

AN EXPERIENCE OF MINIBASKET METHODOLOGY FOR THE IMPROVEMENT OF MOTOR LEARNING

Gaetano Alltavilla¹, Antonette Manna² and Francesco Perrotta³

¹ Laboratory of Special Education, University of Salerno, Italy

² Tongue teacher at the British School Acerra, Napoli, Italy

³ University of Bolzano, University of Salerno, Italy

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Abstract

Motor learning scans the whole of life: you start learning soon after birth and continues until old age. The ability to acquire new gestures is defined learning capacity and motor can be measured either by measuring the time it takes to properly seize the motor action, both through the quality of movement learned, which is expressed in the degree of efficiency and precision. Adams defines it as the occurrence of a relatively permanent change in performance or in the potential of behavior achieved through direct experience or observation of others. Observing an individual who learn a new motor gesture can be seen as the goal is not reached since the first attempts, as the executions are coarse or incorrect. This can be explained on the basis of the principle that the individual does not yet have a scheme that will allow him to adequately utilize the motor program necessary. Schmidt identifies the number of times a key element in order to form and strengthen the scheme of action.

Key words: motor learning, sensitive periods, activity, training concentrated and distributed

Introduction

The motor learning scans the whole of life: you start learning soon after birth and continues until old age. The ability to acquire new gestures is defined learning capacity and motor can be measured either by measuring the time it takes to properly seize the motor action, both through the quality of movement learned, which is expressed in the degree of efficiency and precision. Adams defines it as the occurrence of a relatively permanent change in performance or in the potential of behavior achieved through direct experience or observation of others. Observing an individual who learn a new motor gesture can be seen as the goal is not reached since the first attempts, as the executions are coarse or incorrect. This can be explained on the basis of the principle that the individual does not yet have a scheme that will allow him to adequately utilize the motor program necessary. Schmidt identifies the number of times a key element in order to form and strengthen the scheme of action. These executions are necessary to store information on the initial conditions, the parameters used in the response, the sensory feedback and the results obtained. The executions are in turn improved with each new execution, until the formation of a pattern relatively stable by means of which the movement can approach the technical model wanted. The effectiveness of the amount of practice, understood as the number of repetitions, it's long been recognized as a basic element for learning and refinement of gestures. In addition, it is to emphasize that the phenomenon of learning does not qualify as a purely neurophysiological process, as also has important psychological implications. As noted by Hebb, learning takes place as a process "experience-dependent" all our experience has the potential to significantly

influence our neural connections and our brain structures, a phenomenon known by the term neural plasticity. Learning is therefore an active process of acquisition of behaviors aimed stable adaptation, due to both external and internal stimuli. Finally, another important aspect to consider, for purposes of effectiveness and efficiency in learning, in terms of results, is given by the knowledge of the subject to learn and the quality and quantity of stimuli related to it.

The Motor learning

Be interested and encourage them properly and with appropriate methodologies growth of skills and motor skills means acting directly and extremely effective also on the willingness to help others, the ability to know how to make smart choices and self-knowledge which leads to awareness and self-control. Motor learning thus takes place in successive stages which include the gradual transition from a phase of understanding of the task and coordination Crude (stage-verbal cognitive or developmental coordination Crude) to a phase of thorough understanding (stage motor or development of fine coordination) and the development of automated executive (independent or stage of development of variable availability). According to Meinel, just a few attempts of a motor task because the student gets hold of an early form of movement, rough and inaccurate, but it already contains the fundamental building blocks. All this should be done Provided that no perturbing factors and request that exercise is not too difficult. So after a short time you reach the one that sets the stage for the coordination Meinel rough, characterized by a pattern of movement coarse but complete in the elements fondamentali. In this stage it is important to a good demonstration little

explanation that a limitation essential to achieve the goal, additional indications are unnecessary, or even harmful, because they confuse students and, especially beginners, should be eliminated or at least minimized. The student free from the global control of the gesture, begin to perceive the form of refferenza (feedback) information kinesthetic essential to the completion of the program of action and the fine-tuning of the gesture. To make it more likely and more rapid success of the year you will need to lighten the load of the conditions of implementation. It will, therefore, of paramount importance is the emotional climate in which the exercise is carried out, which will be extremely beneficial. Through the repetitions will come quickly to an important result will be a first automated general pattern of movement that allow you to make the gesture in its entirety without the student is forced to pay attention. Therefore, while the control scheme is used in a general form of a mechanical guide, the student can refine the finer elements. So it will be able to process a larger amount of information kinesthetic, will become aware of the details and will be able to correct or refine the motion. The execution, under favorable conditions, will be almost error-free, will be harmonized strength, precision, rhythm and consistency of the movement, the external image of the gesture (the form) will be characterized by a fluid and harmonious course. These characteristics of the second stage of learning are defined by Meinel as phase of the fine coordination. By continuing to practice conscious form, controlled and varied, we arrive at the third stage of learning: that of the consolidation of the fine coordination and development of variable availability, in which the movement is further refined, properly performed in all conditions and adapted according the needs of the situation. It 'a good idea to remember that the highest level of coordination is one in which the student, in addition to successfully perform the gesture, keeps the possibility to modify and adapt it to the "situation" while maintaining efficacy. This objective is achieved through a long period of work, through numerous exercises performed with conscious control and with a wide variety of motor experiences.

Aim of the research

Aim is now validated by the scientific community who engage in regular physical activity has a number of benefits, which are amplified if it is started at a very young. Physical activity is an important tool for the physical and mental development of the child, influences on the musculo-skeletal system, circulation, breathing, motor coordination also influences and facilitates social inclusion and leisure. In recent decades we have seen how the practice of sport among young people is an increasingly decreasing, in close relation with the advent of virtual games and the internet. There is no doubt that a key role for the promotion of physical activity in young people is carried out by the school.

Start children in sporting activities should therefore be an element of fundamental importance in teaching school and extracurricular. For the age group in question (6-11 years old) within the wide range of sports, it is more appropriate to address the children to practice a type of aerobic work, which, unlike the anaerobic work, it can to improve the performance of the cardiovascular system, respiratory system and to interact in a different way on the cognitive aspects. However, the choice to practice a sport is not always facile. La main concern of the various educational agencies (family, school) is mainly linked to the choice of a sport that appear as complete as possible for proper physical development of the child . The sport has not only the advantage of contributing to the development of physical-structural development and improving coordination skills, but plays a key role in the processes of socialization and fun. So it is essential to respect and comply with the wishes of the children themselves. The passion for physical activity, lived as play, promotes the level of commitment, concentration and motivation, characteristics that contribute not only to the physical growth but also to the emotiva. Insegnare a child a beginning, a skill or a notion becomes much more effective and useful for its growth if you take into consideration the mechanisms which favor the learning and how this happens. Children, in fact, are able to process different and a lot of information without any problems, everything can be done only if the stimuli offered are age-appropriate. The learning process in children proceeds differently than adults.

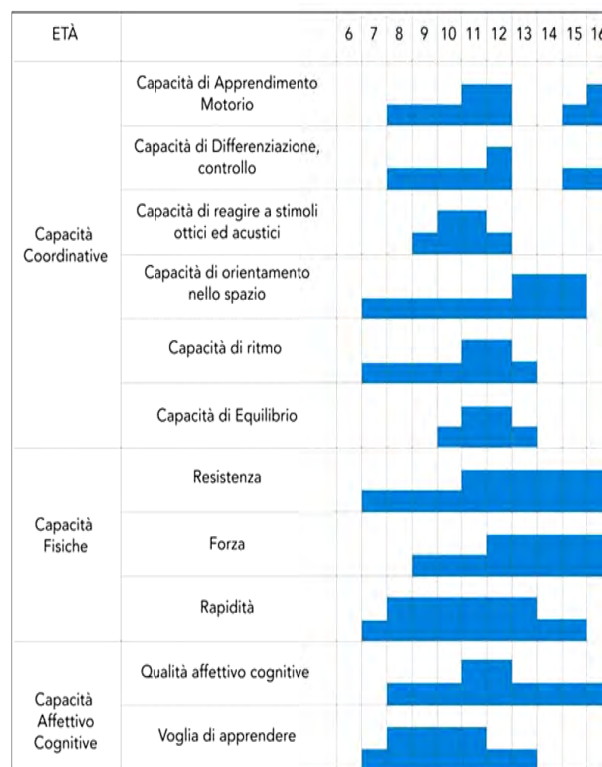


Figure 1. Greater sensitivity of the different phases of motor skills and physical and mental qualities in age from 6 to 15 years according to Martin (1982).

You can quickly enrich the finding of new elements only if they are the result of direct experience of the child, and if that happens by itself, learning is greater. Each earning, in fact, takes place in stages that differ according to age. The age range considered, between 6 and 11 years, represents a sensitive phase for the development of coordination skills and then to the motor skills that follow the same formation. During this phase of the research I have considered whether, and to what extent, in elementary school children, different modes of temporal distribution of training sessions to be able to affect the learning of a new motor task. The ultimate aim of this survey is to obtain unambiguous results regarding the practice concentrated or distributed, and what is the best method of learning that would allow you to set training programs more effectively and efficiently. To implement this, I decided to assign the subjects chosen a new motor task. The experiment was attended by about 600 children, aged between 6 and 11 years old, attending the elementary schools in the territory of the Municipality of Naples. None of the participants had cognitive and motor deficits, and he never played sports related motor task object of the search. Before starting the research was sought and obtained the informed consent of both parents and the head teacher. Every child has started learning a task of hand-eye coordination (shot for a field with technical staff), using different methods of distribution of practice in order to assess whether, and to what extent, a different methodological approach (practice concentrated or distributed) is able to affect the learning of a new motor act.

Materials and methods

The empirical investigation was carried out on a sample of 582 children (302 males and 280 females) aged between 6 and 11 years. For the study on learning motor skills, the children were divided into three groups (A, B and C) and, in turn, each group was divided into 5 subgroups, due to the age characteristics of the five classes of schools of First Instance, 1st class - 2nd class - 3rd class - 4th class - 5th grades.

Table 1 Numerical composition of each class.

class	total	males	age (years)	females	age (years)
1°	120	62	6,12 ±	58	6,07 ±
2°	116	61	7,10 ±	55	7,12 ±
3°	116	61	8,10 ±	55	8,08 ±
4°	116	60	9,09 ±	56	9,10 ±
5°	114	58	10,14 ±	56	10,06 ±
Total	582	302		280	

Tasks in motor learning

The motor task required foresaw a shot for a field with a mini-ball. Was not given any limitation on the limb to be used for pushing or whether to use the thrust of both limbs and the time to be used. The ball must pass through the basket without touching any other element of the basket.

The motor task was performed by a distance of 4 meters and the basket placed at a height of 2.00 m (Fig. 2).



Figure 2 The basket and playing field

(height of 2 meters basket, 4 meters away from the basket)

On the playing field was asked a guideline to 4 feet from the basket (dashed). At the disposal of children, in a basket, were placed 20 mini-balls. As already mentioned, the children were divided into three groups (A, B and C) and, in turn, each group was divided into 5 subgroups, due to the age characteristics of the five classes (1st class - 2nd class - 3rd class - 4th class - 5th class). /Group A: 102 M + 94 F = 196; Group B: 100 M + 93 F = 193; Group C: 100 M + 93 F = 193; Total number of participants = 582)/. For all children, the training provided 120 shots at the basket to be carried out in a week, but distributed differently in the three groups. The groups held training in the following ways: a) Group A, consisting of 196 children (102 males and 94 females), held a workout distributed in 6 consecutive days, making 20 shots daily; b) group B, consisting of 193 children (100 males and 93 females), held a workout deployed in 3 alternate days (Monday, Wednesday, Friday), making 40 shots daily; c) group C, consisting of 193 children (100 males and 93 females), held a workout distributed in 3 consecutive days (Monday, Tuesday, Wednesday) by performing 40 shots daily. All sessions for the groups were carried out during the afternoon hours. Regardless of the distribution of the practice used, one week after the end of the acquisition period each group repeated a session of 20 shots, in order to verify the degree of consolidation of learning.

Results

Figure 3 summarizes graphically as observed in the present study. Are shown, for each of the five elementary classes studied, the number of realizations observed respectively in group A, in the B and C in that, both in the training sessions and in that of verification.

As seen in Figure 3, the group A shows during execution of the motor task a progressive improvement of the performance, value that is common within the group to all classes of participants to the task. The number of successes achieved by the children has an upward trend. The test, carried out seven days after the end of the task, does not differ significantly from the observed values in 'last day, this is a clear expression of maintaining efficiency in the execution of learned motor task. It may be noted, also, as the group B monsters while running the motor task a progressive improvement of performance mainly into 3 classes, the 1st, 2nd and 4th, while in the 3rd and 5th class not there is a significant improvement, performance remains unchanged during the three sessions. Paying particular attention to the performance observed during the testing, there is a common finding in all five classes, namely, that the test, carried out seven days after the end of the task, differs significantly from the values observed in the last

day, this indicates a deterioration in the performance of learned motor task, with values that are even lower than the initial ones. You can finally see how the group C monsters while running the motor task a progressive improvement of performance mainly into 3 classes, the 3rd, 4th and 5a.II number of accomplishments achieved by the children has an upward trend. Always observing Figure 3, and paying particular attention to the test, carried out seven days after the end of the task, differs significantly from the values observed in the last day, in analogy with what was observed in Gr. B.

This indicates a deterioration in the execution of learned motor task, with values that are even lower than the initial ones. Summarizing the results, we can see that the Group A contains improvements between the beginning and end of the training period less obvious than the other groups, but the improvements remain strong and evident in the verification phase.

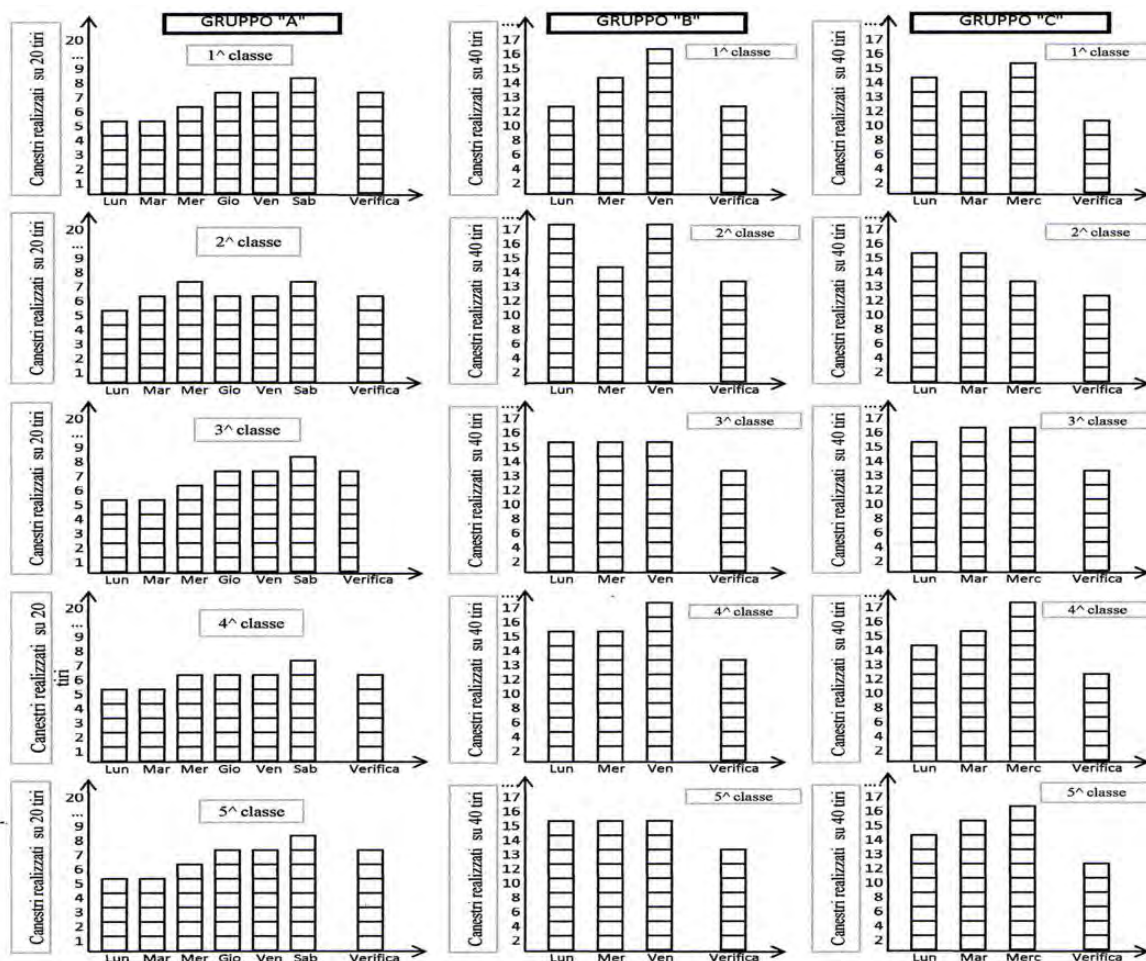


Figure 3 Number of outputs with 3 kinds of training

Discussion

The results highlighted in this study, observe that learning a new motor task, carried out using concentrated practice, in terms of improvement observed between the beginning and end of the training period is less advantageous than that in practice run with distributed.

However, what is learned with practice concentrated seems to last longer than what is learned with practice distributed. A practical distributed and spread over time but constant undoubtedly involves significant benefits even in very young children.

Whatever the theory that underlies the formation of the structural changes that occur during a process of learning a new gesture and consequently its stabilization, it is essential that it is subject to constant repetitions. But if it is true that repeating a motor act you learn it, it is also true that there are many factors affecting the success of a learning process, such as: motivation, awareness of the objective, teacher-student relationship, starting level, number and organization of repetitions of the same, and so on. Prove skillful, moreover, implies to be sure of their capacity and improving the efficiency in a skill is reflected in an increase in security, in reducing the expenditure of energy and, sometimes, in the reduction of time in the execution of a movement. This means reducing or eliminating unintended movements and unnecessary. Ultimately become particularly adept in any field, and specifically in the performance of motor tasks implies the baggage train and hone the skills that you possess. A non-solicitation and continues, even in the presence of a strong capability, will never make significantly skilled or capable of learning new motor tasks.

Conclusions

The optimization of learning is a problem, whether it be of cognitive learning engines, the ability to create the most convenient conditions for an individual makes the most of the time and effort devoted to learning, plays a key role in many sectors: school, training, rehabilitation, sports activities. Being able to highlight the differences that istaurano during a learning process, using different methods, can help you understand not only what is the best way to learn, but also how you learn. In conclusion, as regards the role of the distribution of the circulation in the realization of a motor learning effective and consolidated, by the results obtained it is deduced as a quantification of the stages of learning is based on a careful

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temporal distribution of the tests in order to obtain precision high levels of stability and performance. In line with some data in the literature it is recognized to repeat a key role in the acquisition of a skill, in fact, the very concept of skill requires automating a gesture preceded by a period of tutorials. Schmidt himself, he said, such as structuring the practice session, the number of trials should be maximized, reiterating that the determining factor that contributes to motor learning is the repeated execution of the gesture exact. As Bortoli also emphasizes the effectiveness of teaching should be based mainly on two aspects that the teacher should be able to manage in a more precise: the time to ensure the students to practice on a task significantly and opportunities for all students to practice in the task established.

It is in this context that the result must be read in the present study, children who were training focusing the practice over a period of 3 days, both ac and consecutive (ie, group B and the group C), although presenting a good level of success at the end of the training period, are inadequate in verification phase with even a deterioration of performance. Different is the result observed in the group A, with workouts daily for 6 consecutive days, where there was an improvement quantitatively lower than that observed in the other two groups, but which appears to be more consolidated, as it keeps in verification phase. Furthermore, it was observed that the deterioration as well as the improvements, occur with greater frequency with increasing age of the subjects. This result could be explained in an excessive amount tests in the same session for groups B and C, which may have led to a loss in subjects of interest, motivation and attention, impairing the performance in this way is that learning. The results obtained from the subjects examined should be a time of reflection not only intended in motor but to be extended to various disciplines.

ISKUSTVO METODOLOGIJE MINIBASKETA U POBOLJŠANJU MOTORIČKOG UČENJA

Sažetak

Motoričko učenje traje cijeli život: počinjete učiti nakon rođenja i nastavljate do kasnih godina. Sposobnost usvajanja novih pokreta je definirana kapacitetom učenja i motorike, i može se izmjeriti, ili vremenom potrebnim za pravilno usvajanje motoričke akcije, ali i kroz kvalitetu savladanog gibanja, što se izražava u stupnjevima efikasnosti i preciznosti. Adams to definira kao pojavu relativno stalne promjene u izvedbi ili u potencijalu postignutog ponašanja kroz direktno iskustvo ili promatranej drugih. Promatranje pojedinca koji uči nove motoričke radnje može se vidjeti kad cilj nije postignut kroz prvi pokušaj, budući je izvođenje nevješto ili nekorektno. Ovo se može objasniti na temelju načela po kojemu pojedinac još nema shemu koja omogućava odgovarajuću aktivaciju motoričkog programa koja je potrebna. Schmidt prepoznaje broj pokušaja kao ključni element u skladu s oblikom i snagom scheme akcije.

Ključne riječi: motoričko učenje, senzitivna razdoblja, aktivnost, koncentrirani i distribuirani trening

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Correspondence to:

Assoc.Prof.Francesco Perrotta, PhD.

Univesity of Perugia

Faculty of Sports Science

06100 Perugia, P.zza. Universita 1, Italy

Phone: +075 5851

E-mail: francescoperrotta@msn.com