

## **ABSTRACT OF THE DOCTORAL THESIS**

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**Title of the doctoral thesis: DEVELOPMENT of the MOTOR CAPACITY among the STUDENTS of the ACADEMY of ECONOMIC STUDIES, by USING MEANS of BASKETBALL GAME, through SPECIFIC PROGRAMS**

*Key words: development, motor capacity, means, basketball, specific programs*

### **Introduction**

The specific objectives of the physical education result from the purposes of the global educational system aiming, at the dimensions of the human personality, the strengthening of the biological development, to stimulate the psychic development, the social consequences at sanogenetic level and the social insertion.

The training process and the organized practice of the basketball game have a positive influence onto the multilateral development of the school population and young students and besides the sanotrophic character they contribute also to the development of moral and will qualities.

The motricity and its all components enrich the biological and physiological patrimony of the young people. The physical exercise, as the main tool of the physical education, represents a biological stimulus ensuring, by accumulating, the harmonious morphological and functional development, an well-balanced education of the motor qualities, as well as the assimilation of motor skills and aptitudes (basic, utility, applicative and specific ones for sport areas).

The doctoral thesis has a 3 parts structure, incorporating 18 chapters. The first part represents the **theoretical, methodological and conceptual basis of the work.**

The three-dimensional concept of the state of health, unanimously accepted today – the physical, psychic and social welfare – forms the basis for the bias of the health programs and to explain the interest paid to all factors: the physical,

psychic and social factors involved in promoting and optimizing the individual health, to increase the quality of life.

The aim of the work is to identify the most efficient means to increase the motor quality and to draw up targets to get new physical education programs. The achieved program must satisfy the current requirements of the young students, according to the objectives of the university physical education.

The results of these researches should represent concrete arguments, having scientific basis, to support the *thesis* regarding the physical exercise, in the university area, as an indispensable condition to optimize the state of health by increasing the motor capacity.

Our approach is directed to identify the effects of the instruction programs by the specific means of the basketball game onto the general and specific motor development, the functional changes as well as onto the modification appeared in the formation and development of the student personality.

The operation structures which are proposed in the specific programs lead to the development of the motor capacity and to learn in a shorter period the basketball game as a pleasure mean to spend the free time.

This work intends to have the following research aims:

1. To analyze and to generalize the data of the specialty literature regarding the general problems of the physical education and sport in the higher education as well as to better know the somatic, functional and psychic peculiarity of the young people.
2. To specify some conceptual aspects regarding a sport discipline – the basketball – in the frame of the physical education in the higher education and their influence to the development of the motor capacity.
3. To present the role and the importance of the basketball game in the system of physical education and sport, its characteristics, contents and influence upon the development of students' motor qualities.
4. To elaborate and to apply the instructional design regarding the influence of the basketball specific means on the motor qualities and the personality of young people.
5. To elaborate and experiment specific programs aiming to develop the evolution of the student motor capacity through the means of basketball game.
6. To elaborate control tests for an objective measurement of the student performances, the evolution of motor quality signs and their basketball mastering.
7. To determine the existing links between the development of the motor capacity through specific basketball programs and the development of the students.

Our approach is directed to identify the effects of the instruction programs by specific programs of the basketball game upon the development of the general and

specific and functional modifications as well as the changes appearing in the formation and development of the student personality.

The operational structures which are proposed in the specific programs lead to the sooner assimilation of the basketball game, practiced also as hobby.

In the higher education, the molding principle is reflected by the principle „to connect the instruction to the requirements of the practical activity”. The student instruction does not be converted in a mere objective, but the system of knowledge, skills and motor aptitudes must have a practical and applicative value.

The physical education, included in the curricula of the non specialized higher education, fully justifies the reason of its incorporation. Such document, many times protested by the teachers of theoretical specialized disciplines, must stimulate both students and teaching staff, confirming the necessity of an organized activity.

Any physical education curricula, even when specialized manual are missing, incorporates also collateral aspects of the instructive-educational process at the level of each stage or subsystem.

The competences of the physical education in the non-specialized higher education are fixed in a strong connection with the efficiency of the teaching-instructing activity, which has the following objectives:

- to preserve the state of health and to increase the capacity of adaptability to varied conditions, the students being able to self-evaluate the evolution of their physical development;
- to give advantage to the optimum motricity and to the assimilation of basic elements by practicing sport discipline, using specific technical proceedings of the sport disciplines and observing the specific rules;
- to form and to consolidate a practical and theoretical (hygienic, physiological, methodical, technical and organizational) knowledge system area, in keeping with the general tasks of the higher education.
- to constantly stimulate and keep the interest to an independent practice of the physical exercises and sport;
- to socialize the students through sport activities, in the area of their activities, both spectators or practicing people;
- to mould psychic and behavior states and to put them into social life (fair play, team spirit, responsibility, perseverance, confidence, self-control, etc.);
- to provide compensatory effects to the intellectual activity, to prevent the effects of sedentary lives, to overcome stress and tiredness;
- to get knowledge regarding the influence of the physical education means onto the body, the effort and its dosing.

To all it, in our opinion, we could add:

- to create a trend of healthy life, by motion in the open air and energising the tourist activities;
- to practice the preferred sports as an alternative to the damaging modes to spend the free time;
- to eradicate the vicious habits regarding drugs, tobacco and alcohol, using pleasant efforts aiming to relax, to provide an harmonious physical development;
- to form groups of friends having the same aims to get a harmonious life style and to increase the quality of life.

The motor capacity – conditional, coordinating and intermediary one - of a person represents the level of his/her capacity at one time, according to tests and controls.

In most part of the EU countries is accepted the classification of the motor capacities in conditional capacities and coordinating capacities.

There is a large diversity of classifications for the motor qualities in the specialized literature, as some authors consider possible the following classification: basic qualities and combined qualities, while other authors use a different classification for the motor qualities: basic motor qualities (speed, aptitudes, resistance and power) and specific motor qualities (involved in some sport disciplines).

We subscribe to the classification of the motor capacities into conditional capacities, coordinating capacities and other capacities, like suppleness.

In the specialized literature often it is said that at the youth age ends, for the most part of young people, the formative and educational action of the school into system, in its motor, cognitive and affective dimensions.

The motor answers at such age become complex ones and they are nuanced according to the development of the aptitudes to get the significant elements for an efficient motor conduct. The young person is able to evaluate his/her chances of success in an activity and to make correct predictions about his/her motor performances.

As far as motor qualities are concerned, despite the fact that in the college period such objective of the school physical education has a small share, there is a progress too. The premises to develop the speed, the power and the resistance are used in an insufficient degree and therefore we chose this theme of research using the means of the basketball game as main ones, through specific programs aiming to develop the motor capacity.

The preliminary motor skills and aptitudes must be constantly consolidated. In conjunction with it, *making exercises* to get specific motor skills and aptitudes for the basketball game should contribute to develop the motor qualities.

The motricity and all its components enrich the biological and psychic patrimony of the young student through a systematic action. The physical exercise, as a toll to practice the sport, is a biological stimulus which, by accumulation, ensures a harmonious morphological and functional development, an equilibrated strengthen of the motor qualities, as well as to get specific skills and aptitudes from sport disciplines, like basketball in our case.

**The second part** of the doctoral thesis represents the **preliminary research as a sociological approach of interdisciplinary type and its implications in the development of the motor capacities of the students in the Academy of Economic Studies, by using means of the basketball game through specific programs.** The preliminary research allowed us to formulate objectives, to complete them with standard means and to verify the specific programs aiming to develop the motricity using means of the basketball game among the students of the Academy of Economic Studies in Bucharest.

To get specific programs with means of the basketball game, we have to take into consideration the effects at somatic-functional level during the process of the human body adaptation to the specific effort of the basketball game in the frame of the instructive-educative activity.

For the preliminary research we formulate the following hypothesis:

1. *The selection of acting systems and the elaboration of specific programs by means of the basketball game will increase the efficiency of the physical education lesson in the higher education and will lead to the development of the student motor capacity.*

2. *Incorporating into specific programs technical and tactical game actions should stimulate the students' intelligence and creativity thanks to their participation in the lessons.*

3. *Being aware of the benefits by practicing physical exercises should create an argued reason to use the motion in the free time in order to keep an optimum state of healthy and increase the quality of life.*

We intended to realize specific programs to develop the motor capacity through means of basketball game, being such programs incorporated into instruction design of the physical education according to the structure of the academic year.

To know how much the students are informed about the necessary and motivational reasons to practice in a systematic way the physical exercises besides the educational process, we used the investigation by questionnaires (in all, two questionnaires).

The pilot group was composed by 21 students of 1st course in the Faculty of Cybernetics, Statistics and Informatics, in 2009-2010.

After using specific programs with means of the basketball game aiming to develop the motor qualities and after a statistic and mathematic processing of results in the pilot group, we could find the following:

- The statistical data processing, after measuring the parameters of the general motricity in the pilot group, shows significant progress in all motor parameters. It confirms the first hypothesis of the work in all 7 tests.
- In the parameters of the specific motricity, the evolutions were positive with significant progress in the most part of tests, which confirm the first hypothesis of our work.
- The psychic-motor tests confirm the positive influences of the basketball game onto the motor capacity, as well as onto the level of their intelligence, by relation game and solution of unprecedented technical and tactical actions, which confirm the second hypothesis of the research.
- The answers to the used questionnaires confirm our young students have solid knowledge about the role of the physical exercises in the harmonious physical development, in keeping a good health. They know the influences of the basketball practice onto development of the personality, for their social and professional adaptation and all it confirms the third hypothesis of our research.

**The third part of the doctoral thesis contains Experimental researches and personal contribution to specific programs developing the motor capacity.**

The theme of this doctoral thesis raises for discussion and subjects to experimental controls the methodological dimensions of the physical education in the higher education in the new context of the educational reform. In a concrete manner there are identified instruction strategies focusing operational objectives which link methods, methodic proceedings, means and forms of training in operational structures, which increase the efficiency of the teaching process of the basketball game in the higher education and develop the motor capacity of the students

Observing the project relations between the envisaged theme and the potential result of the research, the *elaborated hypothesis* aimed the following:

1. To select action systems and to elaborate specific programs with means of basketball game, in accordance with the physiologic, psychic and pedagogic requirements of the youth period, increasing therefore the efficiency of the physical education lesson in the higher education and developing the student motor capacity.
2. Incorporating in the specific programs technical and tactical actions through relation game, it will stimulate the student intelligence and creativity.

3. Knowing the benefits by practicing physical exercises, it will create argued reasons to use the motion in the open air, in view to keep an optimum health state and to raise the quality of life.

In the experimental group were 31 students of the Faculty of Business Administration, which practice basketball and in the control group were 31 students of the Faculty of Finance, Insurance, Banking and Stock Exchange, practicing other sport disciplines, other sport games, fitness, aerobic gymnastics.

As research methods we used: scientific documentation, pedagogic observation, experiments, survey questionnaire, measuring and evaluating methods, psychological tests, statistic and mathematic methods to process and interpret data and graphic representations.

To better understand the mutual influence between the development level of the motor qualities and the efficiency of the technical proceedings in the training of basketball players, we selected tests of general motricity (7), tests for the specific motricity (4), Ruffier test and psychic-motor tests (2). At the same time were measured 7 somatic parameters. We used 2 questionnaires to evaluate specialized knowledge regarding the importance of the physical exercises for the development of motor capacity and the influence of sport onto the physical and mental health.

An important stage during the scientific research has been to conceive programs, to realize and apply specific programs with means of basketball game in the year and semester plans.

The results of the experimental research regarding the development of the student motor capacity through specific programs using means of the basketball game showed significant differences between the experimental group and the control group in the two tests.

In the *tests of general and specific motricity* there is a significant statistic difference between the averages,  $p < 0.05$ ; the data dispersion kept its homogenous structure and the value of Cohen index shows a high to very high difference between the media of subjects in the two tests, *so resulting at least 95% of the achieved progress is due to the training programs used in the experiment. Is rejected the null hypothesis and is accepted the research hypothesis.*

In the *Ruffier test*, checking the statistic hypothesis by the t test, highlighted a significant statistic difference between the averages,  $p < 0.05$ ; the Cohen index shows a high to very high difference between the arithmetic averages in the two tests, *so at least 95% of the achieved progress is a consequence of the training programs used in the experiment and is accepted the research hypothesis.*

In the *psychic-motor indicators* checking the statistic hypothesis by the t test resulted a significant statistic difference between the averages,  $p < 0.05$ ; the value of Cohen index proves the difference between the arithmetic averages in the two

tests is high to very high. In conclusion, *at least 95% of the achieved progress is a consequence of the used training program and is accepted the research hypothesis.*

The comparison of the results in the final tests of the two groups had the aim to check the efficiency of training means through the proposed and applied specific programs during the experiment. The analysis of the results in the two groups, during the final tests had the aim to check the efficiency of the training means through the proposed and used specific programs during the experiment. According to the analysis of the results in the two groups, we can note **significant statistic differences in 19 parameters**, from the 22, and the percentage represents **86%**. The other 3 parameters where the differences between the arithmetic averages are not significant, only 14%, are *somatic parameters: weight, biacromial diameter and bitrochanter diameter.*

After checking the statistic hypothesis using the ANOVA variance test, was rejected the null hypothesis in the 3 somatic parameters, the calculated significance threshold (p) being higher than 0,05. The averages achieved by the subjects of the two groups in the final test for the other 19 parameters show an improvement of the performances in the experimental group, the difference between the averages in each test being significant from the statistic point of view and the significance threshold (p) is less than 0.05.

We can say 86% of the experimental group got a significant progress, which is more evident in the specific motor tests. The results of the subjects in the two groups have a predominant homogenous structure, while a non homogenous distribution is a similar characteristic for the both groups.

**The statistic processing of data confirms the research hypothesis about the development of the student motor capacity through specific programs using basketball means.**

**Among the general conclusions of the carried research** we mention:

- Today is unanimously accepted the fact that in the frame of the permanent education, including the higher education, the component part well-known as syntagm of *Physical Education*, as constitutive, conditional and integrative part, has an important contribution to instill in the student area a *stable set of values, conducts and social and personal attitudes.*
- The role of the higher education, among students, follow up the interactive models with formative and educational action for the life and the models which focus is the academic systematic instruction.
- In the context of the options the students have to carry out their activity in the physical education lessons, the differentiate instruction represents an important methodological orientation, justified by the fact that students



represent a non homogenous social segment with the most different levels of physical development, motor and psychic-motor aptitudes and interests. In such conditions, the work by sport options provides support to the principle of accessibility, which determines the efficiency of the instructive and educative process.

- The interest of the young people, specially of the students – expressed by the idea of motion, carried out in different forms – walking, excursions, riding a bicycle, skating, season sports or particularly practicing sport disciplines, is constantly growing up, as a final goal is, among others, to keep up an optimum state of health and to increase the socializing degree.

**Experimental conclusions:**

Analyzing the results of both groups, we can notice significant differences from the statistical point of view in 19 parameters from the 22 parameters used in our research.

In 86 % of tests, the experimental group realized an obvious and significant progress, especially in the specific tests.

**The results of tests regarding the general and specific motricity and the functional test confirm the first hypothesis of the research.**

**The statistical results by processing the Matorin Tests and Raven Progressive Matrix confirm the second hypothesis of the research.**

**The statistic processing of the answers from the two questionnaires confirms the third hypothesis of the research** regarding the importance of the theoretical knowledge about the value of the physical exercises and their free practice for a higher level of the physical preparation and the quality of life.

**So, the results of the experiment confirm the three hypothesis of the research!**

*The personal contribution of this scientific approach is to get a basketball program for the physical education lesson of the students in the Academy of Economic Studies in Bucharest and some specific programs using means of the basketball game to develop the student motor capacity.*