

Motor Education in Primary School: Assessment of Basic Motor Skills

Matteo Abate, Maria Virginia Marchesano and Pallonetto Lucia

Department of Human, Philosophical and Educational Sciences, University of Salerno, Fisciano Salerno 84084, Italy

Abstract: The Recent Educational Legislation [1], by introducing the role of the specialized teacher for the subject of Physical Education in the fourth and fifth grades of primary school, embraces and institutionalizes the suggestions of current neuroscientific literature that demonstrates how physical activity contributes, in a holistic and significant manner, to a harmonious and balanced psychophysical development of the child. This study aims to verify the qualitative and quantitative improvement levels of basic motor skills in a convenience sample of 75 children (M = 33; F = 42), aged between 7 and 11 years, after a motor activity treatment, through the administration of the Mobak 3-4 Test [2]. Considering that the individual qualitative and quantitative motor repertoire [3] showing moderate improvements for the experimental group and moderate improvements for the control group, it is possible to confirm that regular sports practice positively impacts the improvement of basic motor skills not only in subjects who habitually engage in sports activities but also in those who usually do not practice sports.

Key words: Mobak, motor skills, primary school, physical activity.

1. Introduction

In recent years, the Italian national landscape has been the scene of various reform proposals concerning primary school, prompting educators to engage in a continuous process of rethinking and updating. The speed at which new directives have been issued has necessitated, first and foremost, the stabilization of programmatic and project guidelines, as evidenced by the National Guidelines for the Curriculum of Early Childhood Education and the First Cycle of Education [4] and the reform of the National Education and Training System [5], which calls for the enhancement and implementation of motor disciplines in the school setting (art.1, paragraph 7G). To this end, a three-year research period was established, during which the new guidelines would be actively tested, encouraging the educational community to identify new educational paths supported by a culturally and humanly

attentive education to the lost values of responsibility, solidarity, and citizenship, in order to consciously and critically integrate the new perspectives into the organicity of the National School Education System. It is within this blurred gray area of seeking adequacy in educational proposals that the educational community is currently moving, with the aim of accurately intercepting the most appropriate and feasible proposal, also in relation to the available resources. Among the project objectives of the primary and lower secondary school reforms, a strong desire to ensure young learners' right to motor skills, playful-corporeal expression, and the improvement of psychophysical health through sports practice emerges. Indeed, the relationship between physical activities and school has always been fraught with contradictions due to the absence of a culture of the body and movement, which reveals significant discrepancies between educational demands

Corresponding author: Matteo Abate MIUR, research field: 2. Methodology; 2.1 Objective. 2.2 Sample: 2.3 Instruments and Methodological Procedures; Maria Virginia Marchesano PhD Student in Kinesiology and Sport Sciences - National PhD Programme Department of Neurosciences, Biomedicine and Movement Sciences University of Verona/Salerno research field:

1. Introduction. Lucia Pallonetto, Researcher in Methods and teaching of motor activities (M-EDF/01) at the Department of Human, Philosophical and Educational Sciences, University of Salerno. Research field: 3. Results and discussions and 4. Conclusion.

and institutionally assigned resources.

Primarily, what seems to be lacking is the time dedicated to motor and sports activities, which is often considered by much of the educational, educated, and parental community solely in its function as a release valve or as a recreational moment to “break” between lessons. Among the various inconsistencies, note, for example, how the teaching of Physical Education was only recently introduced in primary school and only in the final grades, despite the fact that, from the obsolete Educational Programs for schools of all levels to the more recent Guidelines [6] and the reform of the National Education System, motor, physical, and sports activities are attributed a fundamental value in the school experience and in educational and training processes. The value of sport and movement can be observed from multiple directions as it contributes to health promotion, brings considerable benefits to sociality, and can be configured as a form of non-verbal language and artistic expression. For example, consider dance, a discipline often underestimated by the educational community, although it has represented, throughout human history, a privileged opportunity for holistic education and the creation of moments of strong social aggregation. The National Guidelines for the Curriculum, from early childhood education to the first cycle of education, i.e., up to the end of lower secondary school, finally recognize physical education as having a very high educational value, because it is considered not only capable of promoting self-knowledge and one’s potential in constant relation to the environment and others, but also capable of contributing to the formation of the student’s personality through the knowledge and awareness of one’s body identity and the constant care of the person. The recent legislative provision introduces the figure of the graduate in motor sciences as a physical education teacher for the fourth and fifth years of primary school, moreover, establishes the necessity for activities to be designed and implemented competently and responsibly, so as to constitute quality learning experiences capable of promoting the

participation of all and each individual and the acquisition of specific motor skills transferable to different life contexts. Recent scientific literature, in fact, demonstrates how motor activities are an excellent tool for promoting the integral development of the person: from psychophysical well-being to cognitive functioning, to social and relational skills [7].

2. Methodology

2.1 Objective

In this study, children were guided to identify, recognize, and express their own movement, trusting their potential as an element of balance in the development of basic motor skills, through sports initiation activities. Therefore, this study pursued the following objectives:

- Investigate the main competency areas of the MOBAK 3-4 test;
- object control and body movement;
- guide classes in discovering typical training of sports initiation by investigating coordinative skills transversely and reversing the items of the Mobak test.

2.2 Sample

The sample selected for the research consists of 75 children (M = 33; F = 42) (tab.1), aged between 7 and 11 years, selected using non-probabilistic sampling, with 62.7% attending the third grade and 37.3% attending the fourth grade of a primary school. Finally, a distinction was also made between students who practice sports and students who do not practice sports (tab.2).

2.3 Instruments and Methodological Procedures

Tracking students through Mobak provides data on skill acquisition and allows identifying key elements to systematically monitor the development of skills schools by evaluating the real ability to transfer learning.

The Mobak 3 and 4 investigation protocol allows you to evaluate a subject’s basic motor skills, including,

specifically, eight tests divided into two areas of competence: “control of objects” and “body in motion”.

Table 1 Gender.

	Freq.	%
Male	33	44.0
Female	42	56.0
Total	75	100.0

Table 2 Play sports.

	Freq.	%
No	37	49.3
Yes	38	50.7
Total	75	100.0

The test was the subject of several analyses which confirmed the reliability of the results. There, evaluation of MOBAK tasks is done through dichotomous coding (passed-failed) and clear standardization criteria. The sum of the scores obtained in the individual tasks provides detailed information on each child’s basic motor skills, allowing a differentiated assessment of their level of competence.

The study was divided into 5 phases:

- (1) Informational interview with parents
- (2) First administration
- (3) Training period functional to the development of the desired skills
- (4) Second administration
- (5) Data processing

3. Results and Discussion

Descriptive statistics of the MOBAK 3-4 (“object control” and “body movement”) allowed for the quantification of differences in variables in terms of mean values and standard deviations through analysis by levels and gender, by levels and age, both on the entire sample and by comparing groups (control group/experimental group). In the two main areas of assessment, “object control” and “body movement,” the tables (tab. 3-4) represent the mean value and standard deviation in the control group and the experimental group. Tables 3 and 4 show the data related to the items of “object control” (throwing,

catching, dribble, dribbling) measured between the two groups (those who do not practice sports and those who practice sports) at two different times (T0 and T1). Specifically, for the skills, it was possible to find that, in the throwing item, in subjects who do not practice sports, the pre- and post-test comparison (T0 to T1) values increase from 0.24 to 1.16. In subjects who practice sports, the values increase from 0.29 to 1.03 from T0 to T1. This suggests that both categories show an improvement over time in throwing skills, with a greater increase in the group that does not practice sports and participated in the treatment activities, while subjects who practice sports confirm the initial data.

In the catching item, in subjects who do not practice sports, the pre- and post-test comparison values increase from 0.41 to 1.24; in those who practice sports, the values increase from 0.61 to 1.18. Here too, both groups show significant improvements.

In the dribbling item, in subjects who do not practice sports, the pre- and post-test comparison values increase from 1.03 to 1.84; for those who practice sports, the values increase from 1.26 to 1.71. Both groups improve with a more marked increase in the group that does not practice sports.

In the dribbling item, in subjects who do not practice sports, the pre- and post-test comparison values increase from 0.70 to 1.57. In subjects who practice sports, the values increase from 1.13 to 1.50. In this case, too, both groups show improvements with a greater increase in the group that does not practice sports. All the skills shown in the tables 3 and 4 improve over time for both the group that practices sports and the group that does not practice sports.

Table 4 shows the data related to the competency area of “body movement” (balance, rolling, jumping, various gaits). Specifically, for the balance item, in subjects who do not practice sports, the pre- and post-test comparison (T0 to T1) values increase from 1.27 to 1.78; in subjects who practice sports, the values increase from 1.34 to 1.61.

For the rolling item, in subjects who do not practice

sports, the pre- and post-test comparison values increase from 1.05 to 1.32; in subjects who practice sports, the values increase from 1.32 to 1.47.

For the jumping item, in subjects who do not practice sports, the pre- and post-test comparison values increase from 0.27 to 0.41; in subjects who practice

sports, the values increase from 0.16 to 0.61.

For the various gaits item, in subjects who do not practice sports, the pre- and post-test comparison values increase significantly from 1.65 to 2.00; in subjects who practice sports, the values increase from 1.50 to 1.92.

Table 3 Items: objects control.

	Throwing		Catching		Dribble		Dribbling	
	T0	T1	T0	T1	T0	T1	T0	T1
No Pratica Sport	0.24	1.16	0.41	1.24	1.03	1.84	0.70	1.57
Pratica Sport	0.29	1.03	0.61	1.18	1.26	1.71	1.13	1.50
Total	0.27	1.09	0.51	1.21	1.15	1.77	0.92	1.53

Table 4 Items: body movement.

	Balance		Rolling		Jumping		Various gaits	
	T0	T1	T0	T1	T0	T1	T0	T1
No sport	1.27	1.78	1.05	1.32	0.27	0.41	1.65	2.00
Yes sport	1.34	1.61	1.32	1.47	0.16	0.61	1.50	1.92
Total	1.31	1.69	1.19	1.40	0.21	0.51	1.57	1.96

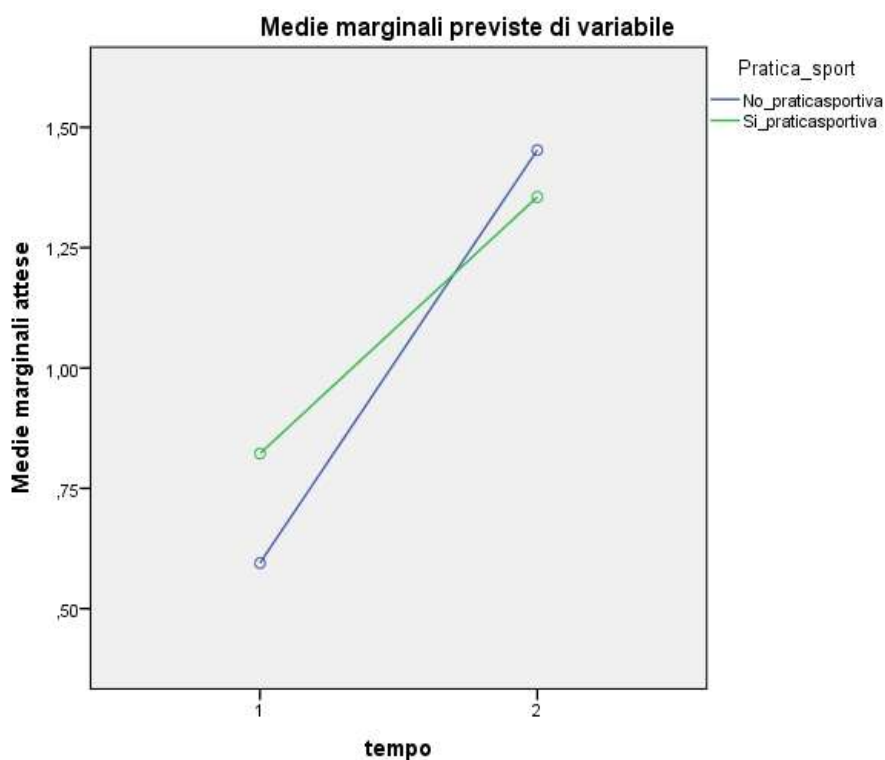


Fig. 1 Average distribution between 2 groups.

Table 5 Mixed ANOVA 2*2.

Source	T (time)	Planned Contrast			F	Sig.
		Sum of squares Tipe III	df	Mean square		
Time	Linear	18.136	1	18.136	169.858	0.000
Time "Yes Sport"	Linear	0.991	1	0.991	9.285	0.003

Error (time)	Linear	7.794	73	0.107
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Both groups show improvement in the competency areas, with a greater increase in the group of subjects who do not practice sports. Comparing the two groups specifically, it is possible to observe that the group that does not practice sports shows greater improvements in the skills of balance, rolling, and various gaits, while the group that practices sports shows greater improvement in the skill of jumping. These data confirm the value of the treatment activities conducted over 8 targeted training sessions aimed at developing coordination and motor skills.

Both groups show improvement over time (from T0 to T1), indicating that the skills or performance measured increased for all participants (tab.5).

In the graph (Fig. 1), the group that practices sports starts with a higher expected marginal mean at T0 compared to the group that does not practice sports, suggesting that those who practice sports might already have a better baseline in terms of the skills or performance measured. Although both groups improve over time, the group that practices sports starts at a higher level and continues to improve, albeit to a slightly lesser degree than the group that does not practice sports. This may indicate that ongoing sports practice continues to provide benefits, but those who do not practice sports can show significant improvements when introduced to a continuous physical activity regime. In summary, the graph clearly shows that sports practice has a positive impact on the improvement of motor skills or physical performance, but also that those who do not practice sports can improve significantly over time, possibly due to the introduction of new activities or specific interventions. Training, beyond being a physical practice, also represents a “social factor” as, especially during developmental age, training together stimulates neural plasticity and the activation of mirror neurons [8]. During the training sessions proposed to the children, phenomena of mutual imitation, challenge, support, and tolerance among the participants were observed.

The interdependent interaction of these factors contributed to creating a stimulating and dynamic educational and formative environment [9].

4. Conclusion

The interpretation of the results of this study not only reveals encouraging data, albeit not statistically significant, suggesting extending the experimentation to a larger sample and over a longer period to increase motor proposals but also allows reflection on how the proposed activities have positively and significantly impacted both groups, particularly the group that did not engage in sports activities previously.

Physical activity, by inducing a general improvement in skills, has reduced the heterogeneity of the data, confirming how sports are not only a useful educational and teaching tool for the maturation and development of motor skills but also for the recovery of any deficiencies.

The suggestions emerging from this study can be traced in the meanings derived from what has emerged:

Those who do not engage in sports activities develop their motor skills inadequately and with gaps.

However, the data probably need to be interpreted in conjunction with the sedentary lifestyle of the participants, which does not allow for adequate motor practices to develop these skills.

The practice of proposed motor activities proved to be an effective inclusive strategy, engaging all children actively and participatively, exploring the dimension of corporeality as a tool to activate processes of interpersonal and intrapersonal synchronization and tuning

In a future study, it would be interesting to investigate the effects of an ensuing sedentary lifestyle on the development of motor skills of those who are used to sports practice, in order to understand and interpret not only the dimensions and progressiveness of the development of motor skills but also their annihilation. What the emerging data suggest is the

beginning of a functional development bifurcation that can only crystallize or intensify over time.

In conclusion, if organized sports activity is the only place-moment through which individuals can explore the dimension of corporeality [10] and develop their motor skills adequately, educating through movement and movement, is both a burden and an honor.

The school, as the quintessential educational agency, is called upon to embody daily conscious choices that enable it to address, in a virtuous manner, the new complexities and vulnerabilities of everyday life in order to return to society a citizen is aware of their value and ethical, moral, and intellectual responsibilities.

It would be desirable, therefore, for the educating body to make itself available to the possibility of becoming a vigilant and situated presence, in order to embrace and explore new methodological orientations that, by aiming to enhance the corporeal dimension, can preserve and implement the human exercise of democracy and civil coexistence.

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