

## CRITICAL THINKING AND MOTIVATION OF CHESS TEACHERS WITH THE "BEST EXPERIENCE" *PENSAMIENTO CRÍTICO Y MOTIVACIÓN DE PROFESORES DE AJEDREZ CON "MEJOR EXPERIENCIA"*

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**Abstract:** The research relevance is due to the lack of research aimed at revealing the professional competencies of "Chess" teachers with the "best experience". The aim of the research is to identify and figure out: • current level of critical thinking and its components, • level of working motivation of chess teachers with the best teaching experience. In accordance with the purpose of the research, the "Critical Thinking" questionnaire was used (author's elaboration), and F. Herzberg "Motivational Structure Test".

**Keywords:** "Chess" subject, critical thinking, motivation, competence.

**Resumen:** La relevancia de la investigación se debe a la falta de investigación dirigida a revelar las competencias profesionales de los profesores de "Ajedrez" con las "mejores prácticas". El objetivo de la investigación es identificar y determinar: • el nivel actual de pensamiento crítico y sus componentes, • el nivel de motivación laboral de los profesores de ajedrez con la mejor experiencia docente. De acuerdo con el propósito de la investigación, se utilizó el cuestionario "Pensamiento Crítico" (elaboración del autor) y el "Test de Estructura Motivacional" de F. Herzberg.

**Palabras-clave:** Asignatura "Ajedrez", pensamiento crítico, motivación, competencia.

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# 1. INTRODUCTION

In the context of educational reforms, since 2011 in the Republic of Armenia (RA) the "Chess" subject has been included in the state standard of general education, and it is taught in the 2-4th school grades, with the aim of establishing and developing students' cognitive sphere, especially logical thinking.

Studies have approved the unique importance of the "Chess" subject in students' willpower, diligence, purposefulness, patience, orientation in difficult and unfamiliar situations, self-organization, development of self-activity skills, as well as the discovery of children with chess talent (KHACHATRYAN and SARGSYAN, 2014).

In 2014, by the initiative of GM S. Lputian, Founder-President of the Chess Academy of the RA, the "Chess Teaching Research Laboratory" was established, which currently continues its activity at the Khachatur Abovyan Armenian State Pedagogical University as the "Chess" Scientific Research Institute which is a unique and exclusive Institute in the world. The Institute conducts psychological, pedagogical, sociological and methodological experimental studies with the aim of revealing the role of chess in primary school, as well as its impact on the efficiency of mastering other subjects.

It is important to mention that the RA is the only country in the world, where the government has established the state standard for "Chess" subject in elementary school and it is a mandatory subject. Therefore, only the teachers of our country have experience in teaching Chess as a mandatory subject in general education. In all other countries of the world chess teachers are mostly called coaches, but not teachers. Therefore, in our article we present the specific experience of the RA in this field of education.

In this article, in particular, the analytical data obtained from the experimental research conducted in 2019 by the team of psychologists of "Chess" Scientific Research Institute are presented. The experimental studies

were conducted with the teachers of “Chess” subject of the Kotayk region of the RA, taking into account their "best teaching experience".

The ultimate goal of critical thinking is to develop skills of analyzing the situation, making decisions, and solving problems. Critical thinkers base their conclusions on facts rather than emotions. They are able to analyze their own judgments, identify omissions and predict consequences, generally improving their ideas (MURAWSKI, 2014).

Critical thinkers are those persons who can move beyond “typical” thinking models to an advanced way of thinking. Critical thinkers produce both more ideas and improved ideas than poor thinkers (RUGGIERO, 2012).

Critical thinkers typically (RUGGIERO, 2012):

- Acknowledge personal limitations.
- See problems as exciting challenges.
- Have understanding as a goal.
- Use evidence to make judgments.
- Are interested in other’s ideas.
- Are skeptical of extreme views.
- Think before acting.
- Avoid emotionalism
- Keep an open mind
- Engage in active listening.
- Conversely, non-critical thinkers, typically (RUGGIERO, 2012):
- See a limited number of perspectives (sometimes just one).
- Take the first approach that occurs to them.
- Judge quickly-maybe too quickly and not critically.
- Fail to listen actively.
- Think their ideas are the best-all others are less.
- Resist change.
- Think in stereotypes.
- Deceive themselves often.

In the 21st century, the competitive labor market is really emphasizing the role of critical thinking teachers in the educational process for upcoming generation. However, the need to have critically thinking teachers in the educational system and to motivate them, has increased, and employers are aware of its potential.

In the last decade, many theories have been developed to characterize work motivation, which mostly study the needs of the person, their impact on the motivational sphere of work activity (KJELL and ZIEGLER, 2011.).

In accordance with their theoretical assumptions and empirical research, Armenian scientist emphasize the following competencies of chess teachers: knowledge of the subject, communication, choice of teaching strategies and methods, thinking skills, goal-setting and nomination, teaching skills meaning understanding the students' needs, classroom control and motivation, evaluation (SARGSYAN and KHACHATRYAN, 2019). V. Sargsyan and H. Khachatryan emphasize, in particular, the need for a chess teacher to be able to "think critically." According to the authors, "critical thinking" means discussing information, knowledge comprehensively, analyzing, comparing, changing, as a result, reaching a certain conclusion, accepting or denying it. Moreover, such a teacher does not only manifest those qualities, but also develops them in his students (SARGSYAN and KHACHATRYAN, 2019). S. Khachatryan considers the peculiarities of "Chess" subject, in which its general educational value is revealed. In particular, according to the author, chess promotes concentration of learners, development of organizational qualities, ability to take into account the steps of others, the development of critical thinking. According to S. Khachatryan, the chess teacher should consider critical thinking as the ultimate goal (KHACHATRYAN, 2019).

The aim of the article is to record, identify, analyze the current level of work motivation and the critical thinking components of the Chess teachers' who have the "best experience" of teaching at school.

When we say the teachers with the "best teaching experience" of "Chess" subject, we mean those who:

1. At the end of the training courses organized by the “Chess” Scientific Research Institute, passes the qualification exam and gets 18-20 points (max 20 points), and receives the certificate which gives an opportunity to teach for 3-5 years at school.

2. Receives the highest scores of expert evaluation (expert evaluation is carried out by independent experts on the basis of the survey outcomes of the data analysis).

3. Has long-term experience of teaching chess.

4. Teachers selected based on the results of a students’ survey evaluating chess teachers.

Let us emphasize the fact that many countries around the world now want to introduce chess as a mandatory subject in their education system. For that purpose, the “Chess” Scientific Research Institute has developed and already tested an international training and qualification programme for teachers wishing to teach the “Chess” subject in their countries. The relevance of this article is that data of our experimental research were taken into account and applied in the stages of development, testing and application of the above-mentioned international program.

## **2 DEVELOPMENT**

In order to record the level of critical thinking of chess teachers with the best experience of teaching at school, its components, as well as the level of work motivation, in 2019 a team of psychologists from the “Chess” Scientific Research Institute conducted an experimental research.

The experimental research was conducted in 2019 in the following sequential stages:

1. Development of video-methodological bases of the research.
2. Selection of research methods, experimental application, adaptation.
3. Implementation of scientific research work.

4. Analysis of collected data, formulation of conclusions and practical recommendations.

## **2.1 The video-methodological bases of the research are:**

1. Theoretical provisions on critical thinking of L. Murawski (MURAWSKI, 2014).

2. "Theory of Work Motivation" of F. Herzberg (HERZBERG, 2010).

The sample of research. The experimental research was conducted in Kotayk region with a total of 45 chess teachers. Teachers from different schools of Kotayk region were selected according to the following criteria:

1. expert assessment,

2. accreditation results (on the initiative of the Chess Academy of Armenia, every year the chess teachers are accredited in the territory of RA and NKR. The 3-day training courses are conducted by chess methodists and psychologists-pedagogues. At the end of the participation, the teachers fill in an examination questionnaire, which includes chess problems and psychological-pedagogical questions. The maximum is 20 points, out of which 6 are given for the correct answers to psychological and pedagogical questions, and 14 for chess part. As a result, the participants who receive 18-20 points get a certificate of a school chess teacher for 3 years, 2 years right is granted for 14-17 points, and 1 year for 10-13 points).

## **2.2 The methods of experimental research are:**

1 . Critical Thinking Questionnaire (author's elaboration)

When compiling the Critical Thinking Questionnaire, we based on the theoretical propositions of critical thinking of L. Murawski and R. Lundquist (MURAWSKI, 2014).

2 . F. Herzberg "Motivational Structure's Test"

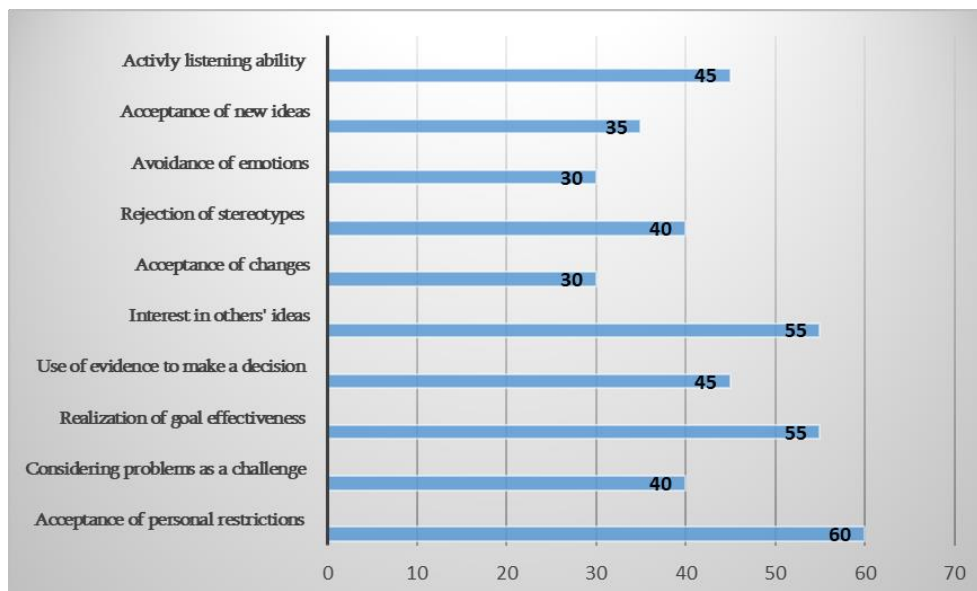
### 2.3 The scientific data obtained are presented below:

Below we present the current level of performance of each of the components of critical thinking of chess teachers during their professional activity, according to the average data.

1. Acceptance of personal restrictions - 60%,
2. Considering problems as a challenge - 40%,
3. Realization of goal effectiveness - 55%,
4. Use of evidence to make a decision - 45%,
5. Interest in others' ideas - 55%,
6. Acceptance of changes - 30%,
7. Rejection of stereotypes - 40%,
8. Avoidance of emotions - 30%,
9. Acceptance of new ideas - 35%,
10. Actively listening ability - 45%.

In order to make the indicators of the components of critical thinking more visible, we present them in the form of a diagram (See Diagram 1).

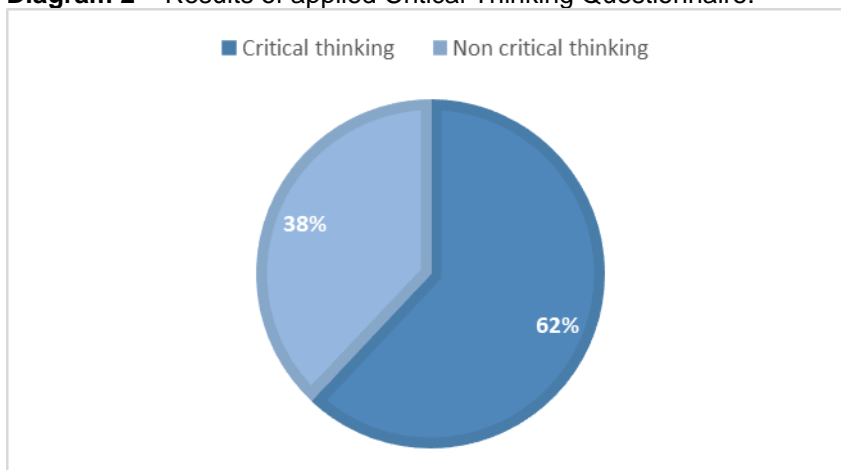
**Diagram 1** – Current level of critical thinking components of chess teachers.



**Source:** The authors own calculation

The results of surveys conducted by the Critical Thinking Questionnaire showed that the 62% of the 45 surveyed chess teachers mostly perform critical thinking (See Diagram 2).

**Diagram 2** – Results of applied Critical Thinking Questionnaire.



**Source:** The authors own calculation

Before planning and carrying out the research work, our research team was interested in the following questions: how motivated are the chess teachers with the best teaching experience? And what are the prevailing motivations in the work? In order to find out the level of work motivation of chess teachers having the "best experience" of teaching in school, we used F. Herzberg's "Motivational Structure Test", which aims to identify the set of motives that dominate the structure of work motivation (HERZBERG, 2010).

**Table 1** - Work Motivation Structure according to F. Herzberg

<b>External motives</b>	<b>Internal motives</b>
Management policy	Success
Working conditions	Career advancement
Salary and social status	Acceptance of work results and encouragement
Interpersonal relationships with management	Responsibility
Team cooperation	Opportunity for creative and professional growth

**Source:** Herzberg, 2010

F. Herzberg's two-factor theory is based on two broad sets of needs: external and internal. External factors are related to the environment in which the work is carried out, and internal factors are conditioned (motivating) by the nature of the work.

Herzberg called the first set of requirements hygienic, using the medical meaning of the word "hygiene" (warning). According to him, these factors determine the working environment and may have a primary function of dissatisfaction with work. Hertzberg called the second group of demands motivators or facilitators which motivate the best performance of work. It should be noted that Herzberg as a result of his research concluded that salary is not a motivating factor for work activity, and it is in the first group (HERTZBERG, 2010).

**Table 2** - Current level of the components of F. Herzberg's motivational structure test

<b>Internal motives</b>		<b>External motives</b>	
<b><i>Factors</i></b>	<b><i>Average points</i></b>	<b><i>Factors</i></b>	<b><i>Average points</i></b>
Work content	19,8	Team cooperation	16,2667
Personal achievements	18,93333	Relationship with management	11,7333
Creer, Progress in work	18	Public recognition	17,3333
Work responsibility	17,46667	Financial motives	15,4667

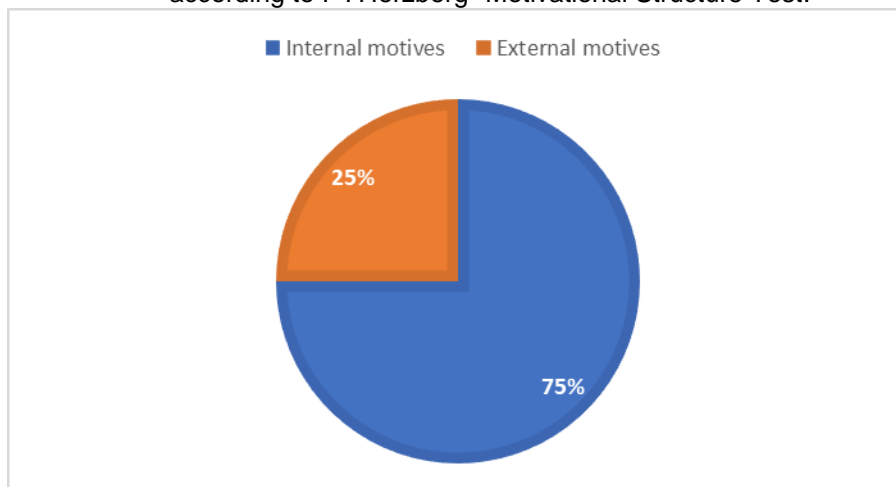
**Source:** The authors own calculation

The analysis of the research data shows that in the work motivation of chess teachers the internal motives prevail over the external ones. Interestingly, external motives - management policy, working conditions, interpersonal relationships with management, salary and social status - make up a small percentage - 25%.

To make the results more visible, let's present them in the form of a table (See Table 2).

Thus, we can conclude that according to F. Herzberg Motivational Structure Test, the 75% of the 45 chess teachers surveyed were dominated by internal motives and the 25% by external motives during the working process (See Diagram 3).

**Diagram 3** – Chess teachers' working motivation structure according to F. Herzberg "Motivational Structure Test.



**Source:** Analysis of application results

### 3 CONCLUSIONS

We present data obtained from the analysis of the experimental research outcomes conducted with the teachers having "best teaching experience" of "Chess" subject from the Kotayk region of the RA.

- As a result of using the "Critical Thinking" questionnaire, 62% of the 45 chess surveyed teachers with the best teaching experience demonstrated critical thinking (See Diagram 2).

- As a result of application of the Motivational Structure Test of F. Herzberg, the 75% of surveyed 45 chess teachers with the best teaching experience have predominant internal and the 25% predominant external motivations during their working activities (See Diagram 3).

The practical significance of this research can be stated as taking into account the analysis of data, we propose to develop a mechanism for disseminating "the best experience" of "Chess" teachers, which will contribute to the effectiveness of teaching the chess subject.

Based on data of experimental research, we conclude that teachers with the best experience of teaching chess, in the course of their professional activities accept their personal limitations, realize the importance of the goal, are interested in the thoughts of others, show active listening skills. This testifies to their critical thinking ability. At the same time, it was found out that teachers with the best chess teaching experience, especially in their professional activities, emphasize career advancement, success, acceptance and encouragement of work results, responsibility, opportunities for creative and professional growth. This indicates that regardless of salary and the social status, teachers are especially driven by internal motives.

We strongly believe that the presence of the above-mentioned professional competencies of teachers with «best chess teaching experience» also contributes to the efficiency of the educational process.

Therefore, in order to extend the "best experience" of chess teaching, our research team is currently developing a "Best teaching practice" model for

chess teachers, aimed at developing the basic competencies and components of a 21st century teacher.

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