

The role of athletics in developing the sensory-motor aspect of middle school students during the physical and sports education class from the teachers' point of view.

**دور ألعاب القوى في تنمية الجانب الحسي الحركي لدى تلاميذ
الطور المتوسط خلال حصة التربية البدنية والرياضية
من وجهة نظر الأساتذة**

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Abstract:

This study examines how athletics contributes to sensory-motor development in middle school students within physical education and sports, as perceived by 33 teachers in Tebessa. Using descriptive methodology, the study highlights athletics' significant role in enhancing sensorimotor aspects during lessons, emphasizing activities like speed, running, and jumping. It underscores the importance of comprehensive physical development, emphasizing kinetic abilities crucial for activating kinesthetic development. The findings suggest that athletics positively influences the sensory side of middle stage students, contributing to their holistic development across sensory and motor domains.

Keywords: athletics, sensory-motor development, middle school students, Physical education and sports, Kinetic abilities.

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الملخص:

تتناول هذه الدراسة كيف تساهم رياضة المضمار في تطوير الحواس والحركة لدى طلاب المدارس الإعدادية ضمن مادة التربية البدنية والرياضة، كما يراها 33 معلماً في تبسة. باستخدام منهجية وصفية، تسلط الدراسة الضوء على الدور الهام لألعاب القوى في تعزيز الجوانب الحسية الحركية خلال الحصص، مع التأكيد على أنشطة مثل السرعة، والجري، والقفز. تبرز أهمية التنمية البدنية الشاملة، مشددة على القدرات الحركية الضرورية لتنشيط التطور الحركي. تشير النتائج إلى أن رياضة المضمار تؤثر إيجابياً على الجوانب الحسية لدى طلاب المرحلة المتوسطة، مما يساهم في تطويرهم الشامل عبر المجالات الحسية والحركية.

الكلمات المفتاحية: ألعاب القوى، تطوير الحواس والحركة، طلاب المدارس الإعدادية، التربية البدنية والرياضة، القدرات الحركية.

1. Introduction

Physical education and sports, akin to other academic disciplines, play a pivotal role in the holistic development of an individual's personality across physical, psychological, and social dimensions. Central to this endeavor is the utilization of motor activities inherent in physical and sports pursuits, which serve as cultural and societal cornerstones.

Athletics, an ancient discipline, embodies an intrinsic drive that emerged from humanity's primal instincts, rooted in the imperative struggle for survival amidst early environments fraught with challenges from both human and animal adversaries. Consequently, the fundamental objectives of physical education and sports at the intermediate level align with reinforcing the motor, behavioral, psychological, and social advancements established in foundational education (primary schooling).

The sensory-motor facet of this educational pursuit aims at refining and enhancing fundamental kinetic maneuvers encompassing both transitional actions, such as the seamless transition between stable positions in activities like jumping and running, and non-transitional movements involving the manipulation of the head, trunk, or limbs, including striking movements with the hands or feet. Additionally, cognitive faculties are cultivated to facilitate learners' interpretation of stimuli, enabling them to adapt effectively to their surroundings. This

cognitive development primarily encompasses motor, visual, and auditory acuity. Moreover, the cultivation of physical prowess is prioritized, fostering competence in executing both rudimentary and intricate skills.

Consequently, the pedagogical significance of athletic instruction, as exemplified by athletics, emerges as a cornerstone in the attainment of objectives outlined within physical education and sports curricula, particularly in enhancing the sensory-motor proficiency of students. Thus, it prompts the inquiry:

"What role does athletics play in augmenting the sensory-motor proficiency of students in the intermediate stage of physical education and sports classes, as perceived by educators?"

This overarching query is complemented by the following sub-queries:

- "How does athletics contribute to enhancing the sensory dimension during physical education and sports classes among middle school students, as perceived by educators?"
- "In what ways does athletics foster the development of the motor dimension during physical education classes among middle school students, as perceived by educators?"

2. Hypotheses of the study*General hypothesis:*

2.1. General Hypothesis

Athletics plays a significant role in fostering the sensory-motor aspect during physical education and sports classes as perceived by educators.

2.2. Partial hypothesis

- Athletics contributes to the enhancement of the sensory dimension during middle school physical education and sports classes.
- Athletics contributes to the development of the motor dimension during middle school physical education and sports classes.

3. Research Objectives

The objectives of this study are as follows:

- To illuminate the impactful role of athletics in an individual's (student's) life, particularly in the development of various aspects, notably the sensory-motor domain.
- To underscore the significance of athletics in fostering multifaceted development.

4. Importance of the Study

This study holds significance due to several reasons:

- It addresses a demographic crucial to the study—middle school students.
- It elucidates the type of sport conducive to enhancing students' sensory and motor dimensions.
- It serves as a valuable resource for intermediate stage physical education and sports educators.

5. Reasons for Choosing this Topic

One of the primary motivations for selecting this topic is the aspiration to contribute scientifically to our educational institution, bolstering faculty support and enhancing their competencies and cognitive capacities to facilitate the educational training process.

6. Study terminology:

The research delineates various concepts and terms, necessitating clarification to ensure reader comprehension.

6.1. Physical Education and Sports:

It encompasses both an academic discipline and an educational profession. Alternatively, it comprises a repertoire of methodologies and techniques rooted in theories, principles, and regulations aimed at attaining a spectrum of values, ideals, and experiences [1].

Procedurally, it denotes a series of physical exercises undertaken by individuals (students) along a pedagogical trajectory to preserve bodily fitness.

- Definition of physical education and sports procedurally: It signifies an integrated process between physical education and sports instructors and students, fostering engagement in diverse sports

activities to nurture psychological, motor, social, cognitive, and moral dimensions.

6.2. Sensory-motor aspect:

It is the management of information that comes to the individual through the senses and the process of information and reaction in the light of apparent motor behavior [2].

- **Procedural definition:** Procedurally, the term refers to the faculty enabling individuals to discern the position, state, extension, and trajectory of bodily segments, along with the overall body position and movement specifications.

6.3. Athletics:

Historically, the Greek term "athlétik'os" denoted heroes in ancient Greece, referring to participants in games and competitions showcasing attributes of speed, power, and dexterity. In contemporary parlance, athletics encompasses activities such as jogging, walking varying distances, high jumping, long jumping, and throwing sports equipment. It holds a prominent status in sporting events, earning the moniker "Queen of Sports" due to its extensive presence across major competitions, including the Olympic Games [3].

- **Procedural definition of athletics:** Within the context of Tebessa's middle school students, athletics denotes a structured sports activity executed with scientific methodology, comprising planned objectives such as jumping and flexibility exercises. It typically involves competitive engagements among individuals, showcasing their competencies and physical prowess.

7. Previous and similar studies:

7.1. First study:

- **Author:** Boushiba Mustafa
- **Title:** The Role of Mini Athletics for Children in Developing Basic Motor Skills (Throwing, Running, Jumping) Among Primary Students Aged 9 to 11 Years.
- **Objective:** This study aimed to investigate the efficacy of mini athletics programs for children in enhancing basic motor skills,

including throwing, running, and jumping, among primary school students aged 9 to 11 years. Employing an experimental approach, the study involved 63 students divided into two groups: 31 in the control group and 32 in the experimental group, selected randomly. Data collection utilized tests, with results indicating that the mini athletics program outperformed regular programs in developing basic motor skills.

7.2. Second study:

- **Authors:** Dr. Laghorour Abdel Hamid, Dr. Shannouf Khaled
- **Title:** The Effect of Athletics Competitions Program for Children on Improving Some Motor Abilities (Transitional Speed, General Agility, Moving Balance) Among Trainees Aged 5 to 6 Years.
- **Objective:** This study aimed to assess the impact of the athletics competitions program for children, developed by the International Association of Athletics Federations (IAAF), on enhancing specific motor abilities such as transitional speed, general agility, and moving balance. Employing an experimental design with a single group, the study involved a population of 30 children aged 5 to 6 years, with a sample of 20 intentionally selected participants. The study utilized running tests covering a 23-meter straight line, zigzag running, and walking on a balance beam to evaluate motor abilities.

8. Research Procedures:

8.1. Study Methodology:

The methodology in scientific research refers to the set of principles established to uncover truth [4]. The choice of methodology is dictated by the nature of the subject under investigation, as some topics are suited to certain approaches over others. Given the nature of our topic, we adopted a descriptive approach, which focuses on educational, pedagogical, or psychological phenomena, exploring the relationships among their elements and with related phenomena. This approach involves collecting, classifying, converting, and subjecting extracted information to rigorous scientific analysis.

9. *Definition of the descriptive approach:*

The descriptive approach entails an investigation into phenomena, aiming to understand their characteristics, relationships, and impact. It involves the compilation of facts and information, followed by comparison, analysis, and interpretation to derive acceptable generalizations [5,6].

- ***Search variables:*** Our research topic can be categorized according to two variables:
- ***Independent variable:*** This variable, athletics, influences other related variables. In our study, athletics serves as the independent variable.
- ***Dependent variable:*** Dependent Variable: This variable's value depends on changes in the independent variable. In our research, the sensory-motor aspect serves as the dependent variable.
- ***Research Community:*** The research community comprises individuals, events, or objects pertinent to the research problem. It represents the population from which field samples are drawn, with the sample serving as a subset or representative portion of the entire community. In our study, the research community consists of 254 physical education and sports teachers at the intermediate stage in the wilaya of Tebessa.
- ***Research Sample:*** A random sampling method was employed to ensure the representativeness of the research sample, facilitating the generation of relatively generalized results reflective of the original research community [7,8]. Our sample included 33 physical education and sports professors from the intermediate stage in the state of Tebessa.

Table A. Table Showing the Locations, and the Number of Teachers and Enrolled Pupils

Averages	Professors	Pupils
France Fanon-Tebessa	03	420
Ibn Khaldun - Tebessa	03	430
Mohamed Boudiaf- Tebessa	03	500
Ouiam - Tebessa	02	360
Badri Jaballah- Tebessa	03	375
Al-Arabi Al-Tibsi - Cheria	03	502
Mufdi Zakaria - Cheria	03	521
Mohammed Al-Nasser - Tebessa	03	465
Martyr Belkacem - Bir El Ater	03	470
Mustafa Ben Boulaid - Cheria	02	167
First November District - Tebessa	03	250
Ibn Rushd - Cheria	01	150

• ***Research Tools:***

In this research, we utilized the questionnaire technique, renowned for its efficacy in gauging public opinion and verifying the raised problem. This method facilitated the collection of data pertinent to our hypotheses in a straightforward manner.

A questionnaire serves as a tool for gathering facts, data, and information. It enables the collection of information through a structured form designed specifically for the research purposes. One of its notable advantages is its time efficiency, as it allows for the acquisition of data from samples within a minimal timeframe, aligning with the exigencies of our study.

The questionnaire comprised a list of 13 questions, to which respondents provided answers by marking an "X" within the designated box. It was administered through personal interviews, with the questionnaire structured into two axes. The first axis contained 7 questions, while the second axis contained 6 questions. The questionnaire design was informed by an exploratory study and

consultations with experienced professors, ensuring alignment with the study's hypotheses.

10. Presentation, discussion and analysis of the results of the questionnaire:

10.1 Objective of the questionnaire:

To ensure the questionnaire's validity, it was subjected to review by a panel of reputable professors. Adjustments were made based on their feedback, including modifications, deletions, and additions to questions proposed by teachers. Consequently, the questionnaire is characterized by its integrity and reliability.

10.2 The first axis:

The first axis of the questionnaire pertained to the first hypothesis, which focused on examining the role of athletics in developing the sensory aspect of middle school students, as perceived by teachers.

Table (01) The table below presents the distribution of responses regarding students' favorite athletics activity.

Answers	Iteration	Ratio	Calculated	Tabular	Sig	Statistical significance
Speed	7	21.2	11.09	5.99	0.05	0.004
capering	6	18.2				
Running	20	60.6				
sum	33	100.0				

Analysis: From Table No. (01), which displays the calculated chi-square value to assess the significance of differences between observed and expected frequencies, it is evident that the calculated chi-square value is 11.09 at a significance level of 0.000. This value is statistically significant at the 0.05 significance level with a degree of freedom of 2. Since the calculated chi-square value exceeds the tabular value, the null hypothesis is rejected in favor of the alternative hypothesis. Therefore, it can be concluded that there are significant differences between observed and expected frequencies, favoring the highest frequency, which is

running activity. Thus, it can be inferred that the study sample predominantly prefers running activity among athletics activities.

This analysis underscores the significance of running activity within the athletics domain, indicating its popularity among middle school students as perceived by teachers.

Table (02) This table presents the distribution of responses regarding whether students change the nature of their motor behavior due to interaction with their peers:

Answers	Iteration	Ratio	Calculated	Tabular	Sig	Statistical significance
little	3	9.1	10.36	5.99	0.05	0.006
mediu	12	36.4				
A lot	18	54.5				
sum	33	100.0				

Analysis: From Table No. (02), which displays the calculated chi-square value to assess the significance of differences between observed and expected frequencies, it is evident that the calculated chi-square value is 10.36 at a significance level of 0.000. This value is statistically significant at the 0.05 significance level with a degree of freedom of 2. Since the calculated chi-square value exceeds the tabular value, the null hypothesis is rejected in favor of the alternative hypothesis. Therefore, it can be concluded that there are significant differences between observed and expected frequencies, favoring the highest frequency, which indicates that the members of the study sample believe that students change the nature of their motor behavior significantly due to interaction with their peers.

This analysis highlights the perception among the study sample that peer interaction has a substantial impact on students' motor behavior, suggesting a significant influence of social dynamics on motor behavior adaptation.

Table(03) *This table presents the distribution of responses regarding whether athletics strengthens the body's sensory-motor functions:*

Answers	Iteration	Ratio	Calculated	Tabular	Sig	Statistical significance
little	7	21.2	8.72	5.99	0.05	0.013
mediu	7	21.2				
A lot	19	57.6				
sum	33	100.0				

Analysis: From Table No. (03), which displays the calculated chi-square value to assess the significance of differences between observed and expected frequencies, it is evident that the calculated chi-square value is 8.72 at a significance level of 0.000. This value is statistically significant at the 0.05 significance level with a degree of freedom of 2. Since the calculated chi-square value exceeds the tabular value, the null hypothesis is rejected in favor of the alternative hypothesis. Therefore, it can be concluded that there are significant differences between observed and expected frequencies, favoring the highest frequency. Thus, the members of the study sample believe that athletics significantly strengthens the body's sensory-motor functions.

This analysis underscores the perceived positive impact of athletics on enhancing the sensory-motor functions of the body, as perceived by the study sample.

Table No. (04) *This table presents the distribution of responses regarding whether the activity helps develop motor aspects, especially sensory-motor ones:*

Answers	Iteration	Ratio	Calculated	Tabular	Sig	Statistical significance
little	5	15.2	16.54	5.99	0.05	0.000
mediu	6	18.2				
A lot	22	66.7				
sum	33	100.0				

Analysis: From Table No. (04), which displays the calculated chi-square value to assess the significance of differences between observed and expected frequencies, it is evident that the calculated chi-square

value is 16.54 at a significance level of 0.000. This value is statistically significant at the 0.05 significance level with a degree of freedom of 2. Since the calculated chi-square value exceeds the tabular value, the null hypothesis is rejected in favor of the alternative hypothesis. Therefore, it can be concluded that there are significant differences between observed and expected frequencies, favoring the highest frequency. Thus, the members of the study sample believe that the athletics activity significantly helps to develop motor aspects, especially sensory-motor ones.

This analysis reinforces the perception among the study sample regarding the positive impact of athletics activity on the development of motor aspects, particularly sensory-motor functions.

10.3 Discussion and analysis of the first hypothesis:

The first partial hypothesis suggests that athletics plays a beneficial role in the development of the sensory aspect, as evidenced by the results obtained from Tables No. 01, 02, 03, and 04, corresponding to questions 01, 02, 03, and 04 respectively. The majority of responses were positive and robust, indicating that engaging in athletics assists students in enhancing their sensory abilities. These findings underscore the significance of athletics in the process of motor learning.

These results align with prior research, such as the study conducted by Wemer Abdel Qader titled "The Role of Para-Sports Games in the Development of the Sensory-Motor Aspect," which supports the notion that athletics contributes to sensory-motor development. Similarly, Dr. Mahmoud Muhammad Al-Sharif's study titled "The Effect of a Motor Program Using Athletics on Reducing the Level of Bullying Behavior of First-Stage Students" found that athletics positively impacts students' sensory aspects. Furthermore, Dr. Suhair Akram Ibrahim's study titled "The Effect of the Play Program on the Development of Cognition (Sensory-Motor) for Children's Sports for the Age of (5-6) Years 2014" reinforces the idea that athletics contributes to sensory-motor development.

The statistical analysis of the preceding questions reveals differences in teachers' responses, with the percentages further affirming this conclusion. Consequently, it can be inferred from these results that athletics plays a constructive role in enhancing the sensory aspect of middle school students in physical education and sports classes.

Note: Tables 05, 06, and 07 were omitted due to their numerous entries.

10.4 The second axis:

The second axis of the study pertains to the second hypothesis, which explores the role of athletics in developing the motor aspect of middle school students, as perceived by teachers.

Table No. (08) This table presents the distribution of responses regarding whether playing athletics gives the student new motor qualities:

Answers	Iteration	Ratio	Calculated	Tabular	Sig	Statistical significance
little	6	18.2	16.54	5.997	0.05	0.000
mediu	5	15.2				
A lot	22	66.7				
sum	33	100.0				

Analysis: From Table No. (08), which displays the calculated chi-square value to assess the significance of differences between observed and expected frequencies, it is evident that the calculated chi-square value is 16.54 at a significance level of 0.000. This value is statistically significant at the 0.05 significance level with a degree of freedom of 2. Since the calculated chi-square value exceeds the tabular value, the null hypothesis is rejected in favor of the alternative hypothesis. Therefore, it can be concluded that there are significant differences between observed and expected frequencies, favoring the highest frequency. Thus, the members of the study sample believe that playing athletics indeed gives the student new motor qualities.

This analysis reinforces the perception among the study sample regarding the positive impact of engaging in athletics on the acquisition of new motor qualities by students.

Table No. (09) This table presents the distribution of responses regarding whether athletics contributes to providing students with motor skills:

Answers	Iteration	Ratio	Calculated	Tabular	Sig	Statistical significance
little	5	15.2	7.81	5.99	0.05	0.020
mediu	10	30.3				
A lot	18	54.5				
sum	33	100.0				

Analysis: From Table No. (09), which displays the calculated chi-square value to assess the significance of differences between observed and expected frequencies, it is evident that the calculated chi-square value is 7.81 at a significance level of 0.000. This value is statistically significant at the 0.05 significance level with a degree of freedom of 2. Since the calculated chi-square value exceeds the tabular value, the null hypothesis is rejected in favor of the alternative hypothesis. Therefore, it can be concluded that there are significant differences between observed and expected frequencies, favoring the highest frequency. Thus, the members of the study sample believe that athletics does contribute to providing students with motor skills.

This analysis reinforces the perception among the study sample regarding the positive impact of athletics on enhancing students' motor skills development.

Table (10) This table presents the distribution of responses regarding whether athletics helps improve students' athletic performance:

Answers	Iteration	Ratio	Calculated	Tabular	Sig	Statistical significance
little	2	6.1	21.27	5.99	0.05	0.000
mediu	8	24.2				
A lot	23	69.7				
sum	33	100.0				

Analysis: From Table No. (10), which displays the calculated chi-square value to assess the significance of differences between observed and expected frequencies, it is evident that the calculated chi-square

value is 21.27 at a significance level of 0.000. This value is statistically significant at the 0.05 significance level with a degree of freedom of 2. Since the calculated chi-square value exceeds the tabular value, the null hypothesis is rejected in favor of the alternative hypothesis. Therefore, it can be concluded that there are significant differences between observed and expected frequencies, favoring the highest frequency. Thus, the members of the study sample believe that athletics indeed helps improve the athletic performance of students.

This analysis strengthens the perception among the study sample regarding the positive influence of athletics on enhancing students' athletic performance.

- ***Analysis and discussion of the second hypothesis:***

The second partial hypothesis posits that athletics plays a constructive role in the development of the motor aspect, as evidenced by the results obtained from tables 08, 09, 10, 11, 12, and 13, corresponding to questions 08, 09, 10, 11, 12, and 13, respectively. The extensive responses obtained suggest a strong belief among participants regarding the positive impact of athletics on motor development.

Note: Tables 11, 12, and 13 were omitted due to their numerous entries.

Athletics stands out in its ability to significantly contribute to the enhancement of the motor aspect, owing to its specific characteristics that distinguish it from other sports. The statistical analysis of the preceding questions indicates that athletics substantially aids in improving and developing the motor aspect of middle school students, a conclusion further supported by the observed percentages.

This finding aligns with the insights provided in Dr. Osama Kamel Rateb's book on motor development, particularly in the eighth chapter, where he explores the significance of activities such as running, walking, jumping, and leaping in motor development. These elements are inherent in the sport of athletics, underscoring its pivotal role in motor skill enhancement.

Moreover, the results of Ziadi Saleh's study titled "The Effect of a Proposed Program for Movement Games on the Development of

Abilities (Kinesthetics) Among Children Aged (5-6) Years" corroborate the positive influence of sports on cognitive abilities, particularly in the realm of sensory-motor development.

In summary, the findings of this study indicate that athletics plays a vital role in fostering the motor aspect of middle school students, as perceived by subject teachers. This underscores the importance of incorporating athletics into physical education and sports curricula to promote holistic development among students.

11. General conclusion

Based on the analysis and discussion of the questionnaire results obtained from teachers of physical education and sports for the intermediate stage, the following conclusions can be drawn:

- The first partial hypothesis, which asserts that athletics plays a positive role in the development of the motor aspect of middle school students, has been substantiated.
- Similarly, the second partial hypothesis, indicating the positive impact of athletics on the motor aspect, has been confirmed, albeit to a greater extent than the first hypothesis.
- Considering that the first partial hypothesis was realized to a lesser extent compared to the second, it can be inferred that the general hypothesis has been relatively fulfilled.

In conclusion, through the analysis, discussion, and interpretation of the partial hypothesis results, it can be concluded that the general hypothesis of the study, regarding the role of athletics in developing the sensory-motor aspect of middle stage students from the perspective of subject professors, has been achieved. Specifically, it has been established that athletics contributes positively to both the sensory and motor development of middle school students.

12. Suggestions

- Implementation of athletics programs through the establishment of athletics branches and clubs for children.
- Careful consideration and implementation of the athletics competition program formulated by the International Association of Athletics Federations, with attention to factors such as age group, gender, field, equipment, and resources, within primary and intermediate schools.
- Addressing the realities faced by children in Algerian schools at the primary and intermediate levels.

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