



EARLY Survey Descriptive Analysis for Italy November 2022

Introduction and Background

Information about lockdown in Italy

The COVID-19 pandemic has had a significant impact on Italy, leading to several lockdowns and restrictions. The first national lockdown was imposed on March 9, 2020, and lasted until May 18, 2020. During this time, all non-essential businesses were closed, and people were required to stay at home except for essential reasons such as buying food or seeking medical care.

After the first national lockdown in Italy several regional and local lockdowns were imposed to curb the spread of COVID-19. These lockdowns varied in their duration and restrictions, with some regions being designated as “red zones” with stricter measures in place.

Schools and universities were among the institutions affected by the lockdown measures, with teaching being suspended and students having to rely on remote learning. This shift to remote learning presented challenges for students, teachers, and parents alike. Many students struggled to adapt to the new format of learning, with some lacking access to the necessary technology or facing difficulties in maintaining motivation and focus.

Teachers also faced challenges in adapting their teaching methods to the online format, with many having to quickly learn how to use new technologies and tools. The sudden shift to remote learning also highlighted existing inequalities in the education system, with students from disadvantaged backgrounds being particularly affected.

Parents also faced challenges in supporting their children’s learning while juggling their own work and other responsibilities. Many parents reported feeling overwhelmed and stressed as they tried to balance their roles as caregivers, teachers, and workers.

The impact of the lockdowns on education in Italy is a complex issue that is still being studied and understood. There are concerns about the potential long-term effects on students’ academic progress and well-being, as well as on the education system as a whole.

In conclusion, the COVID-19 lockdowns in Italy have had a significant impact on schools and education. The shift to remote learning presented challenges for students, teachers, and parents alike, and highlighted existing inequalities in the education system. The long-term effects of the lockdowns on education are still being studied and understood.

Information about computational thinking and robotics in ECE in your country

Early childhood education in Italy is split into two parts according to children's age. Over 96% of children aged from 3 to 6 (the starting age for compulsory education) attend the scuola dell'infanzia, provided by state, local governments or private initiatives. The scenario is very different for children under 3. Italy has a split Early Childhood Education and Care (ECEC) system, with different authorities in charge of ECEC: the Ministry of Labour and Social Policies (Ministero del Lavoro e delle Politiche Sociali) and the Department of Family Policies (Dipartimento per le politiche della famiglia) within the Presidency of the Council of Ministers (Presidenza del Consiglio dei Ministri) are responsible for ECEC for children up to the age of three years; the Ministry of Education, University and Research (Ministero dell'istruzione, dell'università e della ricerca) is responsible for children in ECEC between three and six years.

In recent years, Computational Thinking (CT) and related concepts such as coding, programming, and algorithmic thinking have received increasing attention in the educational field. This has given rise to a large amount of academic and grey literature, as well as numerous public and private implementation initiatives. However, does not exist any official guidelines specifically for robotics and computational thinking in early childhood education in Italy.

Despite this, there is evidence that educational robotics can be used as a tool to offer opportunities for students to engage and develop computational thinking skills. A systematic literature review regarding computational thinking and programming conducted in early childhood education found that age was an important factor in learning computational thinking in early childhood. In addition, it was found that girls and boys performed similarly in programming and computational thinking. Finally, although there was concrete evidence that both plugged-in and unplugged applications improved children's computational thinking skills, it appeared that unplugged applications were one step ahead, considering the power of having concrete experiences.

In this working paper, we present the descriptive analysis of the survey sent out to 60 preschool and primary teachers and parents in Italy. It was an on-line survey designed by the EARLY team and translated into Italian.

The Survey was administered in Italy by Scuola di Robotica to about 60 preschool and primary teachers and parents, obtaining 33 responses.

The 33 answers were collected between 25/09/2022 and 29/10/2022. Most participants are female, and all of the responses are from teachers or support staff. (Table 1)

Table 1. Participants Profile

Variable		ni	fi(%)
Role	Parent / family member / carer of a child or children 0-7 years old	0	0
	Teaching staff of children 0-7 years old	10	30.3
	Support staff of children 0-7 years old	23	69.7
	Board or administration of centers for children 0-7 years old	0	0
	Initial teacher education student	0	0
Country	Italy	33	100
Gender	Male	2	6.1
	Female	31	93.9
	Transgender	0	0
	Non-binary/non-conforming	0	0
	Prefer not to respond	0	0

As shown in table 1, ~67% of respondents were preschool support staff and the rest preschool and elementary school teachers. Regarding gender, 93.9 of the responses came from women. This reflects the general situation of the teaching and support staff in preschool and primary, which consists of mostly women. Women teachers largely over-represented in primary education in the EU. There is a large imbalance between male and female teachers at this educational level: men accounted for just 4.2 % of all early childhood education teachers in the EU.

Regarding the age group of children followed by the schools, 97 percent of the respondents were from the 3-6 age group, which seems to us indicative of the interest in coding and educational robotics in this age group.

Table 2. Parents/families/carers Profile

Variable		ni	fi(%)
Number of children	1	-	-
	2	-	-
	3	-	-
	4	-	-
	5	-	-
Year/s of birth of children	2013	-	-
	2014	-	-
	2015	-	-
	2016	-	-
	2017	-	-
	2018	-	-
	2019	-	-
	2020	-	-
	2021	-	-

Since we did not receive any response by parents/families/carers the data in table 2 has not been filled.

Table 3. Staff and Board Profile

Variable		ni	fi(%)
age group	0-3	2	6.1
	3-6	32	97
	both	0	0

As shown in table 3, 97% of participants works with 3 to 6 years children, and 6.1% works with 0-3 years children. Since we had 33 participants in the questionnaire and 34 responses to this question we can reasonably interpret this as a participants that both works with 0-3 and 3-6 years, and instead of selecting the option “both” multiple selected the two separated options due to an error.

Table 4. Initial Teacher Education students Profile

Variable		ni	fi(%)
practicum experience	none	-	-
	0-3 yo children	-	-
	3-6 yo children	-	-
	0-6 yo children	-	-
	other ages	-	-

The table number 4 has been left empty since no one replied to this question

1. Remote learning during COVID-19 pandemic

According to table 5 the results of the questionnaire indicate that the majority of respondents (75.8%) experienced two or more different periods of general lock-down during the COVID-19 pandemic in 2020-21. A smaller percentage of respondents (12.1%) reported that there was no general lock-down in their country, while 6.1% experienced one general lock-down. Only 3% of respondents reported that there were only regional lock-downs in their country. These results provide insight into the varied experiences of remote learning during the COVID-19 pandemic in Italy.

Table 5: Lockdown experiences in the country in 2020-21

	ni	fi%
There was no general lock-down	4	12.1
There was one general lock-down	2	6.1
There were two or more different periods of general lock-down	25	75.8
There were only regional lock-downs	1	3

More details on the duration of the longest stay at home are shown in table 6. There it can be noted that the majority of respondents (87.7%) reported that their children had a long stay at home of more than two months during the COVID-19 pandemic in 2020-21. A smaller percentage of respondents (3.4%) reported that their children did not have any long stay at home, while another 3.4% reported that their children had a long stay at home of around one month. None of the respondents reported that their children had a long stay at home of around two weeks or around one to two months.

Table 6: Duration of longest stay at home for the children in 2020-21

	ni	fi%
There wasn't any long stay at home	1	3.4
Around two weeks	0	0
Around one month	1	3.4
Around one to two months	0	0
More than two months	26	87.7

As shown in table 7, the results of the questionnaire indicate that the majority of respondents (62.1%) reported that their country had remote learning but no national strategy for Early Childhood Education during the COVID-19 pandemic in 2020-21. A smaller percentage of respondents (27.4%) reported that there was general guidance for remote learning in Early Childhood Education, while none of the respondents reported that there was a national strategy with specific orientations for remote learning in Early Childhood Education. Only 3.4% of respondents reported that distance learning was not required, and 6.9% did not have the information to answer this question.

Table 7: National strategy for remote learning in Early Childhood Education in 2020-21

	ni	fi%
We had remote learning but no national strategy for Early Childhood Education	18	62.1
There was general guidance for remote learning in Early Childhood Education	8	27.4
There was a national strategy with specific orientations for remote learning in Early Childhood Education	0	0
Distance learning was not required	1	3.4
I don't have the information to answer this question	2	6.9

As shown in table 8, the results of the questionnaire indicate that the majority of respondents (48.2%) reported that Early Childhood Education teachers had contact with the children directly but mostly in group during the COVID-19 pandemic lockdowns. A smaller percentage of respondents (37.7%) reported that Early Childhood Education teachers kept in communication with families/carers but not with the children directly, while 6.9% reported that Early Childhood Education teachers had contact with the children directly both in group and more individually. Only 6.9% of respondents did not have the information to answer this question.

Table 8: Contact between teachers and children during lockdowns

	ni	fi%
Early Childhood Education teachers kept in communication with families/carers but not with the children directly	11	37.7
Early Childhood Education teachers had contact with the children directly but mostly in group	14	48.2
Early Childhood Education teachers had contact with the children directly both in group and more individually	2	6.9
I don't have the information to answer this question	2	6.9

As shown in table 9, according to the responses, the most popular platform for supporting communication between ECE and families/carers is **Google Classroom**, with **37.9%** of respondents selecting it. The second most popular platform is **Zoom**, with **27.6%** of respondents selecting it, followed by **Whatsapp** with **17.2%** of respondents selecting it. Other platforms that were selected by respondents include **Microsoft TEAMS** (6.9%), **Facebook** (3.4%), **E-mail** (6.9%), **Skype** (10.3%), and **Jetse Meet** (3.4%). Some respondents also reported using phone calls/messages (6.9%) or nothing at all (3.4%). The remaining platforms were not selected by any respondents.

Table 9: Platforms reported for supporting communication between ECE and families/carers

	ni	fi%
Microsoft TEAMS	2	6.9
Google Classroom	11	37.9
Zoom	8	27.6
Facebook	1	3.4
Whatsapp	5	17.2
E-mail	2	6.9
Skype	3	10.3
ClickMeeting	0	0
BigBlueButton	0	0
Jitsi	0	0
Webex meeting CISCO	0	0
Classroomscreen	0	0
Mentimeter	0	0
miro	0	0
Padlet	0	0
Jamboard	0	0
SurveyMonkey	0	0
Quizizz	0	0
Quizlet	0	0
Kahoot!	0	0
Nearpod	0	0
Socrative	0	0
Class Flow	0	0
ClassDojo	0	0
A virtual space (e.g. Mozilla Hub)	0	0
Online learning journals (e.g. Tapestry)	0	0
Moodle	0	0
Seesaw	0	0
Google Meet	0	0
Instagram	0	0
Tiktok	0	0
Soma.lv	0	0
Uzdevumi.lv	0	0

Eliis.eu	0	0
Youtube	0	0
Jetse Meet	1	3.4
Phone calls/messages	2	6.9
Nothing	1	3.4
I don't know	0	0

As shown in table 10, the majority of respondents (**82.8%**) reported that ECE teachers suggested activities to be developed at home more than once per week. A smaller percentage of respondents (**13.8%**) reported that suggestions were made once per week. No respondents reported that suggestions were made once per month or daily. Only a small percentage of respondents (**3.4%**) reported that they did not know the frequency of suggestions by ECE teachers. These results suggest that ECE teachers frequently provide suggestions for activities to be developed at home, with most doing so more than once per week.

Table 10: Frequency of suggestions by ECE teachers of activities to be developed at home

	ni	fi%
Once per month there were suggestions	0	0
Once per week there were suggestions	24	13.8
More than once per week there were suggestions	3	82.8
There were daily suggestions	0	0
I don't know	1	3.4
Other - please specify	0	0

As shown in table 11, the most commonly reported difficulty that impacted the experience for children regarding activities sent by teachers to be developed by families/carers was that the activities were not aligned with children's interests, with **48.3%** of respondents reporting that this was very relevant or had a great impact. The second most reported difficulty was that the activities that were suggested were too structured or too formal for young children, with **41.4%** of respondents reporting that this was very relevant or had a great impact. Other difficulties that were reported as being very relevant or having a great impact by a significant percentage of respondents include lack of time from families/carers due to remote work (24.1%), lack of resources available at home for developing the activities (17.2%), families/carers being insecure about knowledge about the topics of the activities (20.7%), and families/carers having no experience in using digital educational platforms (24.1%). Some respondents also added other comments, available in the table.

Table 11: Difficulties that impacted the experience for children regarding activities sent by teachers to be developed by families/carers

	was not relevant / didn't have an impact		was somewhat relevant / had some impact		was relevant / had an impact		was very relevant / had a great impact		I don't have information to answer this question	
	ni	fi%	ni	fi%	ni	fi%	ni	fi%	ni	fi%
Lack of time from families/carers due to remote work	3	10.3	2	6.9	11	37.9	7	24.1	6	20.7
Lack of resources available at home for developing the activities	6	20.7	3	10.3	9	31	5	17.2	6	20.7
Activities that were suggested were too structured or too formal for young children	12	41.4	7	24.1	4	13.8	2	6.9	4	13.8
Families/carers were insecure about knowledge about the topics of the activities	11	37.9	4	13.8	4	13.8	6	20.7	4	13.8
Families/carers were insecure about how to engage children in activities	7	24.1	8	27.6	7	24.1	2	6.9	5	17.2
Families/carers had no experience in using digital educational platforms	4	13.8	7	24.1	7	24.1	7	24.1	4	13.8
There were too many suggestions being presented to families/carers	11	37.9	4	13.8	4	13.8	3	10.3	7	24.1
The activities were not aligned with children's interests	14	48.3	6	20.7	1	3.4	2	6.9	6	20.7
The learning to be developed with the activities was not evident	11	37.9	9	31	3	10.3	1	3.4	5	17.2
The activities were not challenging for the children	10	34.5	9	31	3	10.3	1	3.4	6	20.7
Other <ul style="list-style-type: none"> - Lack of devices at home - Nor teachers nor students and families were ready to do distance learning - To ECE in Italy is given a small value, and too little appreciation to the proposed activities 										

As shown in table 12, the largest part of respondent (75.9%) stated that they do not have enough information or does not know the answer to the question. Instead, 17.2% of people stated that synchronous moments were held once per week, while 3.4% of responses stated that they occurred more than once per week. No one stated that they were held daily, nor less that weekly.

Table 12: Frequency of synchronous times with children that involved shared activities

	ni	fi%
Once per month there were synchronous moments	0	0
Once per week there were synchronous moments	5	17.2
More than once per week there were synchronous moments	1	3.4
There were daily synchronous moments	0	0
I don't know	22	75.9

2. Learning from the remote experience

As shown in table 14, the results of the questionnaire indicate that the resources for ECE created during the lockdown were varied. For example, 60.6% of respondents indicated that websites with interactive games were used, while 39.4% of respondents indicated that websites or ebooks with activities suggested for families/carers to do at home with children were used. Additionally, 24.2% of respondents indicated that interactive storytelling websites were used, while only 3% of respondents indicated that other resources such as an app to organize digital integrate didactics/blended didactics were used. Interestingly, no respondents indicated that ebooks about COVID-19 and related topics were used.

Overall, these results suggest that there were multiple resources for ECE created during the lockdown, with websites with interactive games being the most popular among respondents. It is important to continue to develop and provide a variety of resources to support ECE during times of crisis.

Table 14: Resources for ECE created during the lockdown

	ni	fi%
Websites with interactive games	20	60.6
Ebooks about COVID-19 and related topics	0	0
Websites or ebooks with activities suggested for families/carers to do at home with children	13	39.4
Interactive storytelling websites	8	24.2
Other – App to organize digital integrate didactics / blended didactics	1	3
I don't know	3	9.1

As shown in table 15, the results of the questionnaire indicate that the current provision for children in isolation varies. For example, 12.2% of respondents indicated that there is no provision, while 45.4% of respondents indicated that teachers send activities to be developed at home. Additionally, 21.2% of respondents indicated that synchronous moments are arranged between the teacher and the stay at home child/ren, while only 3% of respondents indicated that synchronous moments are arranged between the group of children, with the teacher, and the stay at home child/ren. Only 3% of respondents indicated that there are national resources (websites, ebooks, etc) for families to explore with children during isolation.

Overall, these results suggest that there is a range of provisions for children in isolation, with teachers sending activities to be developed at home being the most common among

respondents. It is important to continue to develop and provide support for children in isolation to ensure their continued learning and development.

Table 15: Current provision for children in isolation

	ni	fi%
There is no provision	4	12.2
Teacher stay in contact with families/carers	1	3
Teacher send activities to be developed at home	15	45.4
Synchronous moments are arranged between the teacher and the stay at home child/ren	7	21.2
Synchronous moments are arranged between the group of children, with the teacher, and the stay at home child/ren	1	3
There are national resources (websites, ebooks, etc) for families to explore with children during isolation	1	3
Other - please specify	0	0
I don't have the information to answer this question	0	0

Content analysis of question

What do you think was learned from the experience about children and their learning?

The results of the questionnaire indicate that respondents had a variety of opinions on what was learned from the experience about children and their learning during the COVID-19 lockdown. Many respondents emphasized the importance of direct human contact and in-presence interaction for children's learning, with some stating that children in this age group need in-presence interaction with an adult and that the relationship in presence is essential. Others highlighted the potential of digital resources when used consciously, with some stating that technologies can help to maintain firm contact with children and their families and enhance their learning, while others mentioned the importance of an integrated approach between direct sensory experiential activity and digital literacy.

Some respondents also mentioned the difficulties faced by children with learning difficulties or disabilities, stating that they were greatly penalized or suffered the most during the lockdown. Additionally, several respondents mentioned the importance of maintaining contact with children and families during times of school closure, with some stating that teachers were able to maintain relationships albeit virtual between classmates and with the teachers themselves.

Overall, these results suggest that there were multiple lessons learned from the experience about children and their learning during the COVID-19 lockdown. It is important to continue to reflect on these lessons in order to improve support for children's learning during times of crisis.

Below all the responses:

- Little
- That LEADs are, however, difficult to maintain precisely because preschool and kindergarten children cannot have optimal interaction with the educator and peers by having

a screen as a filter. It is more useful to implement sending videos to remind them of the class, teachers, and classmates, along with small activities to try at home, rather than synchronous contact moments via video calling platforms

- That contact is important for learning
- That the power of digital when used as a motivator develops participatory learning
- Children in this age group need in-presence interaction with the adult. In the use of the PC they get lost.
- We have learned a new way to interact and stay connected.
- Technologies if used consciously can help to maintain firm contact with children and their families and in some cases also enhance their learning.
- The importance of an integrated approach between direct sensory experiential activity and digital literacy, the need for the constant presence of an adult mediator for digital, the importance of living these experiences with digital always in a group and as one of the possible ways of socializing experiences and learning never as experiences of closure and isolation.
- Unfortunately, the distance and lack of appreciation has widened.
- Human contact is indispensable
- Children with "learning difficulties" have been greatly penalized, playtimes proposed by teachers were expected by some children thanks to the cooperation of parents
- Children learn less and have more difficulties
- The presence of the teacher who devoted time to them
- Definitely the importance of direct human contact but also the potential of some digital resources.
- To keep the group together, technology goes a long way
- Importance of parent-child relationship
- Children are too young for these activities , contact is needed.
- Despite the distance the teachers are present, thinking and having fun with their children
- For children, the relationship in presence is essential
- They need only to be with other children
- the teachers have been truly special and unique in those lockdown months. They were able to maintain relationships albeit virtual between classmates and with the teachers themselves.
- Their experience certainly led to several conclusions.
- The most obvious difficulty was reaching out to children with disabilities; they certainly suffered the most.
- The families and the children made enormous strides and so did we teachers on the use of new technologies ,not only that,in this emergency situation creativity was important and the more we thought the more new ideas emerged from the daily confrontation of our teaching team.
- Using technologies
- That it is very important to maintain contact with children and families during times of school closure (lockdown)
- Certainly this closure has negatively affected children's lives
- Online learning in young children is difficult because it is dispersive
- children adapt quickly
- Children need face-to-face relationship with the teacher and interaction with peers.
- Lockdown has had a radical impact on children's learning process.
- Children of all ages have had to adapt quickly to a new life, suddenly confined to their homes with parents who have become emergency teachers
- children adapt very well, you just have to have patience and creativity, as well as time
- Best to work in presence
- the in-presence relationship is crucial both between adults and children and between peers. The synchronous activities, however, were well received because they allowed them to see each other and most of the children had a great desire to tell their stories.

As shown in table 16, the results of the questionnaire indicate that the experience gained with remote teaching in Early Childhood Education could be useful in a variety of situations. For children who have a long stay in a hospital, 30.3% of respondents indicated that remote teaching was very relevant and had a great impact, while 33.3% did not have information to answer this question. For children who live in remote areas, 34.5% of respondents indicated that remote teaching was very relevant and had a great impact, while 21.2% did not have information to answer this question. For children whose families/carers travel frequently, 39.4% of respondents indicated that remote teaching was relevant and had an impact, while 18.2% did not have information to answer this question. For children with chronic health problems, 39.4% of respondents indicated that remote teaching was very relevant and had a great impact, while 27.3% did not have information to answer this question. For children with special needs, 24.2% of respondents indicated that remote teaching was somewhat relevant and had some impact, while another 24.2% did not have information to answer this question. Some respondents also added comments indicating that remote teaching is important for everyone and can be a useful resource if students cannot be at school for extended periods of time. It may also help foreign students who stay abroad for long periods of time. Overall, the results suggest that remote teaching can be a valuable tool in supporting the education of children in a variety of circumstances.

Table 16: Situations for which the experience gained with remote teaching in Early Childhood Education could be useful

	was not relevant / didn't have an impact		was somewhat relevant / had some impact		was relevant / had an impact		was very relevant / had a great impact		I don't have information to answer this question	
	ni	fi%	ni	fi%	ni	fi%	ni	fi%	ni	fi%
Children who have a long stay in a hospital	2	6.1	2	6.1	8	24.2	10	30.3	11	33.3
Children who live in remote areas	0	0	3	9.1	8	24.2	15	34.5	7	21.2
Children whose families/carers travel frequently	0	0	4	12.1	13	39.4	10	30.3	6	18.2
Children with chronic health problems	0	0	2	6.1	9	27.3	13	39.4	9	27.3
Children with special needs	3	9.1	8	24.2	7	21.2	7	21.2	8	24.2
Other - Please specify - It is important for everyone. - It is a resource if students can't be at school for extended time - It may help foreign students, that stay abroad for long time										

3. Views on distance learning for professional/personal development

As shown in table 17, all of the participants had experience with distance learning in the past 3 years, and only one of them (3%) had it just once. The main part of respondent says that

they had this experience up to five times (72.7%) or more (24.2%), so it is clear that distance learning for personal/professional development is widely used.

Table 17: Experience with distance learning in the past 3 years

	ni	fi%
I haven't had the experience.	0	0
Just once	1	3
Two to five times	24	72.7
More than five	8	24.2

As shown in table 18, the results of the questionnaire indicate that there are varying perspectives about distance learning for professional and personal development. When asked if they feel comfortable participating in distance training, 30.3% of respondents indicated that it was relevant and had an impact, while 24.2% did not have information to answer this question. When asked if they believe they can learn through distance education, 33.3% of respondents indicated that it was very relevant and had a great impact, while 21.2% did not have information to answer this question. When asked if they are enthusiastic about participating in distance education as part of their professional development, 27.3% of respondents indicated that it was very relevant and had a great impact, while another 27.3% indicated that it was somewhat relevant and had some impact. When asked if they think it is helpful to have professional development as distance education, 30.3% of respondents indicated that it was relevant and had an impact, while 21.2% did not have information to answer this question.

Overall, the results suggest that there is a range of views on the usefulness of distance learning for professional and personal development, with some respondents indicating that it is relevant and impactful while others are less certain or do not have enough information to answer.

Table 18: Perspectives about distance learning

	1 - Little extent		2 - Some extent		3 - Great extent		4 - Very great extent		I don't have information to answer this question	
	ni	fi%	ni	fi%	ni	fi%	ni	fi%	ni	fi%
I feel comfortable participating in distance training.	2	6.1	4	12.1	10	30.3	9	27.3	8	24.2
I believe I can learn through distance education.	1	3	7	21.2	7	21.2	11	33.3	7	21.2
I am enthusiastic about participating in distance education as part of my professional development.	3	9.1	9	27.3	5	15.2	9	27.3	7	21.2

I think that it is helpful to have professional development as distance education.	3	9.1	4	12.1	10	30.3	9	27.3	7	21.2
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Requirements for a positive distance learning experience

Content analysis of the question “What do you feel would be necessary to make distance education for your own learning a positive experience?”

The analysis of the responses to the question reveals several key themes. Some respondents indicated that they did not feel that anything was necessary to make distance education a positive experience. Others highlighted the importance of having working devices and an adequate internet network, as well as improving the skills of participants. The ability to choose whether or not to intervene or show up with a webcam was also mentioned as important. Some respondents emphasized the need for materials to be prepared in advance, with previous tutorials if necessary. Customization and individualization to specific user needs were also mentioned as important factors, as was better time management, with a preference for shorter or less content-dense sessions. Providing opportunities for small group work was also mentioned as important, as was avoiding the use of overly complicated applications or those that require special devices. Some respondents also emphasized the need to focus more on engagement and the affective and creative sphere, and to dwell on and even repeat concepts already exposed to avoid gaps.

Overall, the responses suggest that there are a variety of factors that can contribute to making distance education a positive experience for learners, including adequate technology and support, customization and individualization, effective time management, opportunities for collaboration, and a focus on engagement and creativity.

A readjustment of the answers given to the question is shown below

- Nothing (x 4)
- Having working devices and an adequate internet network, but also having to improve the skills of those who participate
- Being able to have the choice to intervene or not, to show up with a webcam or not
- If materials are used prepare them in advance, even with previous tutorials
- Customization and individualization to specific user needs (x 3)
- Better time management - tending to be shorter or less content dense (x3)
- Provide for small group work (x 3)
- Do not use applications that are too complicated or require special devices
- Focus more on engagement and the affective and creative sphere
- Dwell on and even repeat concepts already exposed to avoid gaps.

4. Views on CT and educational robotics in ECE

As shown in table 19, the results of the questionnaire indicate that there are varying perspectives about computational thinking in Early Childhood Education. When asked if they believe children in ECE should have experiences with computational thinking, 36.4% of respondents indicated that it was very relevant and had a great impact, while 21.2% did not have information to answer this question. When asked if they are enthusiastic about computational thinking in ECE, 33.3% of respondents indicated that it was very relevant and had a great impact, while another 21.2% indicated that it was somewhat relevant and had some impact. When asked if they think it is helpful to have activities connected to computational thinking in ECE, 36.4% of respondents indicated that it was very relevant and had a great impact, while 18.2% did not have information to answer this question. When asked if they feel comfortable promoting activities for children with computational thinking in ECE, 30.3% of respondents indicated that it was relevant and had an impact, while 24.2% did not have information to answer this question.

Overall, the results suggest that there is a range of views on the usefulness of computational thinking in Early Childhood Education, with some respondents indicating that it is relevant and impactful while others are less certain or do not have enough information to answer.

Table 19: Perspectives about computational thinking in Early Childhood Education

	1 - Little extent		2 - Some extent		3 - Great extent		4 - Very great extent		I don't have information to answer this question	
	ni	fi%	ni	fi%	ni	fi%	ni	fi%	ni	fi%
I believe children in ECE should have experiences with computational thinking.	2	6.1	7	21.2	5	15.2	12	36.4	7	21.2
I am enthusiastic about computational thinking in ECE.	2	6.1	7	21.2	7	21.2	11	33.3	6	18.2
I think that it is helpful to have activities connected to computational thinking in ECE.	2	6.1	6	18.2	7	21.2	12	36.4	6	18.2
I feel comfortable promoting activities for children with computational thinking in ECE.	2	6.1	5	15.2	10	30.3	8	24.2	8	24.2

As shown in table 20, the results of the questionnaire indicate that there are varying perspectives about educational robotics in Early Childhood Education. When asked if they believe children in ECE should have experiences with educational robotics, 22.2% of respondents indicated that it was very relevant and had a great impact, while 12.1% did not have information to answer this question. When asked if they are enthusiastic about educational robotics in ECE, 27.3% of respondents indicated that it was very relevant and had a great impact, while another 36.4% indicated that it was somewhat relevant and had some impact. When asked if they think it is helpful to have activities connected to computational thinking and robotics in ECE, 30.3% of respondents indicated that it was very relevant and had a great impact, while 12.1% did not have information to answer this question. When asked if they feel comfortable promoting activities for children with educational robotics in ECE, 30.3% of respondents indicated that it was very relevant and had a great impact, while 15.2% did not have information to answer this question.

Overall, the results suggest that there is a range of views on the usefulness of educational robotics in Early Childhood Education, with some respondents indicating that it is relevant and impactful while others are less certain or do not have enough information to answer.

Table 20: Perspectives about educational robotics in Early Childhood Education

	1 - Little extent		2 - Some extent		3 - Great extent		4 - Very great extent		I don't have information to answer this question	
	ni	fi%	ni	fi%	ni	fi%	ni	fi%	ni	fi%
I believe children in ECE should have experiences with educational robotics.	2	6.1	10	30.3	6	18.2	11	22.2	4	12.1
I am enthusiastic about educational robotics in ECE.	2	6.1	12	36.4	6	18.2	9	27.3	4	12.1

I think that it is helpful to have activities connected to computational thinking and robotics in ECE.	2	6.1	10	30.3	7	21.2	10	30.3	4	12.1
I feel comfortable promoting activities for children with educational robotics in ECE.	3	9.1	10	30.3	5	15.2	10	30.3	5	15.2

As shown in table 21, the most interesting topics are **Methods and strategies for developing CT** were selected by 45.5% of respondents, while **coding tools** that can be used to develop CT in early childhood education (ECE) were selected by 57.6% of respondents..

Further, **Computational and algorithmic thinking (CT)** is a topic that has been selected by many respondents. Its features and types were selected by 27.3% of respondents, while its **benefits for children and learning** were selected by 33.3% of respondents.

Educational robotics is another topic that has been selected by many respondents, with 36.4% selecting its benefits for children and learning.

Physical programming and CT with robotics in ECE was selected by 18.2% of respondents, while **plugged and unplugged activities** about CT and curricular areas for ECE were selected by 36.4% of respondents.

Distance education for ECE was selected by 42.4% of respondents.

Educational robotics for inclusion was selected by 24.2% of respondents. The less interesting topic is **Education for young children in emergency situations**, selected by 9.1% of participants.

Table 21: Topics signaled for further learning

	ni	fi%
Computational and algorithmic thinking: features and types	9	27.3
Computational and algorithmic thinking: benefits for children and learning	11	33.3
Educational robotics: benefits for children and learning	12	36.4
Methods and strategies for developing CT	15	45.5
Coding tools that can be used to develop CT in ECE	19	57.6
Physical programming and CT with robotics in ECE	6	18.2
Plugged and unplugged activities about CT and curricular areas for ECE	12	36.4
Education for young children in emergency situations	3	9.1

Distance education for ECE	14	42.4
Educational robotics for inclusion	8	24.2

Experiences with CT and/or EdRobotics

Content analysis of the question “Is there any experience or question regarding computational thinking, educational robotics or distance education in Early Childhood Education you would like to share?”

Based on the responses provided, it seems that there are some concerns about the effectiveness of robotics activities at a distance due to the lack of a group setting. Additionally, there is a desire for scientific evidence on the potential benefits of teaching that includes computational thinking, educational robotics, and distance education in early childhood education (ECE) compared to teaching without these elements. These concerns and desires highlight the importance of customizing activities in classrooms with foreign, disabled, and BES children to ensure their success.

Only three answers were provided to this question, which are given in full here:

- *How to succeed in customizing activities in classrooms with foreign, disabled and BES children*
- *You cannot do effective robotics activities at a distance because you lack the group that is essential*
- *I would like to have the evidence from scientific research on population samples subjected to teaching that includes what is proposed versus one without it to unequivocally grasp the potential*

5. Conclusions and implications for EARLY

In Italy, from 2022, coding in schools is part of teacher training, with the aim of promoting the development of digital skills in the national education system. This is confirmed by Decree Law No. 152 on the implementation of the 2021 National Recovery and Resilience Plan. In fact, from 2025/26 coding must be a reality in all Italian schools. A necessary intervention if we consider that in 2019 the OECD-the Organization for Economic Cooperation and Development-reported Italy in third-last place out of 29 countries for digital literacy.

Since 2014, the Ministry of Education, Universities and Research has started experiments to introduce coding in preschools and elementary school in our country, while other European countries have made them compulsory subjects. The Buona Scuola (The Good School, Law 107/2015), through the National Digital School Plan (PNSD), has placed computational thinking among the cultural tools that realize full citizenship.

In 2022, coding will be mandatory in all preschools and primary schools (Motion No. 1-00117 of March 12, 2019), in accordance with the National Curriculum Directions.

Especially the early 2020s saw all Italian schools on lock down for several months, and after June 2020, periodically on lock down again. This highlighted for all schools the need for a remote education strategy for early ages as well. While schools with pupils 8-18 got organized after a few weeks with online lessons and the use of platforms, preschools had more problems and children stayed at home with parents, brothers, or other relatives. Recently, the Ministry issued Guidelines for what they call Integrated Teaching with online classes.

According to the responses about training courses it seems that all the participants express needs of courses and experience about STEAM and digital tools.

In conclusion, it has been expressed great interest in following the EARLY project and considered it necessary.