively mind games have been of the subject of scientific development in the following areas: features of sportization of mind games (Ja. Garal, A. Kylasov), comparative characteristics of intellectual forms of playing (S. Korchytskiy), development of creative abilities by mind sports (E. Skarzhinskaya), recommendations for the use of mind games in elementary school (E. Gik, V. Zabara, E. Kistj). However, the main research focuses on psychological and pedagogical features of using certain types of mind games.

Analysis of educational literature and modern school practices has allowed revealing that in Ukraine mind games are used rarely. It is caused by a number of factors. In particular, there are no sound psychological and pedagogical researches on the influencing of various intellectual games, especially board, on the schoolboy; methodical recommendations for the use of mind board games in the educational process. The level of teachers' readiness for using of mind games in educational and extracurricular activities is rather low.

Purpose, tasks of the work, material and methods

Purpose of the research: to examine the global experience of using intellectual games in the educational process.

Research methods. The analysis of 26 published sources was done.

Results of the research

The range of mind games is extremely wide. However, each game has its intelligent features that should be considered while using them in the learning process.

Chess. The first professional psychologist, who used chess for research, was the director of the Institute of Experimental Psychology in Paris Henri Binet. The scientists interested in the psychology of memory. For studying this problem in 1892, he applied to the famous chess players of his time with a questionnaire that included 14 questions. As a result the psychologist made the following conclusions: one plays better who evaluates more correctly a position on the board and calculates variants further; in chess the logical memory is more important in comparison with visual; it was discovered the leading role of "internal speech" in the process of reflection; the chess players' thinking is very complex and diverse [11, p.22].

The analysis of psychological and educational literature allowed to reveal that today in the dissertations it was experimentally confirmed the issue of a positive impact of chess in school education at formation of consistent thinking, logical methods of mental activity (V. Zakharov, T. Petrosyan, Ja. Rokhlin, N. Talyzina, Yu. Yakovlev), imagination and memory (O. Bartashnikov); chess game develops arbitrariness of consideration, the ability for planning an action and internal analysis (V. Kuprashvili, E. Kuchumova), for reflection, generates creative thinking (R. Ferguson), cognitive activity (E. Vasyukova, V. Zakharov, V. Knyazeva), educates diligence, perseverance and will (N. Krogius), develops fine motor skills of children with cerebral palsy effects (V. Panush).

In the World Chess Federation there is a special commission that deals with the problems of school chess. Thanks to its activity chess is carried out in many countries. Moreover, there are countries (Andorra, Russia, Venezuela, Iceland, Spain, Sweden, Bulgaria, Turkey, Armenia etc.), where chess, as a subject, is in the program of the public schools.

In 2012 the European Parliament adopted the Declaration "Chess in School", in which recommended to apply chess in school activity, because they directly contribute to success in learning, develop critical thinking, ability to solve problems and to make decisions.

For over ten years in the Republic of Kalmykia children have learned chess from the first class. The number of applications to the Commission for Minors is decreased, the results in physics, mathematics are improved, and overall performance is increased by 40 percent. Based on the inspection of the commission of the Ministry of Education it was proved that these positive changes had been held by studying chess.

Hungarian Institute of Educational Research and Development officially approved the Judith Polgar's program "Developing Chess" and recommended it for use in elementary schools across the country since September 2013. The program, instead of teaching chess as a sport, aims to improve academic skills, logical and creative thinking and independent solution of the problems. The educational program combines chess with math, reading and writing.

Chess, as an educational vehicle, is used not only in educational institutions. Thus, among the studies related to the issue of socialization of persons, who are in prison, Brazil has an interesting experience. The program "Chess bringing freedom" received an award of the government. The aim is development of cognitive, moral and social qualities among prisoners by using chess. The program works at 22 prisons, where 2200 prisoners are involved. Most of them are men between 19 and 30 years old, semi-literate, with low-income African-Brazilian citizens, murderers, thieves and drug dealers. As a result of the program it was marked improvement in relations and reducing violence among prisoners who playing chess. Such experience of using chess in prisons exists in Almeria and in other parts of Spain.

In XXI century human life becomes longer. A lot of countries deal with the problems of aging and socialization of the elderly. Scientific studies have shown that chess can be also useful to solve these problems. Thus, the study of the American Academy of Neurology has established a link between cognitive activity and the risk of Alzheimer's disease. According to their conclusions mind games (chess and bridge) help to overcome Alzheimer's disease [26].

Checkers. The game of checkers, only for the first, seems simple. Checkers demand from the person, who is playing, intensified mental activity and ingenuity, contribute to the development of memory and attention. A player must always expect variants, which appear on the board, outline a plan of the game and seek to implement it, must be able to resist the plans of the enemy and fight against his will.

The influence of checkers on the development of mental function has been less studied at special psychological or pedagogical researches than chess: individual style of activity with the dominance of cognitive components based on the game of international checkers (M. Prokhorova), features of the development of creativity and imagination in young teenagers at checkers (A. Kychkina), features of sportsmen's psychological preparation by checkers and chess (Yu. Anikeev) and methodological aspects of using checkers in the educational process (A. Altyntsev, S. Malakhov, M. Karam, V. Sivtseva etc.). Scientists explain smaller using of checkers as an experimental material in comparison with chess by similarity of psychological processes that occur during a game [2, p.4]. Didactic materials based on chess are richer than checkers because the lines of movement of chess pieces are more diverse.

Checkers develop objectivity of thought, train memory, bring perseverance, ingenuity, dedication, precise calculation, form character, engender creativity in a person, help the child quickly to adapt to the school environment, help easier to learn the course material.

S. Malakhov marks in the training program of checkers [16] that today it is necessary to educate in employees mental stamina and endurance to an error-free operation. These qualities are difficult to cultivate in adulthood. Training should be started from childhood, gradually increasing load. According to the author, the best coach for this purpose is checkers, which military has long appreciated and attributed to the important means of education and leisure. Thus, Napoleon Bonaparte did not leave the pearl checkers board in all campaigns. Peter I not only played, but also widely

popularized checkers in the Assembly. A. Suvorov also admired checkers. Checkers have no practical importance in military affairs, but attract by training personal qualities in different field.

For an inattentive pupil, the ability to concentrate for a long time, that checkers develop, is a precious heritage. Based on perennial observation B. Sivtseva notes that many cases of sharp reduction of children's inattention coincide with the start of their deep concern by checkers. The most important properties for a student in checkers are concentration and sustained attention. Focusing is equally necessary both for perception and for playing, thinking and imagination. Attention of a checkers player is particularly closely related to thinking, and therefore it can be justifiably spoken of predominantly intellectual character of a checkers player's consideration that has a pronounced arbitrary nature [21].

In the educational process checkers are used in many countries. For example, in Brazil it is entered checkers lesson in the school curriculum of 42 schools in Sao Paulo, where more than 3,300 children aged 5-6 years are studying secrets of this ancient game.

Backgammon. The history of backgammon in different countries and features of influence of the game on children are studied by M. Kleg. According to the author, the game of backgammon promotes the learning of mathematics. It teaches a child to count the numbers and add the trajectory of bone on the board, better understand chances and statistics. In addition the game of backgammon gives children a good opportunity to talk as equals with adults at the gambling board.

Go. Go is one of the most popular board games in the world. It is the most widespread in China, Japan and Korea. In 1975, with the publication of the article by W. Astashkin and G. Nilov about the theory of Go [3, p.127] began the large-scale capture of the game in the Soviet Union.

Features of influence of this mind game on the development of cognitive processes are described by M. Chaplin. According to the author, Go promotes deeper assimilation of cause-effect relationships, develops a sense of responsibility, ability to set goals, to make decisions and consistently implement them. A player learns constantly to keep in sight a global position on the board in Go. Many well-known corporations (among them "Microsoft", "Acer", "Japan Airlines") are used the strategical principles of Go, choice of destinations in entering new markets. In the East Go is also used to develop military strategies and strategies of governance [24].

In addition to countries of South-East Asian the game of Go in the schools is studied in Brazil, Venezuela, Russia, USA and other countries.

Tangram. Tangram is one of the tasks for the cutting that belongs to the oldest genres of interesting mathematics. Geometric shapes are cut into various parts, from which it is necessary to make a start or some other figure (or body). Similar games exist in different cultures: Mongolian game, Vietnamese game, Columbus egg [6]. The ancient Greeks were big fans of geometric games. One of them is "Stomahion". It is much more difficult than Tangram. According to the rules it is necessary from 14 square pieces to make different shapes. It can be called also "Pentamino", under which developed the world-famous game "Tetris", which was so popular in the 1980s.

Tangram consists of only seven pieces, which are called tans: square, parallelogram and five triangles (two large, two small and one medium). These tans have a simple form, but they can make an infinite number of different figures. Today we know more than 10 thousand combinations. Drawing these figures raises very high demands for geometric intuition and artistic ability of the player.

If we consider the application of tangram in the educational process, the first thing that is certainly attracted to this game - the simplicity of the props for the game. There is only a square piece of paper, which can be substituted if you want, by fabric, wood, plastic etc. The second is the application: from kindergarten to high school, from the study of geometry, science, design, to speech correcting and development of fine motor skills in preschool children.

In teaching activities Tangram can be used as an element of tales' therapy, in the adaptation period in games on union team, in the leisure activity for aesthetic and intellectual training, can be used in working with children with special needs. Particularly interesting is the usage of tangram in the tales, when during story figures are moving and turning from one to another in front of a child.

An interesting experience of development of mind culture by using search and creative problems is accumulated by primary school teacher V. Zabara. In the teacher's arsenal are various mind games: tangram, playing with matches, checkers, puzzles, mazes, magic squares etc. The author distributes different tasks for the formation of mind skills: games on combining, planning and ability to analyze. Among the intellectual educational games V. Zabara emphasizes riddles. They expand children's worldview, acquaint them with the environment, natural phenomena, and enrich their language. Also, they "are very important in shaping the capacity for creativity, logical thinking and elements of heuristic thinking."

The teacher E. Kistj in the methodical recommendations on the use of mind games in elementary school calls the game "Scrabble" as one of the premium mind games for younger schoolboys. Playing in this game, a child learns to read quickly, adds vocabulary, learns about nouns, but also improves the knowledge of arithmetic [9]. But we can not agree with the author's approval that unlike chess checkers has much more opportunity to show imagination and develop not only the intellect, but accuracy and cunning. The author links it with a great number of checkers games. However, besides the classical chess, there are also many mind chess games.

One of the first attempts was made by S. Korchytskiy comprehensively to evaluate gaming activities in different types of mind game. The author supposes that all mind games are characterized by their complexity of developmental effects on the child's thinking. The general algorithm of choice for various courses is likely for all mind

games. It contains three consecutive processes: situation assessment, planning and calculation options. The process of assessment requires logical thinking, planning process - strategic and creative thinking, process of calculation options - combinatorial thinking. Author concludes that all intellectual games develop the ability to act in the mind's eye that is abstract thinking. Games Renju and Russian checkers S. Korchytskiy recommends as a means of attracting to intellectual play activity of preschool children. Education in early childhood in games of Othello and Mancala is also possible, although these highly dynamic games have complexity purpose. In order to use the game of Go (homogeneous chips, highly complex purpose, two operations, low external dynamics of the game) in the preschool years it is necessary to use a small 9x9 playing board, due to a significant decrease in variability and duration of the game. Learning the game of Go on great boards and chess should be started, according to the author, not before primary school age [10].

Conclusions.

The essence of intellectual games is overcoming of mental difficulties. Outside the result of playing activity is the right answer or victory in the competition, and internally, and it is the most important - the emotions and conditions that accompany intellectual process, gaining experience in individual productive mental activity, intellectual affirmation. The analysis discovered, that it is spread the attempts to introduce the teaching of intellectual games in the school's educational process in many countries. Every intellectual game has its own characteristics, but they are accustomed to a sense of responsibility, raise curiosity, the autonomy of thought, develop the child's thinking.

Further developments are required specific methods for the application of intellectual games in the school educational process.

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