Journal of Sports Science 9 (2021) 1-8
doi: 10.17265/2332-7839/2021.01.001

The Psychomotor Practice at the Kindergarten: The MOVIT Tests as a Tool of Observation and Design

Carmen Palumbo, Valeria Minghelli and Lucia Pallonetto

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

Abstract: The contribution aims to highlight the role that corporeity assumes at the kindergarten, both as an instrument of individual's integral growth, as a useful means for detecting any difficulties and identification of the Zone of Development Proximal of each, to facilitate the design of training courses focusing on the use of the body and movement as mediators of knowledge. The whole work moves in the double perspective of individualization and personalization, as suggested by the different school regulations in the field of design and special educational needs. Field Research involved a sample of 83 children, to whom were given MOVIT Tests (Test and Re-test): a psychomotor evaluation tool that favors an objective observation of abilities, the child's deficits and potential development observed in his environment and in free interaction with his companions. The research has highlighted a significance of the data for all age groups, corroborating theories about the formative and preventive role of psychomotor practice and about the effectiveness of flanking the latter with a preventive tool, adjacent to it, such as the MOVIT tests. These have also allowed a transversal process of professionalization of teachers.

Key words: MOVIT tests, psychomotricity, corporeity, school of childhood.

1. Introduction

To meet the changing needs of today's socio-cultural context, the school is called the school that is called upon to respond effectively to the different needs of the individual within a community that interacts and evolves with it.

Teachers and educators are increasingly invested in roles and tasks that require them continuous training that encourages the acquisition of disciplinary, methodological-educational, psycho-pedagogical skills that give the teacher a higher level of professionalism and increasing responsibilities.[*] The kindergarten plays a role of integral formation of the child's personality, encouraging the child to acquire its own identity, autonomy, the development of the sense of citizenship and the acquisition of skills.

In particular, the Ministerial Note of 3 April 2019 [3], gives the kindergarten a preventive role towards the emergence of Special Educational Needs: the note, like other normative texts on the theme of S.E.N., clarifies the tasks and roles of the different subjects responsible for inclusion, with different declinations in reference to the school order. Specifically, the kindergarten is entrusted with the task of preventing the occurrence of any difficulties, screening them, not for diagnostic purposes, but with the aim of enabling the structuring of more appropriate learning contexts, that recognise different needs and respond to them effectively and efficiently.

A final passage of this regulation emphasizes the centrality of the body in learning processes, especially with regard to early childhood: the note invites teachers of kindergarten to avoid bed teaching practices-writing that will erroneously anticipate the learning times of abstract content, in favour of a playful approach particularly effective in this specific phase of development. It is therefore necessary to underline the centrality not only of the body, but also of movement as mediators of knowledge [1].

"*The body is the means by which the child knows*

Corresponding author: Palumbo, Associate Professor of Methods and Didactics of motor activities (ssd M-EDF / 01), email: capalumbo@unisa.it.

the world and all educational structures agree to set everything on corporeity." [4].

The 2012 National Guidelines [5] stress the centrality of the body in learning and growth processes: motor activity is considered an essential element for child development. The scientific recognition of the formative value of cognitive activities carried out through the body has led to an important change in educational practices, resulting in the enhancement of the body dimension in teaching/learning processes and has influenced the search for new educational tools and methodologies [6] "of" movement and "through" movement. Starting from the now known awareness about the centrality of the body in learning processes, resulting from the psycho-pedagogical studies developed over the years, from research in neuro-scientific and from the most recent achievements of the perspective of the *Embodied Cognition Science* [7], this work aims to illustrate the potential of the psychomotor approach declined in the educational practices of the kindergarten, as an educational and growth tool. In addition, it is intended to describe the effectiveness of the psychomotor evaluation as an instrument of observation of the child, useful to identify emerging skills and any difficulties. The game is the natural approach that the child has towards reality, a playful dimension, in which, pass all forms of construction of linguistic, logical, scientific and motor skills. Psychomotor practice presupposes the centrality of the body, movement and play and the child's own personality is determined by the interaction between them.

"*Our experience is built and organized through a body in motion within an environment; in this sense, everything that surrounds us becomes recognizable and 'habitable' only thanks to the exploratory and constructive actions that we move using our body*" [8]. Psychomotricity pursues the objective of encouraging the expression by the child of his own choices, possibilities and inner life, especially through body language, through the predisposition of the temporal space elements and materials to stimulate the spontaneous initiatives of the child.

Psychomotor intervention, both in the educational and in the enabling field, has always aimed at encouraging the construction of the bio-psycho-social unit [9] of the individual, allowing the integral development of the personality [10].

In order to cope with an educational and training emergency typical of today's socio-cultural landscape, it is important to identify tools and methodologies that allow an individualized and personalized design of learning paths. It is fundamental to the Kindergarten and especially with children with disabilities, to design the educational and educational intervention starting from the areas of competence of children, this, both to encourage the participation of learners, both to allow them to evolve each on their own "scale of development and growth". To do this, it is necessary to engage activities on the identification of the potential development area of each child, to plan the short and medium-term work, based on the identified prerequisites and potential, as well as to recognize difficulties and emerging skills in the perspective of individualization and customization of teaching. It is important that teachers know the functions, the forms of the game, the link between the latter and the construction of identity; that they acquire the necessary skills so that they can intentionally propose them proper support and above all evolve them, exploiting its educational potential [11].

Therefore, a double declination of psychomotor awareness at the Kindergarten, in which psychomotor becomes a "main instrument", both to promote the integral development of the personality of the child, both to detect the repercussions of that same development object of educational intervention. The choice of MOVIT tests is due to the possibility offered by the instrument to observe the child in a natural, ecological and free interaction with others. Therefore, psychomotricity represents not only an element of growth and development but a continuum present in

the interaction with the child from beginning to end, without the latter perceiving an evaluative attitude which would have the effect of significantly affecting the values observed.

2. Materials and Methods

The main idea of the project is to offer children a path of bodily experiences through practical activities. The children were stimulated and involved in many motor games that had the task of bringing them closer to the knowledge of the body, involving them through the playful experience of psychomotor setting, with spontaneous activities that stimulated the self-organization of the child with unstructured materials, typical of psychomotor practice. This research aims both as a facilitator of the natural psycho-physical maturation of the subject through the possibility offered to children to live the motor and psychomotor game, and as a tool of professionalization for teachers, through the experience of administering a systematic survey, has acquired greater expertise in the design of activities, in continuity with the *functional prerequisites* of individuals [2]. The task of the educator was to provide functional playful experiences based on the skills detected at the entrance and encourage their evolution along with the progress of children, in order to detect the relapse of the outgoing intervention while preserving the play and observation methodologies, "in continuity" with the MOVIT tests. In addition, these activities carried out in large groups have taken on an important social value, resulting in an emotional-relational involvement, shared among the participants. This particular element is essential at the observation and evaluation stage as the level of acceptance and membership of a group (social environment) is decisive for the attainable levels of performance [12]. Initially the intervention had a strong participatory connotation, so as to start the children to discover the rules of playing together, stimulating each of them to seek relevant answers to the problems posed by trial and error, encouraging them to make reasoned choices and reflect on actions. The project, which lasted six months, included 2 meetings per week for each class, each lesson lasted 1 hour, for a total of 40 hours. The two test batteries were administered both "in and out"; specifically the first battery was administered in January, while the second was administered in late April.

2.1 Objective

In consideration of the important role of prevention and screening played by the kindergarten, by the current state of the art and the regulatory and programmatic framework of the national educational context, the aim of this work has been to identify a direct correlation between the psychomotor experiences lived by children and their improvement in terms of development. In addition, it has helped to recognise the importance of observational tools that allow, through direct use by teachers, to identify the level of potential development of the individual, so as to structure an educational path that is suitable for the child, that respects spontaneous initiatives and recognizes them the power of intentionality activated in the direction of personal development.

2.2 Sample

The subjects observed in the research were identified in a sample of convenience (n = 83; n = 39 m; n = 44 f) aged between three and five years attended the kindergarten of a School in Naples: specifically, 22 children aged 3, 29 children aged 4 and 32 children aged 5. The parents of the children involved were informed about the purposes of the study and authorized the administration.

2.3 Instruments

For the research, it was decided to use MOVIT Tests [2] as a tool for observation and data collection, which allowed conducting a qualitative and quantitative survey [13]. These provide reliable

information, not only on the degree of motor development in full, but above all on the qualitative aspects of movement, which are at the basis of communication and principle in the field of Psychomotricity [14]. The tests allow estimating the abilities, the deficits and the level of the potential development of the children, through direct observations on the subject inserted in its "natural" environment, in free interaction with others [2].

The tool aims to investigate the area of proximal development of the psychomotor profile, through a method of systemic and ecological evaluation at the same time. This instrument is a structured test model specifically designed to be used by teachers [15].

The tests allow an evaluation poorly conditioned by the subjectivity of the observer, being based on a series of easily verifiable items, which exclude personal interpretation. They represent a guide to "ecological" observation as they do not require the predisposition of particular test situations, being possible during normal activities in the gym. The items are structured in a check-list with increasing focus, which facilitates the progressive identification of any motor difficulties, for each child; allow, in the progression of the check-list, a simpler identification of the Proximal Development Area [16], which is crucial in the light of age to recognise *emerging skills* [17] and to identify those which need to be invested in the short and medium term.

The performance battery contains a total of 36 tests divided into six capacities (Tab.1) further declined in 6 Behavioural Indicators (Item) of progressive complexity, which correspond respectively 5 motor tasks, for a total of 180 exercises.

The score assigned to each activity varies from 0 to 2, in which 2 is attributed to the subject who autonomously completes the performance, 1 indicates when the performance is met when there is adult help and 0 indicates the situation where the child does not complete the task, even if there is help [2].

2.4 Research Plan

The research work involved several phases of implementation over a total of 6 months. The administration of the test for observation at the entrance required an initial preliminary phase aimed at establishing a climate of knowledge and hospitality, both to allow children to feel at ease, both to transfer to them the necessary information on how the "games" would be organised, and to provide recipients with guidance on the rules to be respected. This phase, in addition to pursuing an ethical duty calibrated to specific users, has also aimed to collect data that are as representative of the real skills of the sample observed, in an ecological environment. We continued with the individual observation of children, by teachers, in playful situations structured ad hoc, for the evaluation of incoming performance. Between the phases of ex-ante and post detection, children had the opportunity to experience playful workshops in medium and large groups, inspired by psychomotor principles, with groups of children organized alternately on fortnightly meetings. Output data were collected at the final stage.

3. Results and Analysis

The collected data have been categorized into a descriptive statistic (Statistical Software PSPP). In addition, a variance analysis (ANOVA) was carried out to compare the average values of the different capacities analyzed between different age groups (3, 4 and 5 years) and a two-tailed *t*-test student for each individual capacity and for each age group.

Table 1 List of capabilities from MOVIT Test [2].

Cap. 1	Muscle tone and relaxation
Cap. 2	Balance and general dynamic coordination
Cap. 3	Segmental, intersegmental coordination
Cap. 4	Oculus-manual coordination, graph-motor ability
Cap. 5	Structuring the concept of space
Cap. 6	Structuring the notion of time.

Table 2 Descriptive statistics (Software PSPP).

Capability	Y	*N*	Mean	SD	Min	Max
Cap1_Test	3	22	17.82	2.30	12	23
Tone & relaxationT	4	29	32.17	2.85	25	38
	5	32	36.94	2.92	33	46
	Tot	83	30.20	8.22	12	46
Cap1_Retest	3	22	29.23	3.87	22	38
Tone & relaxationT	4	29	37.97	4.18	28	45
	5	32	42.31	3.75	35	48
	Tot	83	37.33	6.52	22	48
Cap2_Test	3	22	22.14	1.61	20	25
Balance & gen_dyn_coordT	4	29	35.38	3.83	30	47
	5	32	41.00	2.81	36	48
	Tot	83	34.04	8.14	20	48
Cap2_Retest	3	22	41.91	4.68	32	52
Balance&gen_dyn_coordRT	4	29	41.93	3.93	33	49
	5	32	45.44	2.95	39	49
	Tot	83	43.28	4.14	32	52
Cap3_Test	3	22	19.86	3.55	8	25
Segm&Intersegm_coordT	4	29	33.21	3.93	25	42
	5	32	41.91	2.83	37	48
	Tot	83	33.02	9.42	8	48
Cap3_Retest	3	22	33.73	5.62	24	48
Segm & Intersegm_coordRT	4	29	40.03	4.78	30	46
	5	32	46.41	2.89	38	52
	Tot	83	40.82	6.71	24	52
Cap4_Test	3	22	16.23	1.90	12	20
Ocman_coord & graphmot_abT	4	29	26.86	3.15	21	35
	5	32	29.53	2.68	24	35
	Tot	83	25.07	6.07	12	35
Cap4_Restest	3	22	26.05	3.98	20	37
Ocman_coord & graphmot_abRT	4	29	32.00	3.05	25	37
	5	32	32.81	2.64	25	36
	Tot	83	30.73	4.25	20	37
Cap5_Test	3	22	22.36	4.50	8	27
Struct conc_spaceT	4	29	36.00	4.04	28	45
	5	32	45.19	4.09	38	54
	Tot	83	35.93	10.00	8	54
Cap5_Retest	3	22	37.32	4.85	30	50
Struct_conc_spaceRT	4	29	39.90	4.04	31	46
	5	32	49.25	2.87	39	55
	Tot	83	42.82	6.48	30	55

Table 2 to be continued

Cap6_Test	3	22	16.18	3.05	6	21
Struct_conc_TimeT	4	29	28.34	2.96	20	34
	5	32	32.53	3.04	27	37
	Tot	83	26.73	7.26	6	37
Cap6_Retest	3	22	27.95	3.71	23	37
Struct_conc_TimeRT	4	29	32.93	3.01	24	36
	5	32	35.06	1.39	31	37
	Tot	83	32.43	3.94	23	37

4. Discussion

The results have been categorized in a descriptive statistic (Table 2) which indicates the number of subjects for each age class, the *Average*, the *Standard Deviation*, the *Minimum and Maximum values*, for each capacity.

The values of the averages obtained in and out, for the 6 capacities and divided by age range, have been compared through a *T-Test Student* with two tails, to evaluate the significance of the comparison between averages. The difference between Test and Re-test in children of 3-4 and 5 years, for all abilities, is always significant.

Specifically, there is a difference between Test and Re-test greater in Capacity 2 "*Balance and General Dynamic Coordination*", in Capacity 3 "*Segmental and Inter-segmental Coordination*" for 4-year-olds and in Capacity 4 "*Oculus-manual coordination and graph-motor ability*". Given the abilities considered, the data seem to confirm the effectiveness of the Movit tests as a useful tool to detect the Zone of Proximal Development of the child. Moreover, the data show that the *Variance* (as by *Standard Deviation*) is much higher at three years and that it decreases within the age groups, in inverse proportion with the growth: these data, which indicate a sample of three years very heterogeneous, confirm the incidence of contextual and genetic factors on the performance of the child.

Finally, a variance analysis (ANOVA) was carried out to compare the average values of the different capacities analyzed between different age groups (3-4 and 5 years). To confirm the hypothesis that the child, during his growth considerably improves his ability to perceive and act parallel to the maturation of the central nervous system to body and senso-motor development, ANOVA between age groups shows that the average value grows in direct proportion to age, providing a comparison of average values between age groups always significant.

The *p value* of gender of ANOVA, however, shows no significant value (*p value* always > 0.05) between males and females.

5. Conclusions

Psychomotor development in children is influenced by the interaction between biological factors and contextual, environmental factors, as well as cultural factors determined by attitudes, beliefs, and values specific to the group of people with whom the child shares their experiences [18]. "*Each of us is located within an environment, but in fact, before anything else, is located in a body: we are our body, we are characterized by a materiality and a biological specificity that constitute us and that delimit a fundamental condition of constraint to which all our possibilities are bound*" [19].

The child during his or her growth, moves, runs, jumps, strips, walks, launches, all actions and experiences lived with the body that are fundamental for his or her cognitive, affective and socio-relational development. With respect to them, the child performs an organization of corporeity in relation to space, time, objects, subjects, in a reciprocal combination that sees integrated all the sensory-perceptual functions [20].

The programmatic documents recognize a great formative value to the role of corporeality and

emotions as fundamental elements to promote the integral development of the personality of the individual: tools and objects themselves of the child's psychophysical development process.

On the didactic-educational level it becomes indispensable not only to recognize the essential value of these experiences, but also to ensure that they are qualitatively valid. "*Every experience is a driving force that arises from a specific situation, within which the factors of continuity and interaction constitute a dynamic activity that can give educational value to the experience itself articulating between them*" [21].

Psychomotricity favors the overall maturation of the child, the specificity of this practice lies in the fact that it does not teach children the prerequisites of movement within a temporal space context, but places the child in the condition to live emotionally his own body within a space and a time that, thanks to this spontaneous participation, become significant. The pleasure of moving, of feeling aware, effective, able to undertake initiatives and self-organizing, find a possibility of implementation systematized within this practice, either faithfully compared to the model or "declined" in the various educational contexts aimed at early childhood, having knowledge and awareness of the founding theoretical principles. In addition, psychomotor practice, in continuity with the observational instrument chosen for this work, allows to move away "by the concern for a child 'who can't do', to focus on the observation of his emerging skills, as observing means knowing and questioning" [10].

Direct observation as a survey technique is presented as a tool available to teachers who, knowing children have the ability to recognize the smallest changes and systematize them in observation grids that guarantee greater objectivity, in an ecological context [22], which as such continues to be reassuring for the child and guarantees greater veracity of the data [23].

The results revealed a significance of the data for all age groups, confirming the formative and preventive role of psychomotor practice and the effectiveness of supporting this, with a preventive tool, adjacent to it, such as the MOVIT tests. These have also allowed a transversal process of professionalization of teachers.

This type of observation facilitates the teacher in identifying that famous learning potential known as the *Zone of proximal development* [16], from which it is possible to plan in a "situated" way, responding effectively to the educational need of each and everyone.

Authors Contributions

Carmen Palumbo edited paragraph Introduction; Lucia Pallonetto edited Materials and Methods; Valeria Minghelli edited paragraphs Results and Analysis, Discussions and Conclusions.

References

[1] Sibilio, M. 2008. *Il corpo e il movimento*. Napoli: Cuen.

[2] Cottini, L. 2003. *Psicomotricità. Valutazione e metodi nell'intervento*. Roma: Carocci Editore.

[3] MIUR. 2019. *Nota del Dipartimento per il sistema educativo di istruzione e formazione*. Oggetto: Alunni con bisogni educativi speciali. Chiarimenti.

[4] Nicolodi, G. 2020. "Ripartire. Percorsi formativi 0-6." www.percorsiformativi06.it.

[5] Miur. 2012. *Indicazioni Nazionali per il Curricolo della Scuola dell'Infanzia e del Primo ciclo d'istruzione*. Roma.

[6] Arnold, P. 1988. *Education, Movement and the Curriculum*. London: Falmer Press.

[7] Gomez Paloma, F. 2020. *Embodiment & School*. Lecce: Pensa Multimedia.

[8] Neisser, U. 1976. *Conoscenza e realtà*. Bologna: il Mulino.

[9] WHO. 2002. *ICF Classificazione Internazionale del Funzionamento, della Disabilità e della Salute*. Trento: Erickson.

[10] Gison, G., Bonifacio, A., and Minghelli, E. 2012. *Autismo e psicomotricità*. Trento: Erickson.

[11] Formenti, L. 2006. *Psicomotricità, Educazione e Prevenzione, la progettazione in ambito socioeducativo*. Erickson: Trento, 83.

[12] Casolo, F. 2007. *Lineamenti di teoria e metodologia del movimento umano*. Milano: Vita e pensiero, 217-9.

[13] Lucisano, P., and Salerni, A. 2002. *Metodologia della*

ricerca in educazione e formazione. Roma: Carocci.

[14] Priori, M., Berticchi, M., and Bertollo, M. 2009. "Valutazione delle abilità psicomotorie attraverso il Movement ABC nei bambini abruzzesi tra i sette e gli undici anni di età." *Chinesiologia* 1: 38-44.

[15] Nacci, A. M. 2019. "Evidence-Based Education e pedagogia speciale. Principi e modelli per l'inclusione." *Studi sulla Formazione* 22 (1): 336-8.

[16] Vygotskij, L. S. 1966. "Il ruolo del gioco nello sviluppo mentale del bambino." In *Il Gioco. Ruolo e sviluppo del comportamento ludico negli animali e nell'uomo*, edited by Bruner, J. S., Jolly, A., and Sylva, K. Roma: Armando.

[17] Gison, G., Vallefuoco, E., and Pepino, A. 2019. "Piattaforma digitale per la progettazione degli interventi nel Disturbo dello Spettro Autistico SUPER (Sistema Unitario in una Piattaforma Educativa e Riabilitativa)." *Il TNPEE* 1 (1).

[18] Matsumoto, D., Weissman, M. D., Preston, K., Brown, B. R., and Kupperbush, C. 1997. "Context-Specific Measurement of Individualism-Collectivism on the Individual Level: The Individualism-Collectivism Interpersonal Assessment Inventory." *Journal of Cross-Cultural Psychology* 28: 743-67.

[19] Damasio, A. 2000. *Emozione e Coscienza*. Milano: Adelphi Editore.

[20] Palumbo, C., Ambretti, A., and Sgambelluri, R. 2019. "Psicomotricità infantile: implicazioni didattiche secondo una prospettiva prasseologica." *Formazione & insegnamento* 17 (3): 160-73. doi: 10.7346/-fei-XVII-03-19_13.

[21] Frauenfelder, E., and Santoianni, F. 2002. *Le scienze bioeducative*. Napoli: Liguori.

[22] Ceciliani, A. 2011. "L'outdoor education nella scuola dell'infanzia." *Infanzia* 6: 413-6.

[23] Eid, L., and Bussetti, M. 2010. "Come acquisire le competenze motorie nella scuola dell'infanzia." In *Atti del Seminario di Studio di Luino*, 62.