IMPROVING THE INSTRUCTIONAL STRATEGIES FOR THE LEARNING OF SPECIFIC TRACK AND FIELD MOTOR SKILLS IN PRIMARY SCHOOL

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Abstract
This paper tries to contribute to the experts' attempts to find new ways to improve the teaching - learning - perfecting process in physical education and school sports, and also tries to objectify the specific track and field motor content in the primary school period. The research observes the effectiveness of certain action systems during the primary school physical education lesson constructed with creativity to improve the motor learning process specific to track and field skills. Hypothesis: presumably, the improvement of the instructional strategies in the process of learning the specific track and field motor skills would stimulate the bio-psycho-motor and functional potential in primary school children. The research methods were: the study of the professional literature, the observation, the pedagogical experiment, the tests, the statistical-mathematical method and the graphical representation method. The pedagogical experiment was conducted on a group of 30 fourth grade subjects (15 males and 15 females), aged between 9-10, from the "Nicolae Bălcescu" School of Bacău. The control group was represented by 120 fourth grade pupils (65 males, 55 females), from the following schools: "Al. Ioan Cuza", "Miron Costin", "Ion Creangă" and "Mihai Drăgan" of Bacău. The instructional strategies that were identified and experimented in the primary school children have proven their effectiveness through the results recorded during the psycho-motor challenges for primary school level, proven to be significant.

Key words: *improvement, learning process, track and field, motor skills, primary school*

1. Introduction

The modernization of school physical education activities must impose an identification of new strategies, methods, procedures, and means, for achieving the new goals of the education through movement of the younger generation, in compliance with a modern society. (http://www.svedu.ro/curs/tc/c8.htlm).

Motor learning has an important place within the types of learning, being the basis for the formation of numerous behavioral acts. Motor learning consists of a set of processes associated with practice or experience that lead to relatively permanent changes in the ability to respond to stimuli (Dragnea A. et al., 2006). The motor learning process does not mean just assembling a series of elementary, automatic gestures, but a series of sequences that can change differently, leading to the formation of the motor skills. (Dobrescu, T., Constantinescu E., 2008, pp. 116 -119)

Track and field is a branch of physical education and sports that, through its diversified number of drills, envisages a harmonious development of the body, in regards to the muscles and of the modification of the great functions, of certain psychological qualities, as a social value, but also envisages competition (Sabău I., 2001, as cited in Mihăilescu L., E., 2006). The track and field challenges foreseen in the school curriculum are accessible and are based on natural skills, such as the basic motor skills (running, jumping, and throwing).

The curricula contains specific track and field motor content in most of the mentioned categories (Mihăilescu L. N., Mihăilescu N., 2006): basic motor skills, basic motor habits, athletic motor skills, structured on track and field events and challenges.

In relation to the natural movements in running, jumping, and throwing, viewed as basic components of human motion, motor learning in track and field presupposes perfecting these basic

components, thus resulting a specialized motor behavior. (Stoica M., 2005, p. 40)

In order to internalize a psycho-motor behavior, V. Horghidan (2000) thinks that one must go through certain stages: the imitation of a model; the judicious use of the learned motor conducts; the adaptation to new situations; the self-modification of one's own motor conducts for a better adaptation to one's personal qualities; the creation of new motor conducts.

The stages of the formation of motor skills, physiologically or psychologically, must not be mistaken for the stages of the learning of motor skills from a methodical point of view, which are considered to be stages of the teaching process (Raţă G., 2008).

This paper tries to contribute to the experts' attempts to find new ways to improve the teaching - learning - perfecting process in physical education and school sports, and also tries to objectify the specific track and field motor content in the primary school period.

2. Materials and Methods

The aim of the pedagogical experiment investigations in this paper is to scientifically prove the need to create a new methodological direction in regards to the improvement of the primary school children's learning of the specific track and field motor skills.

The proposed experiment observes the effectiveness of certain action systems during the primary school physical education lesson constructed with creativity to improve the motor learning process specific to track and field skills.

Starting from the previously mentioned premises, to reach the aimed goals for the experimental research, a working hypothesis was formulated, stating that:

- Presumably, the improvement of the instructional strategies in the process of learning the specific track and field motor skills would stimulate the bio-psycho-motor and functional potential in primary school children.

The research methods were: the study of the professional literature, the observation, the pedagogical experiment, the tests, the statistical-mathematical method and the graphical representation method.

The assessments were done using a series of battery of tests envisaging the somatic, functional, and psycho-motor markers. The anthropometric assessments measured the height (cm), weight (kg), span (cm), thoracic perimeter during rest (cm). In regards to the functional assessments, the Ruffier test was used, based on the reaction of the heart rate during rest, after the effort and cool-down, identifying the effort capacity of the body. In regards to the psycho-motor assessments, 8 tests were used envisaging the markers of the abdominal strength, upper and lower limb strength, speed, dexterity, coordination, and 5 tests to assess the learned motor skills that are specific to track and field.

The pedagogical experiment was conducted on a group of 30 fourth grade subjects (15 males and 15 females), aged between 9-10, from the "Nicolae Bălcescu" School of Bacău.

The control group was represented by 120 fourth grade pupils (65 males, 55 females), from the following schools: "Al. Ioan Cuza", "Miron Costin", "Ion Creangă" and "Mihai Drăgan" of Bacău.

The independent variable of the experiment was a set of contents regarding the learning of specific track and field motor skills in primary school by promoting movement games, forms of completing the applicative courses used rationally in the experimental group, based on instructional programs that provided the technical characteristics in an attractive way, motivation to work and efficiency, during the physical education lesson.

In order to emphasize the importance of the regulatory role of the pupils' internalization on a formative level in primary school, programs were created, based on movement games, as an alternative to the categories of content proposed and contained in the school curriculum, to meet the required specific expectations.

The structure of the created plans comprises: the learning unit, codification of the reference goals, codes of the thematic content, activities for learning within systems of lessons, instruction goals on each thematic component, and the number of lessons for each component.

3. Results

In the male groups, the experimental group's arithmetical mean of the height recorded an increase of 0.17 cm, compared to the control group, while the body mass recorded a decrease in weight

(0.42 kg) in the experimental group, compared to the control group. The other somatic markers, the span and the thoracic perimeter, recorded higher values in the experimental group, by 0.85 cm.

Table 1. *Results recorded during the anthropometric tests for the experimental group - males*

Statistical markers	Height (cm)		Weight (Kg)		Thor. per. (cm)		Span (cm)	
	IT	FT	IT	FT	IT	FT	IT	FT
Arithmetical mean	138.76	139.90	33.13	32.33	66.06	66.60	139.33	140.13
Standard deviation	5.13	5.31	5.62	5.49	1.88	1.73	4.35	3.35
Var. coeff. (%)	3.80	3.89	12.46	11.38	29.82	17.02	3.22	3.19

In regards to the female groups, the investigated anthropometric markers recorded increases in the experimental group's average values, by 0.41 cm in height, 0.69 kg in weight, 0.23 cm in span, and 0.85 cm in the thoracic perimeter.

Table 2. *Results recorded during the anthropometric tests for the experimental group - females*

Statistical markers	Height (cm)		Weight (Kg)		Thor. per. (cm)		Span (cm)	
	IT	FT	IT	FT	IT	FT	IT	FT
Arithmetical mean	136.56	136.90	31.63	30.03	65.06	66.60	135.70	136.13
Standard deviation	3.13	3.31	3.62	3.49	1.88	1.73	2.35	2.35
Var. coeff. (%)	1.80	1.89	11.46	11.38	1.82	0.02	1.22	1.19

The average value of the effort capacity assessed through the Ruffier test in the male experimental group recorded a decrease by 1.1 points, while the control group recorded a drop by 0.55 points. The analysis of the difference between the initial testing average value and the final one has shown a significant difference in the student's t-test, at the end of the experiment recording the value of 27.850, at a significance threshold of $p < 0.001$.

Regarding the female subjects, the final testing average value recorded a value smaller by 1.29 in the experimental group, and by 1.08 in the control group. The analysis of the difference between the initial testing average value and the final one has shown a significant difference in the student's t-test, at the end of the experiment recording the value of 35.444, at the same significance threshold.

The Ruffier values for the experimental male subjects indicates an adaptation of the effort capacity that is satisfying for the initial testing (100%), while during the final testing, 60% of the subjects presented a medium effort capacity, and the other 40%, a satisfying effort capacity.

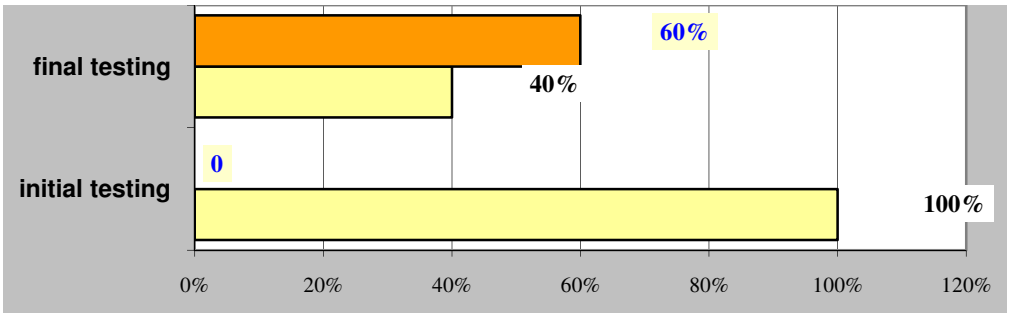

Figure 1. *Effort capacity - initial and final testing - males*

The Ruffier values for the experimental female subjects indicates an adaptation of the effort capacity that is satisfying for the initial testing (100%), while during the final testing, 53.34% of the subjects presented a medium effort capacity, and the other 46.66%, a satisfying effort capacity.

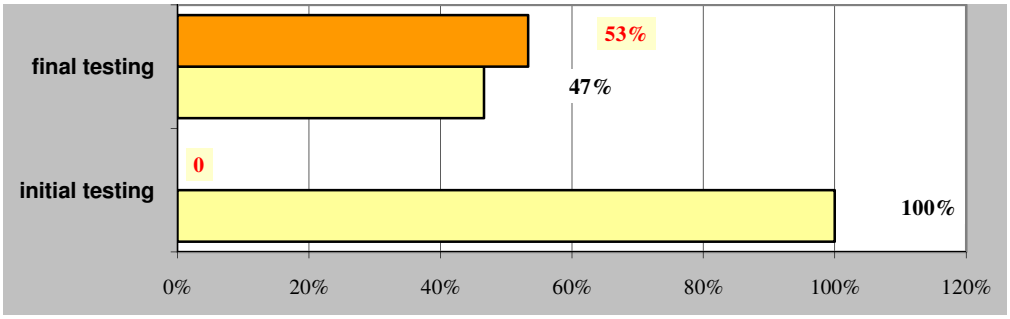

Figure 2. *Effort capacity - initial and final testing - females*

After applying the instruction programs created for this experiment, the final testing showed a significant improvement of the results from the challenges performed by the male subjects, compared to the initial testing, thus one can say they had increased their motor skills.

In regards to the male group, the best results were recorded for the challenges: core lifting in a supine position (3.93 repetitions), maintaining a hanging position (2.77 s), mobility (2 cm), and complex strength structure (5.60 repetitions). The analysis of the difference between the initial testing average value and the final one has shown a significant difference in the student's t-test, at the end of the experiment, at a significance threshold of $p < 0.001$.

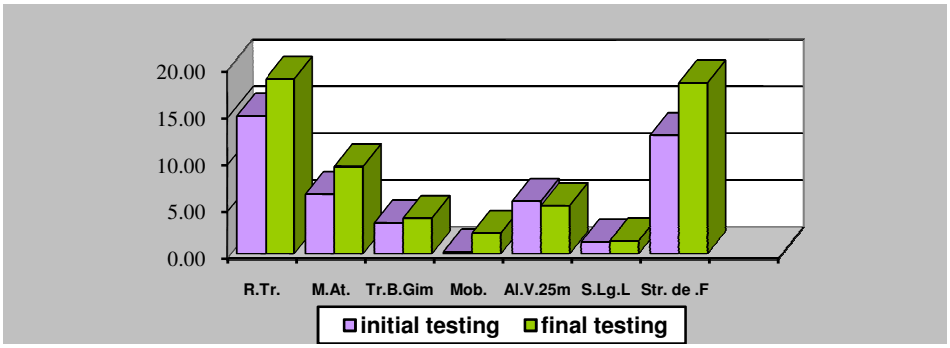

Figure 3. *The average values of the performances in the motor skills tests, Exp. group - males*

The average value of the general coordination (Matorin) in the male group recorded a difference of 70.77 degrees, representing increases in the final values for this challenge, compared to the control group. In regards to the standing long jump, at the end of the experiment there was a progress of 0.12 cm, and in regards to the tractions, there was an increase in the number of repetitions of 0.5. In regards to the speed run, the analysis of the difference between the average values recorded during the initial and the final tests has shown an insignificant value ($t = 1.333$, at a significance threshold of $p > 0.05$), the explanation being that at this age the speed ability is poorer, due to the unproportionality in the somatic growth.

The analysis of the results recorded during the experiment by the female group showed an improvement in the individual performances, and an increase of the general motor capacity. The analysis of the results recorded by the female experimental group during the initial and final tests shows a significant

increase in some tests, such as core lifting in a supine position (3.46 repetitions), maintaining a hanging position (0.41 s), and mobility (2.26 cm).

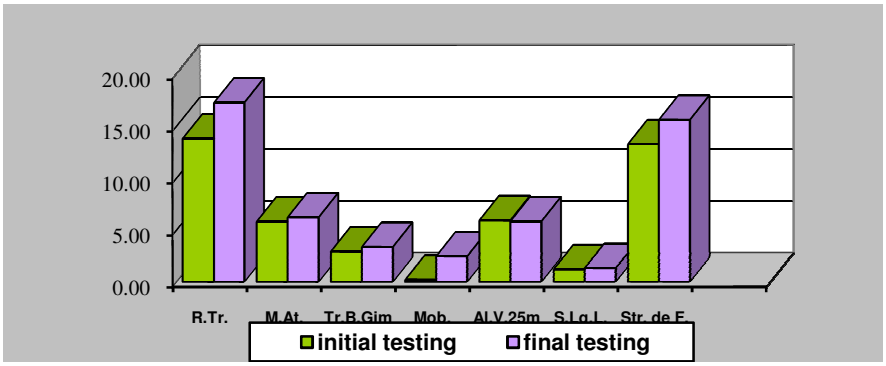

Figure 4. *The average values of the performances in the motor skills tests, Exp. group - females*

In regards to the tractions, the analysis of the difference between the average values recorded during the initial and the final tests has shown an insignificant value ($t = 0.257$, at a significance threshold of $p > 0.05$), explained by the fact that at this age the arm muscle strength is not very well developed in girls. After the application of the created instruction programs, an improvement has been observed in the final general motor skills challenges, such as speed (0.11 s), standing long jump (0.11 cm), complex strength structure (2.34 repetitions), and Matorin (66.14 degrees).

The assessment of the correctness of the learning of track and field motor skills was done and recorded by the specialized teachers on a scale of 1 to 5.

At the end of the study for these markers in the experimental groups, the results for each skill were assessed through the centralization of the initial and final, the average results being emphasized, with the minimum and maximum values.

In the male experimental group, in regards to their learned motor skills, the best average results were recorded during the challenges: the jumped walk (1.02 pts.), standing start (1.33), and launched walk (1.25 pts.), and under one point for the throwing of a small ball, and running in a different tempo (0.64 pts., and 0.80 pts., respectively).

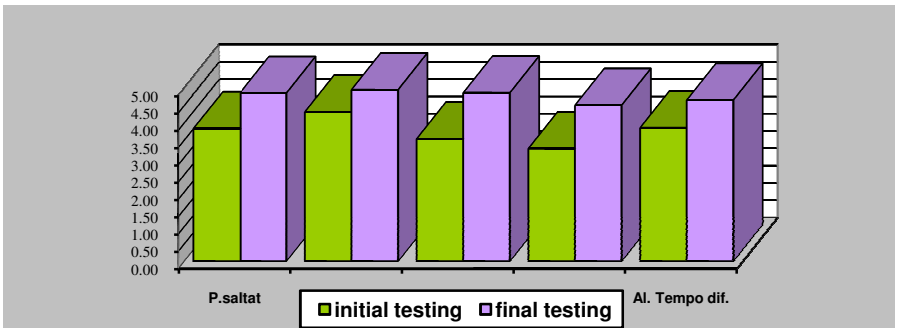

Figure 5. *Centralizer of the statistical results of the experimental group for the assessment of the skills learned from track and field*

In the female experimental group, in regards to their learned motor skills, the best average results were recorded during the challenges: the jumped walk (1.32 pts.), standing start (1.33), and running in a different tempo (1.07 pts.), and under one point for the throwing of a small ball, and launched walk (0.83 pts. and 0.99 pts., respectively).

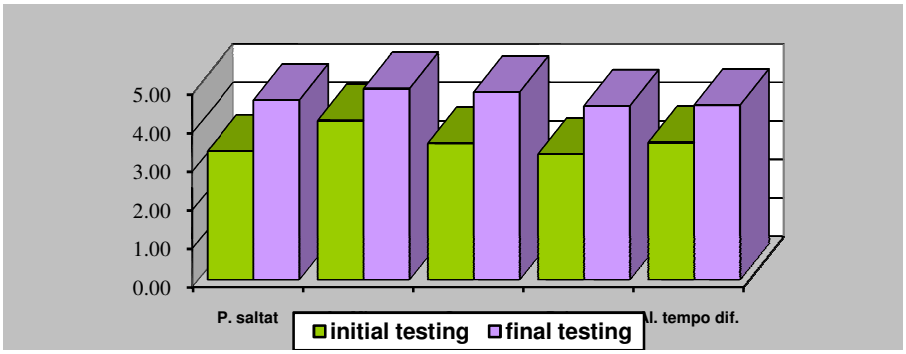

Figure 6. *Centralizer of the statistical results of the control group for the assessment of the skills learned from track and field*

4. Conclusions

After analyzing the results recorded during the experiment, statistically interpreting the values recorded by the groups, the following conclusions were drawn, confirming the hypotheses of the research:

It can be said that this study contributes to a new approach of the physical education lesson by improving the instructional process towards activities that are beneficial for the complex morpho-functional and psycho-motor training of the primary school child.

Through the influences identified during this research, the use of instructional strategies based on movement games can lead to favoring effects regarding the training and consolidation of the primary school pupils' motor and intellectual skills. The playful and emulating character of these methods and means constitute elements that increase the pupils' interest for physical education, mobilizing their energy, and emotionally stimulating them.

Their association with the development of the process of learning the track and field motor skills through the use of methods adapted for a primary school child, has emphasized the formative possibilities the game has on the motor behavior of the primary school pupil.

At the end of the experiment, one can see an increase in the experimental subjects' motor skill markers, based on the results recorded in the final testing, compared to the ones in the initial testing, this showing an improvement of their individual performances after applying the proposed instruction programs.

The instructional strategies that were identified and experimented in the primary school children have proven their effectiveness through the results recorded during the psycho-motor challenges for primary school level, proven to be significant.

The application of the instruction strategies for the improvement process of the specific learning of track and field motor skills has stimulated the bio-psycho-motor and functional potential in primary school children, thus confirming the initial hypothesis.

This new approach of the motor learning process in primary school has a dynamic and elastic character, which allows it to adapt to all of the didactic demands for the training of the pupils' general motor capacity, the accumulation of new practical knowledge, in order to identify the type of model appropriate for the physical education at this education level.

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EXPERIMENTAL RESEARCH REGARDING THE IMPROVEMENT OF THE SELECTION PROCESS FOR THE TRACK AND FIELD MIDDLE-DISTANCE AND LONG-DISTANCE RUNNING EVENTS

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Abstract

This paper arrives in a context when in Romania there are several selection criteria and action directions, which, however, do not fully solve the much more complex phenomenon of directing athletes toward the middle distance and long distance running events, thus it considers that it would be beneficial to identify a battery of tests for the selection, with markers that would favor the improvement of this process.The research consisted in an experiment within which batteries of tests were applied, structured on the components of the champion model, meaning the anthropometric, the functional, the psychological, and the motor skills parameters. For a better relevance of the research, performance markers were also included, with the results recorded during the area and national competitions at the time of the experiment. The selection and the direction of the 14-15 year-old athletes toward the middle distance and long distance running events constitutes an important starting point in getting the needed results, significantly shortening the road to great performances.This is confirmed by the final results of the experiment, in which the experimental group values overlap the champion values, the control group values being inferior. It is necessary for a permanent observation of the dynamics of the track and field results for the middle distance and long distance running events worldwide, in order to be able to make predictions in regards to their development and to be able to make corrections in the selection process in due time.

Key words: *improvement, selection process, track and field, middle-distance, long-distance running, experiment*

5. Introduction

These lection process, being a prognosis process, itallowsin certain stages of training the prediction of possible great performances, (Dobrescu, 2005) as several female athlete shave confirmed, athlete swho have made world history in trackand field, and have distinguished themselves hrough their talentand results, athletes such as: Gabriela Szabo, DoinaMelinte, Elena Fidatov, Iulia Negură, Violeta Beclea Szekely, Paula Ivan,etc.

This process, inits evolution, presupposes ertain methodical conditions that refert othe conception and application fcertain pedagogical, physiological, psychological concepts that can offer prognoses for the skills that help the athlete give top performances, and the possibility to develop them. (Păunescu, 2007)

Considering the continuous improvement of athletic performances and the fact that discovering the