Dove sta di casa la scuola?
The home environment as a place of transformation and learning

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Abstract

This work presents 'Dove sta di casa la scuola', an online course for teachers promoted by the Small School Movement during the Covid-19 emergency. The course aimed to provide alternatives to lecture-based distance learning using the domestic environment as a context for 'low-intensity' digital learning. Such an experience, involving 7000 Italian teachers, allowed the school system to intervene on those pupils at risk of exclusion from distance learning for reasons related to digital divide conditions. Moreover, it was an opportunity to propose alternatives to a distance model focused solely on the provision of content and video lessons. The training experience has fostered the creation of spaces for the active construction of practices that have crossed multiple and heterogeneous disciplines, ranging from math to philosophy.

***Keywords:** teacher education, Covid-19, distance learning, primary and secondary school, homework, democratisation of education, priority area, computer-assisted learning*

1. Distance Home as a Learning Environment for Low-Intensity Digital Teaching

In March 2020, due to the Covid-19 public health emergency, class activities in school buildings were suspended; yet, upon the recommendation of the Italian Ministry of Education (MOE), teachers continued their educational activities by making a better use of digital technologies. The school was called to rethink itself to overcome a spreading sense of isolation, create a community and prevent any interruption in the learning process. Ministerial guidelines for the organisation of teaching in the lockdown phase began to emerge. The connection became direct or indirect and communication was made synchronous or asynchronous using videoconferences, video lessons or group chat. Teaching materials were uploaded to digital platforms. Digital class registers were used to communicate, support teaching and discuss with teachers and families.

Distance schooling provides for moments of relationship between teacher and learners, through which the teacher may return pupils a sense of what they have done autonomously. This mode is also useful for ascertaining the effectiveness of the tools adopted, including the way digital means and learning content are used, in a process of constant verification and improvement. The virtual classroom mode is the solution to be preferred, as far as possible.

But some critical issues soon emerge, such as the exclusion from school of those children whose families lack digital devices (PCs, tablets, mobile phones, etc.) or live in areas with poor network connectivity. Even though potentially 88.9% of Italian households have access to the Internet services with speeds greater than or equal to 30 Mbps, only 37.2% of them actually have such a connection. Distance schooling runs the risk of widening gaps and increasing educational poverty, especially for small schools located in fragile territories that represent 60% of Italy (Figure 1 shows two different examples of the same issue). A report issued by Save the Children titled 'The impact of coronavirus on educational poverty' (2020) states that the lack of physical and technological supports linked to Covid-19 emergency is accompanied by educational and cultural deprivation, due not only to school closure, but also to the impossibility to access extracurric-

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Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

ular, cultural and relational opportunities that are foundations of educational experience. The problem of isolation typical of small schools, caused by environmental and territorial difficulties, could recur online due to connectivity and digital divide issues. Isolation could also be dictated by the inability of teachers to reach out to everyone and provide a fair and inclusive learning environment.

Fig. 1. Difficulties in reaching the school in the past (left) and in the present (right).

Difficulties related to a form of methodologically weak distance schooling, inadequate to satisfy the needs of all students, together with obstacles connected to housing and living conditions could hamper the concept of *school for all* (Nuzzacci et al., 2020). According to the ISTAT (Italian national statistical institute) report titled 'Home spaces and availability of computers for children and teenagers – 2018–2019' (2020), 42% of Italian students live in overcrowded houses, in spaces responding to various functions, therefore lacking adequate environments for studying. In addition, in 2019, a consistent number (12.3%) of 6–17 year old children lived in houses without devices such as computers or tablets, and this percentage was almost 20% in southern Italy.

Another critical issue arises from the lack of teacher training. Distance schooling in contexts where educational dispersion is one of the dominant traits could lead to an amplification of the hiatus between virtuous or innovative schools and 'second choice' schools. The health emergency amplified the gap between urban and rural schools in terms of connectivity, technological equipment and teacher training in the use of new technologies for innovative teaching (Mangione et al., 2017). This phenomenon could trigger, in the long term, an increase in school dropouts in peripheral Italian territories characterized by remoteness (Mangione & Cannella, 2020).

The INDIRE (National Institute of Documentation, Innovation and Educational Research) research group has been working for years with small schools in Italy, namely, an alternative form of virtual school, a 'low digital intensity' school that 'goes where its students are' and is inclusive and democratic (De Simone, 2020), especially in peripheral, marginal and isolated territories and educational contexts (Bartolini et al., 2020).

An educational principle that has always been present in small schools is to respond to the need to go where students are. An early example of attention to the education of peasants was a hut school built in Rome countryside (see Fig. 2), allowing children to have classes near their homes and respecting the seasonality of farming work.

Fig. 2. The hut school of Colle di Fuori (Alatri Archive).

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

Similarly, the reconversion of disused train carriages into classrooms (Fig. 3) enabled to literally move the school, thus following the families involved in farming land rotation.
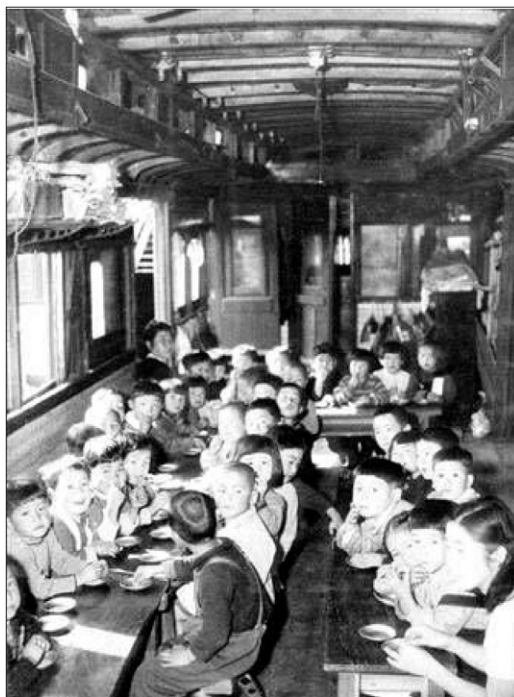
Fig. 3. Train carriages school.

Thus, rural schools have always, in some way, tried to follow pupils. The laboratory *Dove sta di casa la scuola?* (*Where does the school live?*) revives the principle that small schools enter pupils' houses, especially for children living in geographically isolated and technologically disadvantaged areas. These schools need to find specific or even tailored solutions to reach all their students, one by one. Pupils have the right not to be left behind simply because of territorial difficulties or lack of educational resources, and to be side by side with their teachers in finding creative and alternative solutions.

Virtual education could not be the only solution. An idea is to reconsider home spaces to host educational activities. In this way, a house could be considered a classroom extension that allows small schools to strengthen their bond with pupils' families.

Can a house be transformed into a learning environment, even a disciplinary one? Can household objects become 'educational objects'? The answer mixes past and present, as already suggested by pedagogical positivism, that is, educating by exploiting objects surrounding a pupil's life. Hence, starting from our everyday life, from the environment we live in, the surrounding objects can be turned into educational tools, in order to foster a school that turns into a practice of observation and may stir and support pupils' curiosity, accustom them to experience the world around them and encourage them to become their own teacher. '*[…] It is a matter of putting the pupil in contact with the world of things, they cannot lack the means, since the world we live in is everywhere*' (Gabelli, 1888). In the same way, the New Schools movement, including Dewey, Freinet, Montessori and the Agazzi sisters, prompts to a form of learning based on direct experience and real environments, thus fostering an active, meaningful and situated learning.

The house is that place we can associate with the 'transformist conception of educability', already recalled by Montessori. It is a space able to accompany children's development, capable of dialoguing with all sciences, and the ideal place not to separate education from the stream of life. While Montessori in Italy used the methodology known as 'the Children's Houses' to express a new idea of school, Dewey in the USA rethought schooling through the concept of 'ideal home' and indicated home chores as ways to develop knowledge and respect for others' rights. The new schools they activated brought some dimensions of the home environment back to school. The house is to be seen as the main school laboratory. The Agazzi sisters promoted activities that took on a practical value of domestic life, becoming a continuation of the rural family model.

The idea of the house as an educational laboratory represents a model alternative to distance education useful for schools located in territories with poor technological infrastructures and connectivity problems.

In this perspective, *Dove sta di casa la scuola?* stands as a proposal to support teachers working in small schools in 'leaving no one behind', finding solutions, even creative and alternative, in the home space, to be effectively close to their students.

The *Small School Movement* proposed through the online laboratory *Dove sta di casa la scuola?* some operational solutions to cross disciplines and key educational themes using phenomena and materials that we can find in domestic spaces (Fig. 4). Parents become teachers' assistants, and home spaces are an opportunity to learn something new (Tonucci, 2020).

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

Fig. 4. Towards a good school in the time of Covid (Tonucci, 2020).

The base of such an approach is the concept of *transformation*. What transformation processes can be observed, simulated and built at home? Based on this question, different subjects were crossed (mathematics, philosophy, music, anthropology, science, architecture) within a pedagogical framework guided by the 17 goals in the '2030 Agenda for Sustainable Development' (2015) and by the 'National guidelines and new scenarios: sustainability, European and global citizenship, social cohesion' (2018).

The small school Italian network (Mangione & Cannella, 2018), currently including about 3000 small schools, sustained the design of online training laboratories involving 50 experts coming from academia, cultural institutions and schools. The initiative was attended by 7721 teachers. As for now, the community with 2551 teachers and researchers allows gathering a variety of experiences that are periodically collected and issued through thematic webinars as a means of sharing further sustainable practices with small schools within a new school model that looks beyond the specific pandemic situation and helps to include new spaces in the community educational process.

In this article, we will first explore the training model proposed to teachers, specifically oriented to pedagogical laboratories seen as 'spaces for the active construction of practice' (Mangione et al., 2020). Some experiences representing the disciplinary areas will be then analysed to clarify through specific repertoires how *Dove sta di casa la scuola?* was a training proposal capable of helping teachers from small schools, with the following goals in mind: not leaving anyone behind, identifying creative and alternative solutions within home spaces and effectively accompanying students in their exploration of the world.

2. A Field of Experience and an Atelier: The Home Environment as a Learning Space

During the Covid-19 lockdown, both teachers and students have been experiencing a dramatic change in schooling practices due to the sudden loss of face-to-face communication and shared physical spaces. The guidelines released by the Italian MOE explicitly stated that distance schooling could not be considered as a substitute to face-to-face education, but

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

as a matter of fact. Recommendations outlined the reconfiguration of school practice into a specific educational model: they suggested reproducing real classes into virtual classrooms, to engage students with video conferences and lessons and content delivery and to provide feedback to their autonomous work. Though the guidelines outlined the importance of classroom discussion, they defined mainly a lecture-based schooling model with no reference to alternative teaching strategies, such as cooperative and collaborative learning, inquiry and project-based learning and workshops, just to mention some.

In the meantime, the cultural strength of the school as a place emerged quite clearly both in public discourse and from teachers and parents, and there were concerns that distance schooling may have negative effects on children in terms of social and cognitive processes. Concerns were raised by a shared perception that emergency distance schooling was an impoverished version of the traditional *forme scolaire* (Bottero, 2021), based on asynchronous and synchronous lectures, individual assignments and final assessment. Another major concern regarded the constraints that may have affected the learning process in the MOE technology-based model of emergency distance schooling, especially for kindergarten and younger primary school students, who are generally less capable to interact autonomously in an e-learning environment such as Google Classroom. For these children, access and participation were subject to the presence and the digital skills of older caregivers such as parents, siblings or grandparents. Technology and web-based distance schooling was also considered a strong limitation to the development of the social dimension, both on the cognitive and affective levels, to the engagement of different learning styles and, more generally speaking, to any form of experiential and embodied learning (Berthoz, 2011; Skulmowski et al., 2018). Finally, according to demographics[2], in the early stages of the pandemic, there was a considerable number of families and children that lacked adequate Internet connection and devices. As the MOE itself reported at the Italian Senate in late March 2020, schools were able to reach 6.7 million students out of a population of 8 million: more than a million students were subsequently excluded from remote schooling activities.

Many of these concerns found some confirmation in subsequent investigations on Italian teachers' behaviour during the pandemic (Report INDIRE, 2020; Cirelli, 2020) and from the results of the national standardised tests, especially for socio-economically disadvantaged second-grade students (Invalsi Open, 2021).

However, during the 2020 lockdown, educational researchers, experts and teachers' professional associations provided alternatives to lecture-based distance learning, with problem and project-based activities, collaborative learning tasks and formative assessment practices. Among these, the *Movimento di Cooperazione educativa* (MCE)[3] published a blog to collect 'low-tech' activities, typically designed for smartphone devices and short connection time. These activities aimed to not only improve the inclusion of students without proper devices and Internet connection, but also to recover bodily and perceptual engagement in the learning process. For instance, some teachers carried out astronomical observations asking primary school students to share drawings and pictures of what they were seeing from their windows to trace the changes in the moon shape. Differences and similarities were subject to classroom discussion and, in some cases, discussion with other schools in different areas of the country[4]. In other cases, students were asked to explore their houses and create a path, counting their steps and the steps of their adult relatives.

Most of these activities pushed emergency remote schooling beyond the virtual classroom and explored the domestic environment as a learning space that allows experiential learning (Kolb, 2005), despite the constraints of the lockdown. As the Italian pedagogist Francesco Tonucci repeatedly stated during the Covid-19 pandemic (Tonucci, 2020), the domestic environment provides a wide range of opportunities for inquiry-based learning (Guasti, 2002): curriculum content could easily be found in many daily domestic chores, such as cooking, washing dishes or ironing or in family life routines; scientific and technological facts such as operation of the washing machine, chemistry of stains or the biology of plants' growth; historical facts such as family members' memories; language-related matters in everyday speaking (e.g. words and expressions from different dialects or languages) and social science inquiries. These curricular 'facts' in the domestic environment may act as 'triggers' for exploratory and inquiry-based activities that could be performed also in the lockdown situation, providing an alternative to video lecture-based teaching. According to Tonucci, this approach could also be interesting beyond a pandemic, as an alternative to typical homework assignments.

This pedagogical idea was interesting as the student's home is conceived like a learning space to be set or interpreted according to the teaching 'device' or strategy (Parmigiani, 2012): as a 'field of investigation' in the case of inquiry-based learning or as an atelier in the case of project-based learning or workshops. Though further research is needed, this conception of the domestic space is poorly represented in the literature about emergency remote learning, at least in the early investigations in Italy: the home environment is mainly represented as a source of distraction (Gui et al., 2020; Di Palma, 2020), as a factor that aggravated inequalities (Riccardi et al., 2020).

Apart from the few early practices documented by the MCE teachers, there were not exemplary cases to support teachers in the implementation of this idea as a solution to improve the inclusion of socially disadvantaged children and to enhance bodily engagement, as the Covid distance schooling experience was new to all the stakeholders. Still, we wanted

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[2] According to a report published by the Italian National Institute of Statistics in 2019, there are 1,260,000 children in a condition of absolute poverty in Italy. The pandemic presumably aggravated this scenario as the economic crisis dramatically hit many single-income families; *Save the Children* estimated the rise in absolute poverty rate to be from 12% to 20%. ISTAT 'Rapporto Annuale 2019, La Situazione Del Paese' (2019).

[3] An association of teachers was founded in 1951 to promote Freinet's popular and progressive pedagogy. The blog mentioned in the paragraph is available at https://senzascuola.wordpress.com/, last visited on 10/11/2021.

[4] See the Facebook group 'Rompere le distanze' https://www.facebook.com/groups/648194195748757/posts/Franco-Lorenzoni-posted-in-Rompere-distanze/649857458915764/

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

to explore the possibility of this idea, to understand how it could be implemented and what curricular learning goals could be pursued in the domestic environment.

To develop this idea, we engaged a group of 21 experts in active pedagogy practices (mainly inquiry-based/discovery learning, cooperative learning activities and laboratory teaching). We presented them the main problems and the general idea as developed by Tonucci and asked them to design or collect from their repertory activities that could be adapted for a home setting and distance schooling. As domestic environments may differ according to social status, available spaces and resources (such as appliances, books and so on), we invited the experts to select simple and highly available materials.

We collected 16 activities that were fully responding to our initial request. Most of them (11) consisted of experiences that teachers were actually carrying on during the lockdown with primary and junior secondary school students. Half of the practices can be classified as inquiry-based learning activities as they introduced 'research questions' about everyday facts ('Why does water boil at 100°C always? Why do dust form curls under the bed?') or problem-solving challenges and hypotheses to verify ('How can we remove chocolate stains from clothes? Why do we need hot water? Why do we need detergents?'). Other activities were oriented towards engineering, as they asked children to investigate the functioning mechanism of domestic appliances like the washing machine, fridge, or the toilet flush. One webinar was focused on the possible uses of food packaging to explore the geometric and physics concepts, and a second webinar was focused on the geometry of social distancing. Experts also developed inquiry-based learning suggestions in the field of social science, starting from personal and material memories available in the domestic environment.

These activities are typically initiated with an online problem-posing session led by the teacher. Students are asked to perform an observational activity, free or guided by teacher's directions, and in some cases to document with paper and pencil or digital tools. Online classroom discussion is generally set in synchronous meetings, as most activities are designed for primary school students. Most of the practices we collected can be classified as dialogic inquiry activities (Wells, 1999), even though some unclear issues remain: the hypothesis testing, the data collection and discussion and the transition from intuitive to formal learning (Bottero, 2021).

In another group of practices, the domestic environment becomes a place to set workshops that involve practical learning activities. This is the case of some math manipulatives inspired by the work of Italian mathematician Emma Castelnuovo that have been tested in distance learning situations (Castelnuovo, 1953), some basic physics experiments for primary school children (Brondo, 2019) or performing arts activities. Language and performing art were also well represented in the webinars. Ordinary objects were also used to support language arts tasks such as compositions (the writing of imaginary dialogues) and comprehension and grammar activities.

Teachers tried to design the activity using commonly available materials such as paper sheets, cardboard or even furniture (Fig. 5). Unlike inquiry-based activities, workshops were set mainly during online synchronous meetings, generally as whole class teaching work. Online classroom discussion was also a key to these practices. In some cases, after the online workshop, students were asked to replicate the activity in a different context and with different resources to support the consolidation and formalisation of knowledge.

Fig. 5. 'The resistance of the triangle'. An example of geometric manipulative from Emma Castelnuovo's work, adapted for emergency distance schooling.

All the practices were presented during a series of open-access webinars addressed to teachers. We invited experts to illustrate learning objectives, organisation of the setting and materials, the main steps and suggestions to set and collect feedback from students and parents if involved. We also asked experts to design real-time 'hands-on' moments to engage webinar participants: this request was aimed to provide a shared experience on the activity's sustainability in a remote

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

setting. We also wanted to provide a pedagogically coherent setting for adult learners, as we reputed that lecture-based webinars were not effective to engage teachers who were less experienced in active e-learning practices. For this purpose, we anticipated materials and instructions via the Facebook group and the *Small School Movement* website.

The webinars raised considerable attention among the teachers' professional community according to the participation rate (on average, 300 participants in each event) and the followers' numbers of the Facebook group. We collected feedback from 15 schools that sent us documentation of their practices, but how the practices have been received by the teachers and their effectiveness to support social inclusion and learning are still to be investigated.

3. Educational Areas: Between National Guidelines and New Scenarios

Dove sta di casa la scuola? is a response to one of the objectives stated in the 2030 Agenda: 'By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education' (Goal 4). At the same time, this cycle of webinars wants to be an operational tool for the implementation of the 2012 national guidelines of the first cycle, integrated by the new scenarios of citizenship and sustainability.

The documents describing the new scenarios refer to the need to rethink the school in order to make it more connected to the life of pupils, while focusing on the development of skills related to knowing how to live in the world:

> *(...) the school will take care of the matter of both learning and 'knowing how to live in the world' (...);*
> *(...) the school shall take care of and consolidate basic skills and knowledge, which are indispensable, being the foundation for the conscious use of widespread knowledge and making early effective any possibility of learning throughout life (...)*
> *(...) the school shall offer students opportunities to learn basic knowledge and cultural languages; ensure that students may acquire thinking tools necessary for them to learn how to select information; promote students' ability to develop methods and categories acting as compasses in their personal itineraries; encourage students' autonomy of thought, directing teaching towards the construction of knowledge, and starting from practical educational needs. (...)* (Italian national guidelines and new scenarios, 2018)

Home practice, in compliance with the national guidelines, takes the form of a *gymnasium* where, in addition to basic areas, key disciplines such as music, philosophy and history are central to foster active citizenship and fundamental to investigate and explain most of the phenomena of the world surrounding children, encouraging a rational approach to problems and the development of autonomous thinking.

Fig. 6. Educational areas covered by the webinars.

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

Thus, the home environment becomes a reference background for some areas addressed by kindergarten and first-cycle curricula in a vertical perspective, *facilitating (¼) operational approaches to knowledge in science, technology, community languages, music production, theatre, pictorial activities, motor skills (¼), promoting learning through exploration and discovery, together with students' awareness of 'their own way of learning, to learn how to learn' (¼)* (National guidelines and new scenarios, 2018, p. 17).

Figure 6 shows the addressed educational areas: methodological and metacognitive social skills, arts for citizenship, history, cultural heritage and active citizenship, scientific thinking, mathematical thinking. Table 1 lists some webinars of the workshop *Dove sta di casa la scuola?* to help the reader understand their importance with respect to the new scenarios of the 2018 national guidelines, in terms of objectives and activities.

Table 1. Partial list of the webinars of *Dove sta di casa la scuola?*

Webinar title	Axis/educational area	Objectives and activities within national guidelines
Darling, I'm playing home	Arts for citizenship	Understanding of the main musical and sound parameters, analysis and generation of organised sound, learning musical alphabets, processing of alternative musical notations, education to listening and recognition of the soundscape
#Challengepalette: material compositions to educate to beauty at home	Arts for citizenship	Educating to beauty and divergent gaze; observation, research. discrimination and spontaneous composition of material and chromatic paintings using the materials available at home
Your home hides a treasure!	Social history, citizenship and constitution	Working on school sources, applying problem-solving for the interdisciplinary work
Time is such a strange thing!	Social, digital, metacognitive and methodological skills	Developing a spirit of inventiveness and entrepreneurship, overcoming one-sidedness in the way of thinking, distinction between time for myself and time for others
Pastries and little messes	Scientific thinking	Using domestic activities to address physical, anthropological scientific thinking; developing processes of inference, deduction, observation, integration of consolidated knowledge
Before the green classroom: playing and learning with indoor plants	Scientific thinking	Analysing indoor plants, testing scientific data showing how plants contribute to a perceived sense of well-being and motivation and even to improving learning
Let's break some boxes	Mathematical thinking	Applying constructive methods in geometry from real to abstract, from complex to simple, using boxes at home; intuitive geometry involving transformation operations

Below we describe the results of some significant initiatives from the above-mentioned areas in order to explain how, starting from the theme of transformation, we can achieve citizenship skills through music, philosophy, math and art.

As an emerging result, the home environment can help build more solid learning than a school model based on 'memory and attention', as Rodari defined it, which often provides students with a wealth of passive knowledge, instead of tangible tools to encourage reasoning.

3.1 Darling, I'm Playing Home!

The initiative entitled '*Darling, I'm playing home!*' showed how any household object can become a music score or a musical instrument, and any sound can be the seed of new music. The webinar let the teachers understand that the house is a helpful space to stimulate pupils' musical intelligence and establish a relationship between music teaching, acoustic ecology and musical practice. Jointly with the researchers of the Music Informatics Laboratory (LIM), Department of Computer Science, University of Milan, the training activity unveiled a number of unexpected musical instruments that the house offers for developing a specific understanding of the key music and sound parameters. The webinar focused on the analysis and generation of organised sound, discovery of musical alphabets, processing of alternative musical notations, the listening education and the ability to recognise the soundscape. In addition, music fosters the development of other fundamental skills for personal growth.

> *(…) Music, a fundamental and universal component of human experience, offers a symbolic and relational space conducive to the activation of cooperation and socialization processes, to the capturing of knowledge tools, to the enhancement of creativity and participation, to the development of the sense of community, as well as to the interaction among different cultures (¼).* (Italian national guidelines and new scenarios, 2018)

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

A number of tools and devices present in a house enable learners to produce sound. The activity of recognising different timbres started from the commonly accepted Hornbostel–Sachs classification (1914), which organises the instruments in aerophones, chordophones, membranophones, electrophones and idiophones. Real musical instruments may not be always available, nor are they very effective to let young students grab basic musical concepts. For these reasons, the following questions were considered: Do we have alternative tools and approaches to make music at home? Can we adapt objects originally created for other specific functions to carry a completely different action? Can the house offer alternative representations of a music score, different from traditional notation?

The practice was the ground for a training experience addressing three goals better explained in the following: i) listening to the house, ii) playing the house and iii) reading the house.

Listening to the house. Teachers were proposed to complete drills about the surrounding sound environment, that is, the soundscape, by

1. listening, annotating and describing the soundscape;
2. comparing it with pre-lockdown sound environments;
3. trying to identify structures in background music and
4. discussing emotional effects and musical terms.

In their home environment, children can be easily encouraged to identify music sources as well as describe timbral characteristics. Discussing the cultural aspects of the sound world (e.g. memory of the pre-lockdown landscape) or some musical terms (*allegretto*, *andante con brio*) is a very important activity for them to try out.

Playing the house. Through specific practices, the teachers could turn household items into musical instruments in order to:

1. explore such objects, grouping them into resonators/exciters, tuned/untuned instruments, aerophones/chordophones/… instruments and so on;
2. assemble rudimental instruments by matching commonly available elements (e.g. rubber bands, toothpicks, paper boxes and so on);
3. alter individual sound parameters (pitch, intensity, duration) and
4. select a soundscape and attempt its reproduction.

Thus, household tools can be transformed into musical instruments (Fig. 7). This allows the child to build a catalogue of 'atomic' musical instruments, which can be arranged and combined to build new and more complex ones.

Fig. 7. Household percussions.

Reading the house. Lastly, the workshop raised teachers' awareness about the way furniture and architecture can become forms of musical language, for example, by

1. reading or creating patterns with pieces of furniture and performing them;
2. repeating such patterns by using different rules and tools;
3. composing schemes and replicating known structures;
4. including the polyphonic dimension in musical practice and
5. making the young establish new rules and instruct an adult, finally discussing the performance outcome.

For the sake of clarity, let us show how a bookcase can become a musical score. Shelves from the bookcase can be seen as sheet music, and some parameters of books can be put in relationship with musical information. A first parameter to consider

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

can be the book height (spine), possibly reducing the level of detail to a few categories such as 'tall', 'medium' and 'short'. Other parameters to consider can include cover colour, spine width, title orientation, language and so on. After determining one or more physical parameters to be read, it is possible to establish customised associations with musical parameters. For instance, in Fig. 8, book heights have been associated with rhythm. To improve reader comprehension, a coloured layer has been inserted between physical and musical parameters: arbitrarily, the blue line and dots refer to an average duration, the green ones to short notes and the red ones to long notes. Finally, using home tools as percussive instruments (e.g. pot lids hit by a wooden spoon), the learner can 'read' the bookcase as if it were a rhythmic score. Alternatively, the associations between physical and musical parameters can be modified, for instance, reading book heights as pitches or timbres.

Fig. 8. A bookshelf transformed into a music score.

Also, a wardrobe can be read as a music score, and the same is for walls or floors, especially when showing an irregular texture to translate into music (Fig. 9). A brick wall is well suited for that: the colour, shape and arrangement of the bricks can provide multiple forms of music notation.
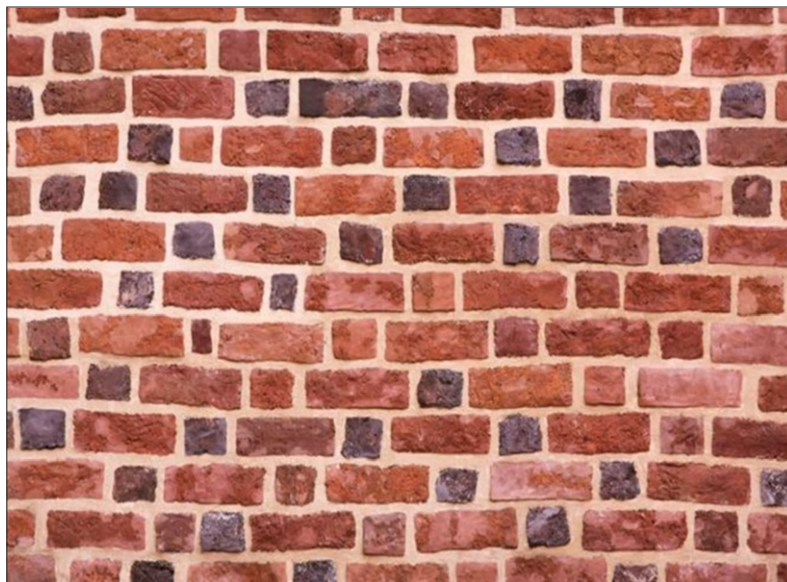

Fig. 9. A brick wall whose patterns can originate a musical performance.

In conclusion, tools, furniture and architectural characteristics of a home environment can provide unexpected hints and engaging ideas to foster the awareness of musical concepts in young learners. The activities proposed in this laboratory can be conducted individually as well as in cooperation with other young or adult participants, for example, siblings or parents.

3.2 Your Home Hides a Treasure!

History, according to the 2012 Italian Guidelines, contributes to cultural heritage education and active citizenship.

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

Teachers will be committed to let pupils discover the link of past traces and knowledge, to methodically make use of archaeological, museum, iconic and archival sources, to help them appreciate their value as cultural assets. Cultural heritage education thus will provide a fundamental contribution to active citizenship. In particular, teachers will highlight relationships between institutions and society, differences between gender and generation, political regimes, democratic institutions. (Italian national guidelines and new scenarios, 2018)

The webinar 'Your home hides a treasure!', curated by researcher Francesca Pizzigoni, focused on *school memories* present in our homes and how they can be valuable sources able to communicate with us about school history and school heritage. The theme of the school is extremely inclusive, both from an intergenerational viewpoint and as it regards foreign cultures, considering that everyone can bring his/her own school experience.

The activity proposed by the expert as an icebreaker is objects' recognition (Fig. 10): a travel pen holder, separable geometric solids, copybooks for geometric drawing, rural postcards for charity and cultural purposes (Fava, 2015), calligraphy copybooks. The activity introduces teachers to observation and research processes.

Fig. 10. Historical promotional postcard (from https://www.millecartoline.com/).

School heritage (Fig. 11 and 12) can help learners discover the history of school. Beautiful and uncommon objects can contribute to stimulating children's curiosity. The teachers learned that a house may hide many examples of school heritage that can be used in low-intensity digital teaching, since they imply hands-on lab and exploration activities covering themes such as citizenship and constitution, economics, local history, Italian language and toponymy.

Fig. 11. School heritage.

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

Different ways of conducting activities are shared with teachers, who give the students the role of *patrimoniere*, namely, caretaker (Pizzigoni, 2020). All steps are designed in two ways: i) pupils with relevant objects in their own home will analyse them and ii) pupils with no available objects will receive some material for each activity.

Webinar participants had the chance to observe and comment on some cataloguing cards that helped the *patrimoniere* make objects speak:

- signs on the picture revealing clues (What is written on the back? Is there the photographer's or the pupil's name?);
- specific image content (Are there any image details that you consider interesting? Do they suggest how the school was once, or what activity did the pupils do, or how many of them were in the class?);
- the investigation of the original subject (What was it for: science, geography, other?);
- the intended purpose (What was it for: a school experiment, a special class, other?) and
- the object's origin (Who did it belong to and in which period was it used? Is it your grandparents'? Or did you buy it at a flea market?).

Fig. 12. School heritage that can be easily found at home: class photos and dictation copybooks.

Finally, pupils and teachers are asked to create an interview structure/draft, intended for the *patrimoniere*, to prevent memories from being wasted and help use them to be food for thought (How many pupils were you in the class? Were you all boys or all girls or a mixed class? Did you wear an apron or a uniform? What was your school bag like? Do you remember your teacher? Was the school building in the same place as it is today? How did you go to school: on foot, by bike or by bus? Do you remember how the classroom was like: were there desks, blackboards, a globe, boards on the walls? What classes did you attend?).

The above-mentioned investigative method fosters the development of eight key skills: Learning to learn, Planning, Communicating, Collaborating and participating, Acting autonomously and responsibly, Solving problems, Identifying connections and relationships, and Acquiring and interpreting the information. The pupil is expected to become an expert in school history. Getting in contact with educational objects may ease the learning itself, encourage the comparison between past and present, and strengthen the ties with their school.

(…) In particular, our understanding of diverse and profound ties, conflicts and exchanges that have taken place over time between Mediterranean peoples and populations of other regions of the world, makes understandable issues that, otherwise, would be entirely crushed in the present. It is advisable that the two temporal poles, present and past, have the right weight in the curriculum and constantly recall one another. It is plain to see, however, that precisely the attention to complex events of the present time calls into question the study of general history, articulated over the first cycle, based on its significance for an initial understanding of the world. (Italian national guidelines and new scenarios, 2018)

3.3 #Challengepalette: Material Compositions to Educate to Beauty at Home

Artistic disciplines play a fundamental role in the harmonious development of children's personalities and for the evolution of future citizens.

(…) Familiarity with quality images and artworks raises awareness and strengthens pupil's creative, aesthetic and expressive skills, empowers cultural preparation, and helps educate them to active and responsible citizenship. As such, the pupils educate themselves to safeguard and preserve the artistic and environmental heritage based on the territory they belong to. (Italian national guidelines and new scenarios, 2018)

Creative thinking is nourished by an aesthetic feeling, such as the wonder in front of an artwork or the shades of a flower. Amazement can arise also when exploring everyday life objects. Are we able to find out, starting from a playful

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

challenge, whether unnoticed objects of our everyday life hide information and connections helpful to our skills and knowledge? The webinar conducted by Sara Vincetti (researcher at INDIRE, teacher and illustrator) made it possible to educate to beauty and divergent gaze, through observation, research, discrimination and a spontaneous composition of material and chromatic paintings, with the materials available at home. The goal of the activity is to start from a given colour and gather and assemble a number of commonly available objects of that colour in a unique composition.

#Challengepalette lets pupils experience their home as a space to live and explore, full of objects to catalogue, contemplate and investigate. Activities typical to an explorer and an artist allow children to find stimuli in objects that are often unnoticed.

The idea of palette recalls a creative language and refers to the extrapolation of colours from images, through colour legends. It is part of the sketch of a naturalist illustrator who places a list of the colours used on the drawing side (Fig. 13 and 14).
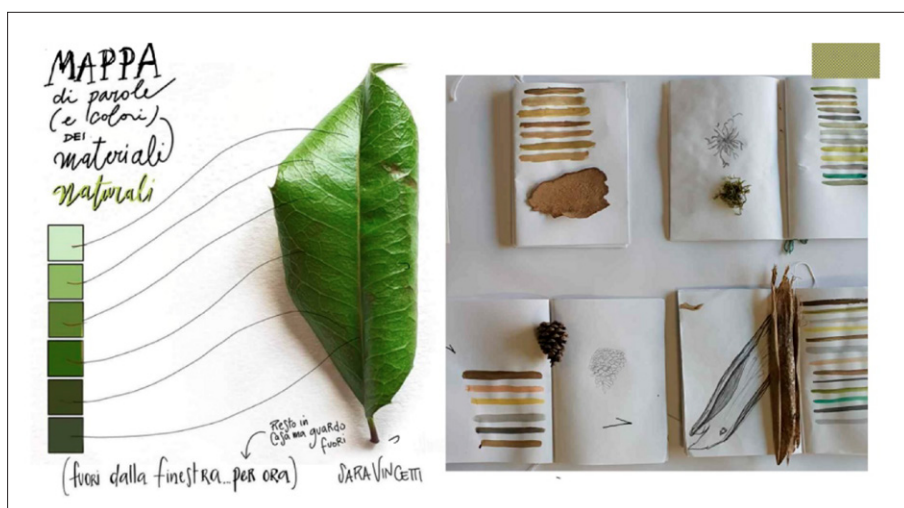

Fig. 13. #Challengepalette example.

The challenge, on the other hand, recalls a social language, specific to gamification, seen as a component that excites and motivates the learner during learning.

Fig. 14. Challenge example.

#Challengepalette is, therefore, both a useful and a playful activity to be performed at home. Through the challenge, pupils are encouraged to seek new points of view, to take a given time to complete it and are asked for rules repetition and confrontation among peers (Fig. 15).

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

Fig. 15. #Challengepalette rules.

Fig. 16. #Challengepalette made by pupils.

After facing #Challengepalette, the teachers realised that the paintings created together helped the pupils to delve into specific domains and disciplinary areas. As a matter of fact, the pupils can be involved in activities of self-understanding and understanding of the other (Fig. 16) (Vincetti, 2020).

The limitation of working on a painting is also an important request for children who are asked to choose objects and materials that fit a limit, thus supporting the development of visual and spatial skills.

Evaluating the works realised by children aged 8 and 11, the teachers were better aware of the possibility of modulating challenges according to child's age and skills. The theme of using recycled materials was a way to connect art expression and creative attitude with other disciplines.

What does art inspire us? What does a specific colour trigger? Is there a geography in the chromatic framework? These are only a few examples of research questions involved in the challenge. For example, let us focus on the blue colour. Shades of blue can be employed to explore historical and cultural currents from Picasso's blue period. Blue jeans can be a way to foster a discussion about the socio-economic period of the 70s. A blue parrot from the Amazon jungle can encourage scientific and naturalistic research.

In addition to colour, the challenge addresses also other subjects, such as materials and shapes, which, in turn, can involve the study of dimensions, angles and volume fractions.

In conclusion, what an object can teach goes far beyond its mere function, rather activating connections towards other object and knowledge areas. *'The disciplines and the vast hinge areas among disciplines are all accessible and explored in a thousand forms'* (Italian national guidelines and new scenarios, 2018).

Conclusions

Starting from March 2020, many European countries started reflecting on proposals for an alternative teaching in time of seclusion. It was important to realise what was happening in the world and how pupils were experiencing it. The working method in use in schools was inefficient even in face-to-face learning, and, in a radically new scenario, it was rejected by students from all countries. This concept is well expressed by Elisa, a child from Lima, who argues: 'Before now we couldn't understand these things, because we were at school'. Was it possible to do something different?

Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

The government of the island of Fuerteventura, Spain, implemented a proposal of house rethought as a laboratory through the 'Aula STEAM' project, where STEAM is the English acronym for Science, Technology, Engineering, Art and Mathematics. In Argentina, the Ministry of Education addressed the problem of distance schooling in remote places with no network connection or technological devices by publishing a booklet about the house as a laboratory, entitled 'Saberes cotidianos: explorar, jugar y aprender en casa'.

As a final remark, the school, in most cases, thought it was its duty not to stop, as also reported by the Italian Ministry slogan: 'La scuola non si ferma'. In Italy, the proposal of a house as a laboratory made by INDIRE is an example of that. The *Small School Movement* supported the design of online training laboratories involving 50 experts coming from academia, cultural institutions and schools; the initiative was attended by 7721 teachers. As for now, the community with 2551 teachers and researchers allows to gather a variety of experiences that are periodically collected and issued through thematic webinars as a means of sharing further sustainable practices. A new school model is emerging, a model that looks beyond the specific pandemic situation and aims to include new spaces in the community educational process.

In this article, we explored a training model proposed to teachers, specifically oriented towards the pedagogical laboratories 'Spaces for the active construction of practice' and revisited with respect to the previous training actions for small schools (Mangione et al., 2020). Concerning future work, some key experiences that characterise disciplinary areas will be analysed with the aim of clarifying through specific practice repositories how *Dove sta di casa la scuola?* was a training proposal capable of helping teachers from small schools to 'leave no one behind'.

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Dove sta di casa la scuola?
The home environment as a place of transformation and learning
Jose Mangione, G. R., Parigi, L., Tonucci, F.

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