

The movement-stories approach to increasing physical activity in kindergartens during the pandemic

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ABSTRACT

Research shows that the pandemic has increased sedentariness and decreased physical activity even in pre-schoolers. To deal with this period, the association Laboratorio 0246 proposed to some Italian kindergarten teachers an active training based on "movement-stories". 39 teachers of kindergartens in 6 Italian regions were involved. All teachers completed the course a questionnaire, reporting difficulties related to space, time, bureaucratic demands, and highlighting problems in socializing with children due to restrictions. Most teachers reported that activities with storytelling in motion appeal to children, can be implemented in any indoor or outdoor setting, are easy to implement, and promote active children. There is a need for teacher training, including technical training about physical activity. Without the specific knowledge base, it is difficult for teachers to understand the real needs related to physical activity and to use methodology and didactics. The research-training-action pathway demonstrates to be well suited to address this situation.

Keywords: Storytelling; Physical activity; Kindergarten; Kindergarten teacher training; Motor development; Learning methodology.

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INTRODUCTION

The Covid-19 pandemic has modified people's lifestyles, including those of children. Several studies point out a decrease in physical activity and weight gain across the population as a consequence (Schembri, Coppola, Tortella & Lipoma, 2021; Jurak et al., 2021).

The context in which children live changed abruptly during the pandemic, and the measures of quarantine, school closures, and movement restrictions altered children's social support while causing stress factors for parents, who must activate to find alternative solutions for childcare during work time.

Especially families with a difficult socioeconomic situation were at other risk for: a) situations of physical and emotional maltreatment; b) gender-based violence; c) mental health and psychosocial distress; d) loss or reduction of family income, possible removal from parents to unaffected areas; and e) closure of basic services for vulnerable children and families (UNICEF, 2019). Health-related behaviours have worsened, and we are seeing: a) weight gain; b) increased time spent in front of the PC.

In order to address the critical situation, it is necessary to start collaborations with different sectors, in order to achieve non-discriminatory situations based on human rights (Saulle, Minozzi, Amato & Davoli, 2021).

Safeguarding the integral health of people is fundamental and schools have a crucial role. Teacher training becomes a very powerful tool to support these "front-line" workers and give them useful tools to handle difficult situations in a natural and playful way. In 2019, the World Health Organization wrote the guidelines for physical activity for children aged 0 to 5 years (WHO, 2019) and emphasizes the value of physical activity, as a prevention for psycho-physical health and the starting point of a correct lifestyle. It recommends vigorous and intense physical activity every day, for 30 or 60 minutes; reduction of time spent in front of the screen (not to exceed one hour consecutively); and regular sleep. All of these aspects fell apart with the pandemic and quarantine: children spend a lot of time in front of the television and the population moves much less. The reduction in physical activity also causes a decrease in motor competence and fundamental motor skills, such as running, throwing, jumping, and this deficiency becomes a barrier in the development of an active lifestyle in children (Lubans et al., 2010). Some authors highlight a relationship between motor skills and school success. Haapala et al. (2017) argues that a physically active lifestyle could promote benefits in reading skills in their pre-schooler. Adele Diamond (2019) highlights a possible relationship between physical activity and executive functions, mediated by the fundamental role of the educator, the presence of motor activities that simultaneously require physical engagement with cognitive engagement, and the use of a methodology that takes into account the child's cognitive, emotional, meta cognitive, relational, and motor processes. Fumagalli, Tortella, Coppola & Sgrò, (2020) and Tortella, Schembri, Cecilian, & Fumagalli (2020) highlight the important role of educator scaffolding in learning a difficult motor task and the development of executive functions. Several research studies have highlighted the importance of the enjoyment of physical activity, as an important and fundamental motivational component, especially in children (Tortella & Fumagalli, 2018; Schembri, Coppola, Tortella & Sgrò, 2018) state that storytelling can be a good method to engage them emotionally and stimulate their interest. Positive effects of preschool storytelling have been shown in language, reading skills, and school success (Kory & Breazel, 2014; Fricke et al., 2013). Adele Diamond asserts that storytelling promotes the development of executive functions (Diamond & Ling, 2016), as it is a process that requires and develops attention, memory, and social skills. The mechanisms by which physical activity and storytelling may promote development of executive functions are unclear, and this encourages research in this area. The development of executive functions is extremely important, and a great deal of scientific evidence shows that having good executive functions promotes success in school, work life,

marriage, and every area of existence (Diamond & Ling, 2016). Adele Diamond also shows that the effects for the development of executive functions are particularly present in individuals who start from a low cognitive level and that the improvements generated stay over time, bringing future benefits, even at the university level (Diamond, 2016). This evidence also suggest that trying to promote the development of these processes in kindergarten helps children to start the primary school curriculum in the best way. From these considerations, Tortella & Fumagalli (2012, 2014, 2019) developed a method for preschool children based on "Storytelling in Motion." One study also highlights the relationship between a background story to motor activity and improved motor performance of a group of preschool children (Tortella, 2020). One narrative invited a group of children to become the characters in the story and they were told that "running as fast as possible even made them invisible to a dangerous bird hiding behind the mountains." The children in the 4-year-old experimental group ran at a significantly faster speed than the control group of 4- and 5-year-olds, who were only given instructions about the route to run. Other recent studies (Duncan, Cunningham & Eyre, 2017) highlight that a motor activity combined with storytelling promotes motor skill development and improvement in language. Eyre, E., (2020) also highlights positive effects in the development of motor skills. It is essential that preschool teachers are aware of this scientific evidence and can implement practices that are beneficial to children's motor and cognitive development.

METHODS

A national course of research-training-action with preschool teachers was carried out in Italy. The course consisted of online meetings of knowledge and methodology and didactics, based on 3 manuals of motor education that used the method of storytelling in movement. The teacher read the children a story, then discussed with them what they had read and carried out the planned activities, involving the development of fundamental motor skills of manual dexterity, mobility and balance (Tortella & Fumagalli, 2012, 2014, 2019). The training course with teachers included periods of review of the activities carried out and discussion, throughout the school year. At the end of the activities, an online questionnaire (SurveyMonkey) was administered in which the teachers were asked for information regarding the course carried out with the children, with the aim of evaluating the feasibility of the proposed activities and the effects on the teachers, in order to create to start a development program for the children, in the following years. If the teacher does not know and understand what he or she is doing, it is not possible to create effective teaching activities. Fifty-two preschool teachers from six Italian regions and about 1,000 children between the ages of 3 and 6 participated in the project, responding to a questionnaire constructed ad hoc and currently being validated. The results are presented mainly in descriptive form.

RESULTS

The first part of this questionnaire concerns the descriptive analysis of the sample, which is made up of 39 women ranging in age from 22 to 65 years old (Figure 1), with a majority between 51 and 55 years old, coming from 6 Italian regions: Lombardy, Veneto, Friuli-Venezia Giulia, Emilia Romagna, Sicily, Sardinia (Figure 2). Years working in preschool range from 1 to 40, with a majority aged 21-25 (Figure 3). Education is for 73, 68% high school diploma, 10.54% bachelor's degree and 15.79% master's degree (Figure 4).

The second part of the questionnaire investigates the conditions under which the "Storytelling in Motion" project was implemented. 47.37% of the teachers included the project in the three-year plan of the institute's educational offerings, while 52.63% did not. Having the plan included in the educational offer is important because the project takes priority over other planned activities.

The teachers used the text: Encouraging the practice of motor activity from 3 to 6 years and 17.65% worked alone, 32, 35% with a colleague expert in special needs, 47.06% worked with a colleague of the school and 5.88 with an expert outside the school. The teachers who chose the text Space in Motion: Motor Education and Science worked alone (28.57%), with an expert in special needs (42.86%), with a colleague from the school (28.57) (Figure 5). Figure 6 shows that the activities were mainly carried out in the morning and using the different spaces available, from the playground, garden, hallway, classroom, lounge, gym.

Only a portion of the teachers responded to the question in Figure 6, where, however, the activities were mostly conducted directly by the generalist teachers, who did not use the help of experts outside the school.

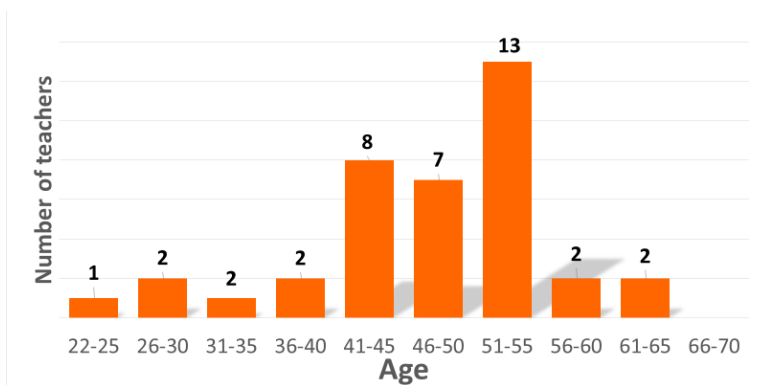


Figure 1. Age of the teachers.

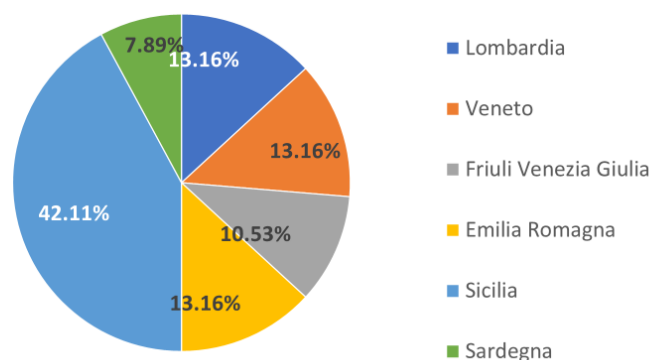


Figure 2. Italian regions.

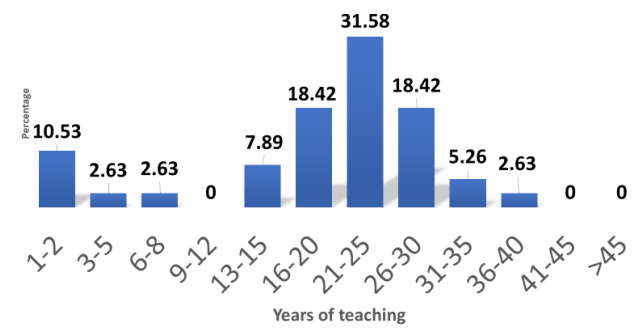


Figure 3. Years of teaching.

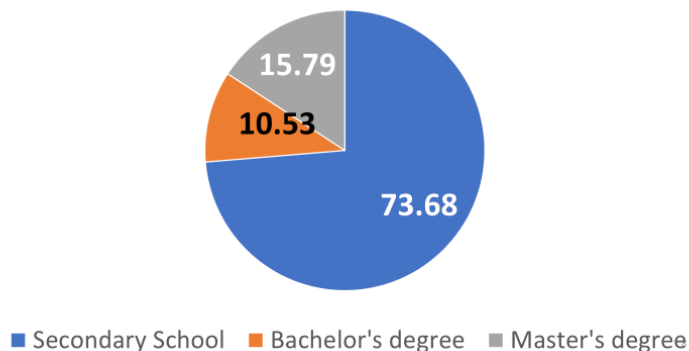


Figure 4. Teacher education.

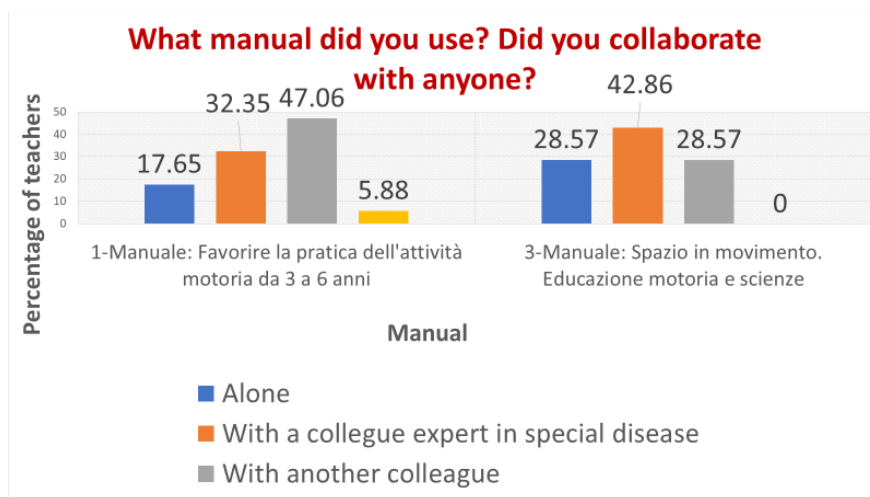


Figure 5. Manual chosen for the project and information on possible collaborators.

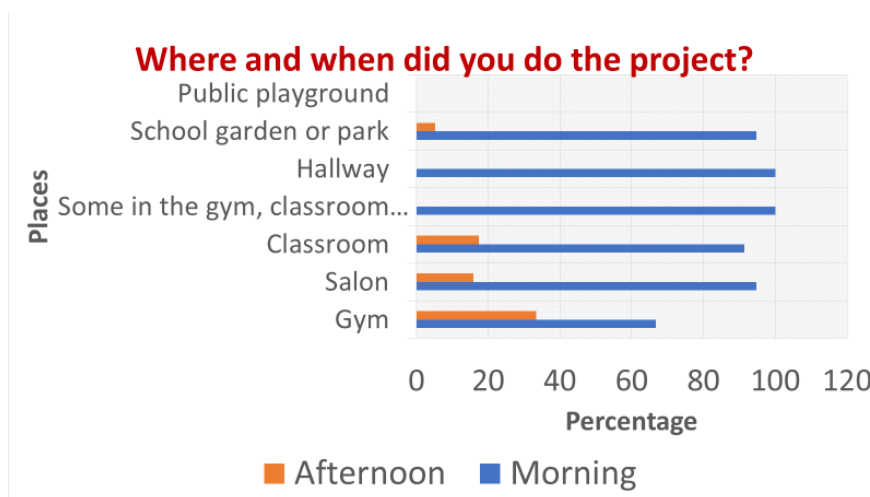


Figure 6. Where and at what time of day the project was carried out.

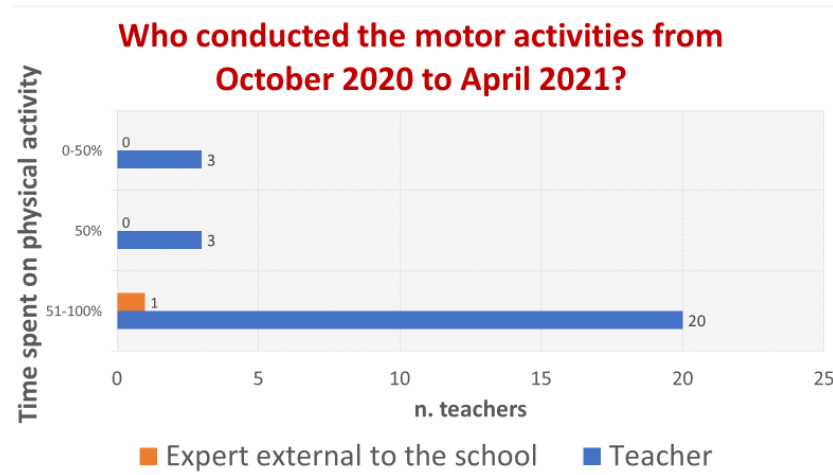


Figure 7. Conducting activities in kindergarten.

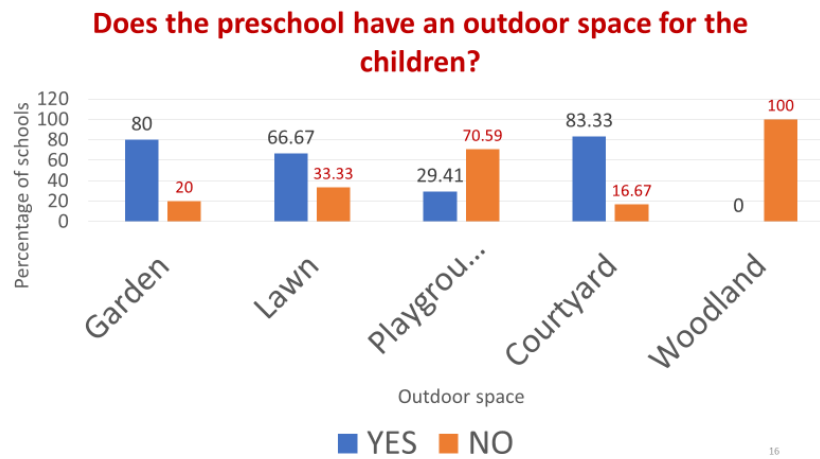


Figure 8. Available spaces for preschools.

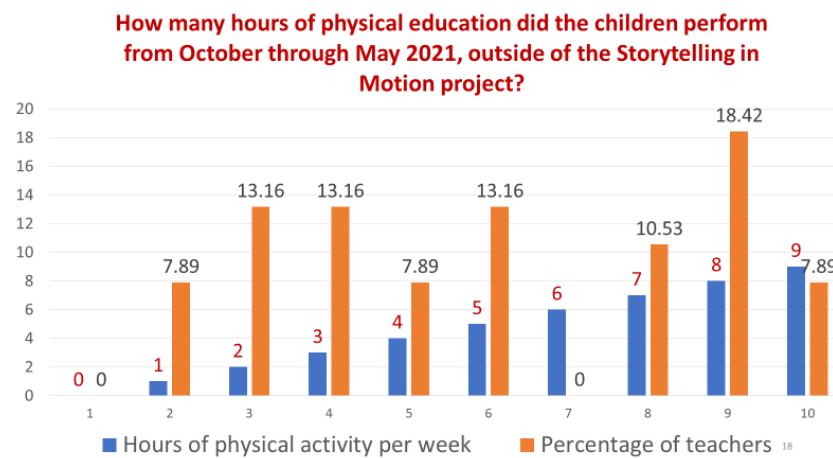


Figure 9. Physical activity hours completed from October through May 2021 outside of Storytelling activities.

Figure 7 shows that 83.33% of preschools have a courtyard where activities can take place and 80% have a garden. Figure 8 shows the weekly hours dedicated to physical activity, outside of the project, from October 2020 to May 2021 and it is observed that the majority of teachers (18.42%) perform 9 hours per week of physical activity with children. The average (13.16%) accomplishes 3 to 8 hours per week, during the year.

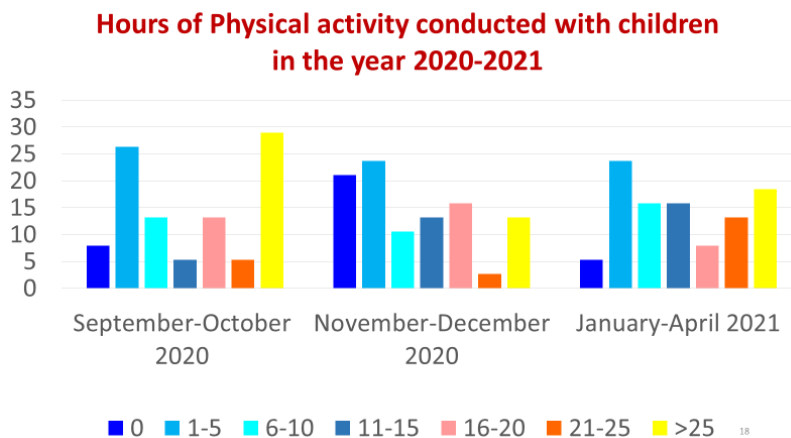


Figure 10. Physical education hours completed during the week in the year 2020-2021 with pre-schoolers participating in the Storytelling in Motion project.

Figure 9: illustrates the hours of physical education implemented with Italian preschool children during September-October, November-December, and January-April 2020-2021, during the Storytelling in Motion project. We observe a peak of more than 25 hours in the months of September-October (28.95%) and a majority around 24.55 of teachers who declare to realize from 1 to 5 hours per week of physical activity, in each of the three periods. The basic project involves the realization of one hour for 5 meetings, but the teachers use more time, dividing the lesson into several moments and enriching the activity with actions of their own personal initiative. The project enriches the hours dedicated to physical activity allowing children to be active for more time and working on fundamental motor skills.



Figure 11. Total time dedicated to free play and structured motor activity.

Figure 9 highlights the time that children spend on free play and structured motor activity. It can be seen that there is a prevalence of teachers who state that they carry out the two activities for 50%. Free play is fundamental for a child, but it is only with structured activity that it is possible to have experiences also in the "zone of proximal development", with the scaffolding of the teacher or of an expert partner and develop new motor skills (Tortella, Schembri, Cecilian, & Fumagalli, 2020).

With the third part of the questionnaire, questions are posed to the teachers, related to the experience carried out.

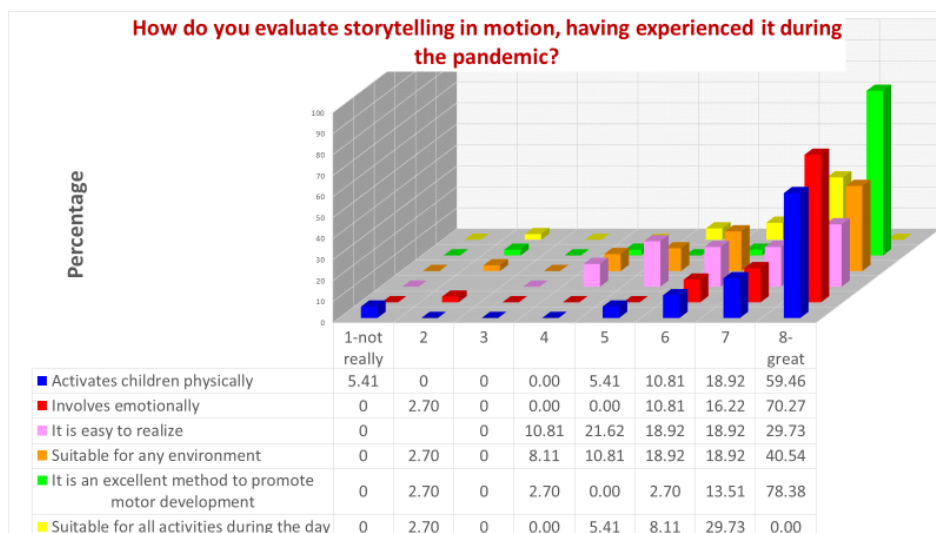


Figure 12. Teacher Evaluation of the Project.

In Figure 11, questions are asked about how teachers evaluate the Storytelling in Motion project implemented. 78.38% state that this is an excellent method for the promotion of activities favourable to motor development, 70% state that the project involves the children very much on an emotional level, 59, 46% state that the project physically activates the children, 40% of the teachers believe that the activities can be carried out in any environment, indoors or outdoors, 29.73% state that the project can be carried out both in the morning and in the afternoon and that it is easy to implement.

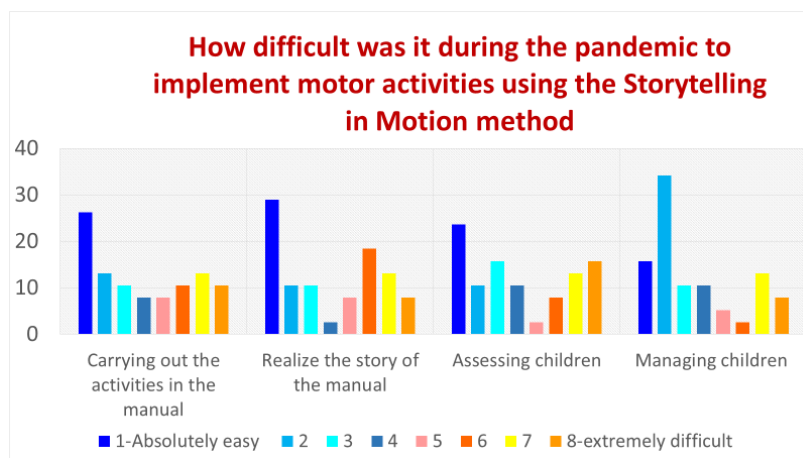


Figure 13. Difficulties encountered during the realization of the project.

Figure 12 highlights any difficulties the teachers encountered in the implementation of the project and the aspect that moderately emerges as challenging is the "implementation of the story in the manual". 18.42% of the teachers found difficulties and reported that these were initial difficulties since they were used to using a story for motor activities. The majority, however, confirmed that the various activities of conducting, making the story, evaluating and observing the children, and managing the children were easy.

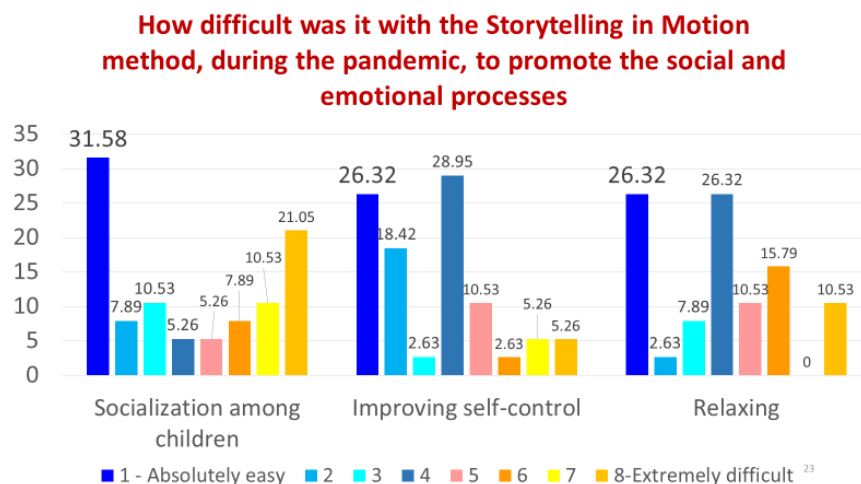


Figure 14. Any difficulties encountered in the social-relational aspects.

In question 13 we observe the socio-relational aspects. To the question concerning "socialization among the children" during the activities, 31.58% of the teachers declare that it was very easy, even though 21.05% of the teachers consider the activity extremely difficult. To the question related to self-control, 28.95% of the teachers consider the project difficult on average. To the question relative to the possible relaxation of the children, following the activities carried out, 26.32% of the teachers answer that it was easy, but just as many affirm that it was moderately difficult. Structured activities always represent a difficulty for teachers, especially if they have to follow a protocol. During the online discussion, some teachers stated that they work 8 consecutive hours and that they are so tired that carrying out the structured activities provided by the text is really very difficult for them. They would prefer to implement free play.

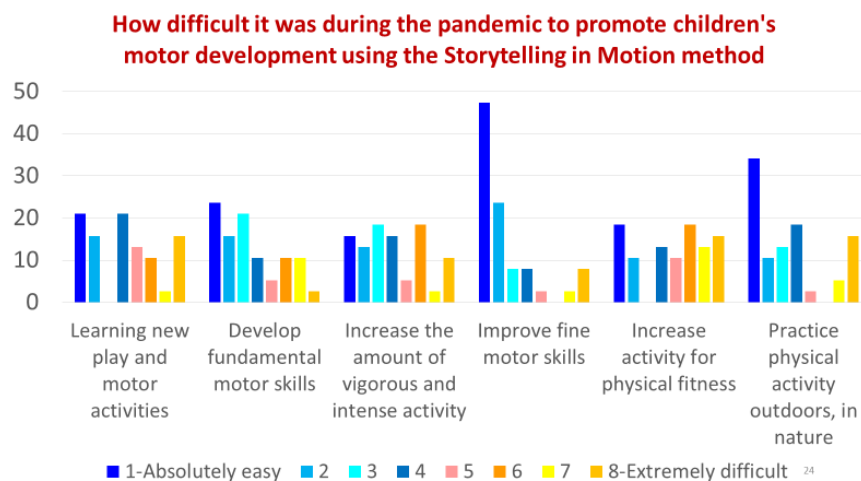


Figure 15. Difficulties related to motor aspects.

With question 14 we investigate the difficulties related to the motor aspects and it has been found that on average there are no difficulties, in particular in the question related to the development of fine motor skills, 47.37% of the teachers declare that it is an extremely easy activity and in the question related to activities carried out in nature 34.21% of the teachers consider the activity very feasible. Some doubt is observed in the more specific questions, relative to the increase in vigorous and intense physical activity, and it is assumed that this is due to the need for a better knowledge of the cognitive-scientific aspects of physical activity.

What do teachers tell us they learned in the Storytelling in Motion training?				
5%	20%	25%	60%	60%
Importance of doing outdoor activities	Children enjoy motor activities	Need to observe and evaluate activities and encourage child and teacher self-evaluation	Importance of motor activity not only for motor development and physical well-being but for the effects on cognitive processes, self-esteem and perception of competence.	Need to design motor activities, spaces, environments, materials to develop motor skills and competencies.
				25

Figure 16. Aspects considered particularly important by teachers, in relation to the project carried out.

Figure 15 shows the aspects considered particularly important by teachers, such as: the importance of carrying out outdoor activities. This consideration is particularly important because in Italy there has never been the custom of spending so much time outdoors, despite the favourable climate, and in the Covid-19 period limitations encouraged this healthy practice. Other aspects considered important are that children have fun and that it is important for this to happen, that physical activity is not only important for motor development but also for aspects related to health, cognitive processes, self-esteem and perception of competence. Teachers consider it fundamental to evaluate, in the sense of "giving value" to what children can do and stimulating self-evaluation for themselves and for the children. Finally, they declare the need to create plans with clear objectives and methods of observation and evaluation, and to define spaces and materials, in order to promote the development of children's competences.

DISCUSSION AND CONCLUSIONS

The process carried out with the teachers and revisited through the questionnaires and online focus-groups showed interest in the "Storytelling in Motion" method and recognition of the aspects related to the didactics and methodology used. In particular, it emerged the need to think about spaces, materials, times, to carry out planning and to equip oneself with evaluation and self-evaluation tools both for oneself and for the children. The children also provided positive feedback with drawings and focus groups conducted by the teachers and showed enthusiasm and involvement. Teachers reported that the story is a very important tool for engaging children and that after initial difficulties due to some disorientation of both teachers and children, the activities were conducted well. The teachers carried out additional activities at the end of those foreseen in the texts, as requested by the children. The questionnaires show that general physical activity, including

unstructured physical activity and during informal times at school, which is around 7-8 hours per week during all months of the year has been increased from 6 to 25 hours per week.

Difficulties emerged regarding the realization of the structured activities by teachers who are used to carrying out free play for most of the time, and it emerged that the workload of a preschool teacher is very high and sometimes prevents the optimal realization of the activities. The need to deepen the training with more specific knowledge related to physical activity was highlighted, as preschool teachers have general training. Better understanding the meanings and goals for motor development also helps in optimal implementation of activities. The data from this "pilot" project will serve as a basis for refining subsequent projects.

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