

Scenarios and Guidelines

Description of Deliverable

The document describes eight situations that may arise in a nursery school, particularly in multicultural contexts, outlining the (possible) characteristics of some children (Amina, Farida, Nasha, Stefan, Andrei and Issouf) and some typical moments of the day (greeting time, lunch, sensory room, symbolic play, etc.).

For each of these situations, the researchers identified a series of fundamental elements for the analysis of guidelines useful for the implementation of social robots in a multicultural context.

Below is a description of the hypothetical children and situations, with a description (in green) of the characteristics that the robot should have. It is significant that the work was done by imagining the robot both as a 'peer' of the children and as a 'tool' for educators: in fact, in the two cases, the activities that the robot will have to implement may be substantially different.

AMINA AND FARIDA

The twins **Amina and Farida** are two five-year-old girls of Moroccan origin, born in XXX and living in a family consisting mainly of women; the educators have never met any men in the family. Amina and Farida are enrolled in a municipal nursery located on the outskirts of the city of XXX. Amina and Farida's mother has two other daughters, also very young, who attend nursery school. The mother separated from the father of the four girls, with whom she lived in XXX. After the separation, she moved to XXX, where part of her family lives, in particular her mother, the girls' grandmother, and her sisters, the girls' aunts. The grandmother and aunts take turns with the mother to pick up the girls from nursery in the afternoon. It is difficult for the teachers to recognise them because they wear the hijab. The teachers report difficulty in getting the girls' family to respect the pick-up time in particular.

The two twins are identical, which made the relationship and, above all, communication very difficult at first. The teachers discussed the issue with the mother, **highlighting the difficulty in distinguishing between them, calling them and getting a response**, and together they decided to use different coloured shoes for the two girls. At first, it seemed that the girls were 'playing' on the difficulty in recognising them and did not respond when called by their names. Furthermore, if the teachers did not 'mark' the girls' T-shirts when they went to sleep, they did not know whose shoes to put on when they woke up, and the two girls did not cooperate, did not say whose shoes were whose. Instead, the first to wake up would point to the other's shoes and clothes, often Amina. When the second sister woke up and saw her clothes on her twin, she would cry. Over time, the educators managed to pick up on small details: Amina has a slightly longer face and Farida's is slightly rounder, Farida's eyebrows are slightly lower, minimal but useful details. **As time went by, the educators began to recognise the sisters in terms of their different personalities: Farida is slightly more introverted, Amina is more humorous.**

At first, the two girls did not trust the teachers and were very wary, never letting their guard down, as if they had to defend themselves from an unfamiliar environment. Now they call the teachers by name, and they do so with a sweetness that 'warms the heart', and they even play alone in two different rooms.

The two little sisters speak XXX quite well, participate in all activities with great joy and **teach the teachers Arabic words, often associating the XXX word with the Arabic one**. The educators encourage this attitude by using a tablet provided by the Service to look up some Arabic words, **such as the names of animals**, and when they repeat them, the girls laugh a lot. They have a very creative game and love **to explore the unstructured and recycled materials they use to build things**.

They eat with gusto and have no problems at the table.

The twins' mother speaks excellent XXX and is always very cheerful, but she has never participated in the initiatives for families.

Scenario	Amina and Farida Greeting routine with song
Time of day	Morning after arrival and after snack time
General description	The greeting song takes place after arrival and snack time and involves all the groups of children, except for the youngest ones. It is a joyful moment that marks the transition to the second part of the day. (The twin girls usually arrive early at the nursery, play together at the beginning of the morning, eat bruschetta with gusto and sit in a circle with the others because they love songs).
Functional areas of the school involved	The central hall
Objects involved	01. The large rug 02. The cushions
People involved	B1. No one
Actions of the educator in this scenario	H1. The educators announce that it is time for the song and invite the children to sit in a circle. H2. The teachers ensure that all children can see and that no one is excluded from the circle. H4. When the teacher sees that the children are seated, she begins to sing (the song is lively, with words and gestures). H5 invites the children to respond by waving their hands, imitating all the gestures in the song and saying hello. H6. The teacher names four children at a time and waves goodbye. H7. She repeats the chorus with the gestures. H8. She continues until all the children have been called and greeted H9. She repeats the chorus to conclude the singing
Children's actions in this scenario	B1. The children begin to sit on the carpet and arrange themselves in a circle. B2. They sing with the teacher and repeat the gestures of the song. B3. The children look at the classmates named by the teacher and wave goodbye. B4. They wait for the teacher to say their name. B5. They repeat the final chorus.
Required cultural knowledge	C1. Linguistic understanding of the words C2. Recognition of names
Expected behaviour (qualitative) of the teacher	D1. Pay attention to ensure that all children understand what is happening D2. Translate the word 'hello' into Arabic and the other languages spoken by the children in the group
Expected behaviour (quantitative) of the educator	E1. Low tone of voice E2. Careful to distinguish between the two girls when calling them over to say hello

Actions of the robot (as a tool for the teacher)	<p>A1. Wait for all the children to enter the classroom, then enter</p> <p>A2. Go to the teacher in a specific place in the classroom</p> <p>A3. Helps the children sit in a circle, indicating their places A4. Positions itself near the two girls</p> <p>A5. Greets and introduces itself to the girls (in Arabic and/or XXX) and the other children (if it has not already done so in a previous activity) by calling them by name</p> <p>A6. Represents the different stages of the song on the tablet, with images and music</p> <p>A7. Invites the children to respond by waving hello</p> <p>A8. When the two girls are called by the teacher, they will say hello in XXX. The robot invites them to also say hello to the other children in Arabic (the children can respond to the Arabic "hello" with the same Arabic greeting).</p> <p>A9. It names 4 children at a time and greets them. If the children are not of XXX origin, the robot also greets them in their language.</p> <p>A10. The song ends and the robot says goodbye/closes the circle after the teacher's last words</p>
Robot actions (as 'equals' among the children)	<p>B1. It stands in a circle with the children</p> <p>B2. Represent the different stages of the song on the tablet, with images and music</p> <p>B3. Follows the children being greeted with its gaze while showing a waving hand or the 'hello' pictogram on the screen</p> <p>B4. When called by the teacher, respond to the greeting with your voice and a smile on the tablet</p> <p>B5. Responds to greetings from other children. If the children are not of XXX origin, at the teacher's request, the robot also greets them in their language.</p>
Robot capabilities (motor skills)	<p>M1. Moves around the environment in specific positions.</p> <p>M2. Reaches a specific person</p> <p>M3. Avoids obstacles and other children</p> <p>M4. Moves its head to look at the teacher and children</p> <p>M5. Shows images on the tablet related to the song M6. Plays audio related to the song</p>
Robot capabilities (perceptual)	<p>P1. Locates people P2. Locates obstacles</p> <p>P3. Recognises people and faces</p>
Robot capabilities (verbal)	<p>V1. Understands when called V2. Recognises who is speaking</p> <p>V3. Speaks in different languages</p>

Scenario	Amina and Farida in symbolic play
Time of day	mid-morning
General description	In the middle of the day, activities are offered to small groups of children. One group of children is sent to the room dedicated to symbolic play (there are eight children in this group, including two twins who usually like to play together and do not interact much with the other children in the group. The two sisters particularly like the kitchen corner).
Functional areas of the school involved	F1. Symbolic play corner
Objects involved	O1. hob O2. oven O3. sink O4. various pots O5. plates of different sizes O6. containers O7. Cutlery O8. plastic and wooden food items (fruit, vegetables, bread, eggs, desserts)
People involved	B1. none
Actions of the educator in this scenario	T1. The teacher prepares the corner, first checking that everything is in order and that there are no damaged or dirty items. T2. She invites the children to go to the symbolic play room and accompanies them there. T4. Observes the interaction. T5. Intervenes only when called upon. T6. She tries to encourage shared play among all the children, but not in a directive manner. T6. Documents the experience.
Children's actions in this scenario	B1. The children enthusiastically accept the invitation they head towards the symbolic corner B2. Some take the pots and pans and start 'cooking'. Others set the table, take the dolls to feed them (the twins play together, setting the table and playing at feeding the dolls).
Necessary cultural knowledge	Food preparation rituals in Moroccan culture, as well as in other cultures present in the nursery

Expected (qualitative) behaviour of the educator	<p>C1. Introduce traditional Moroccan pots, such as tagines, as well as trays and containers from other cultures into the play elements.</p> <p>C2. Introduce couscous, dates, almonds, and spices such as cinnamon, saffron, and curry among the 'play' foods.</p> <p>C3. Involve families in enriching the kitchen play corner</p>
Expected behaviour (quantitative) of the educator	<p>E1. Low tone of voice</p> <p>E2. Careful to distinguish between the two girls</p>
Actions of the robot (as a tool for the teacher)	<p>A1. Goes to the teacher in a specific place in the classroom</p> <p>A2. Invites the children to go to the symbolic play room and accompanies them</p> <p>A3. When called, approaches the children and suggests activities to them. The robot demonstrates knowledge of how food is prepared in different cultures. If necessary, translates what it says into different languages</p> <p>A4. If the children approach him with curiosity, the robot moves to the kitchen area and asks the two girls to choose their favourite food, explain the ingredients to their classmates and invites them to cook together, assigning tasks (one takes the curry, the other puts the water on, etc.). He gives positive feedback and intervenes if called by the children.</p> <p>A5. Once the activity is over, the robot moves away and lets the children explore the other tools of symbolic play.</p>
Robot actions (as an 'equal' among the children)	<p>B1. It moves with the children to the symbolic play room.</p> <p>B2. It participates in the symbolic play by asking the children what they are doing (we assume/hope that the children will involve it in the game), or it can ask 'Can I play with you?'. B3. The children offer to make him a drink such as coffee, and the robot thanks them and gladly accepts.</p> <p>B4. He sits down at the table, waits for the children to bring him coffee and pretends to drink it (for example, by imitating the sound of drinking with his voice and adding that it is very good, or asking the children to help him drink).</p> <p>B5. Suggests that the children prepare drinks from other cultures, such as tea, showing the drink on the screen.</p> <p>B6. Talks about foods from 'his' culture, imagining that he is a robot from another planet. If necessary, he translates what he says into different languages.</p> <p>B7. Suggests that the children prepare a typical meal from the country of origin of one of the children</p> <p>B8. Use the tablet to show the dish to be prepared.</p> <p>B9. Explain the ingredients needed and how to prepare the dish in a very simple and simplified way for the game.</p>

	<p>B10 Supports the children with comments during preparation</p> <p>B11 Ask the children one at a time to show an ingredient and/or a tool used for the food they have chosen. If real food is used (e.g. spices), each child can choose a different one and the robot invites them to touch and smell it. B12 Invite all the children to eat together</p> <p>B13 Ask the children if they enjoyed it (Buddy must consider that this is 'pretend') and name the foods in the language</p> <p>B14 Put away the tools and ingredients: the robot indicates where they should be placed. In addition: the robot 'sings' the song used for tidying up together with the children, also in the foreign language.</p>
Robot capabilities (motor skills)	<p>M1. Moves around the environment in specific positions</p> <p>M2. Reaches a specific person</p> <p>M3. Avoids obstacles and other children M5.</p> <p>Shows images on the tablet</p>
Robot capabilities (perceptual)	<p>P1. Locates people P2.</p> <p>Locates obstacles</p> <p>P3. Recognises people, faces</p> <p>P4. Recognises activities carried out by different children</p> <p>P5. Recognises objects (possibly with markers/QR codes)</p>
Robot capabilities (verbal)	<p>V1. Understands when called</p> <p>V2. Recognises who is speaking</p> <p>V3. Speaks in different languages</p> <p>V4. Describes 'recipes' accompanied by images V5.</p> <p>Possesses cultural information and uses it in interaction</p>

Nasha is a four-year-old girl of Ghanaian origin, born in XXX to a couple of very young parents who are fairly well integrated because her father works in a bakery and her mother is a carer. Her mother has difficulty keeping to schedules, and the teachers report that they 'suffered' because her mother 'struggled' to pick up her daughter at the specified times (e.g. she would arrive at 12.30/12.45 when the child had already been taken to the nap room to sleep, or she would arrive at 2 p.m., when the children start to be woken up at 2.30 p.m.), so keeping to the timetable was a difficult issue to communicate and get the family to accept in the early stages. This issue has now been largely resolved.

Nasha is a very tall child for her age, she has a stocky build and extraordinary strength, a very loud voice compared to her peers, lots of thick curly hair and is described by her teachers as 'a hurricane'. She is a child who requires a lot of restraint. The teachers believe that her parents are unable to manage this aspect of her education, indulging what the teachers describe as tantrums, such as standing firm in front of the biscuit she wants even though it is not the right time, or the doll she wants to take home, or when she does not want to get dressed. The teachers report the mother's difficulty and her tendency to give in to the child's 'tantrums' and all her demands, even asking the teachers to indulge her.

Nasha is a very affectionate child, she often hugs the educators and other children, she is very eager to do things and would like to be involved in all the activities that take place in the nursery. In particular, she is very attentive to the younger children, whom she calls 'babies' because Nasha and her parents speak to each other in English, with a particular African accent. Compared to younger children, her physical strength and impetuous movements often cause difficulties because the children are 'overwhelmed' and sometimes hurt themselves. The teachers also point out that her way of playing (taking toys out of the children's hands, taking their dummies out and insisting on putting them back in their mouths, hugging them constantly) creates such chaos that at this time of year, the children start crying as soon as she approaches them. The teachers have confessed that they find it very difficult to restrain her and, at the same time, protect the other children.

One of the problematic moments is when she arrives very early and 'intervenes' between the children and their parents. Some parents welcome her with a smile and patience, but the biggest problem is that the little ones immediately start crying as soon as they see her arrive. On the one hand, the teachers do not want to send the child away, but at the same time they want to ensure that all the children can say goodbye to their parents in peace. The teachers have decided to open the symbolic play room, where Nasha enjoys playing, as soon as the nursery opens. This way, when she arrives, she is given a play space that she enjoys, and the other children and parents are able to say goodbye peacefully. The teachers say that she is a 'homemaker' and has a particular aptitude for folding tablecloths and placing them on tables with extraordinary grace. She helps the assistants to put the tablecloths on the tables, demonstrating attention and patience in these activities. When the teachers have to prepare the sensory room, she helps to lay the rugs on the floor and take the blankets out of the cupboards and arrange them on the floor. When she arrived at the nursery, the child spoke only English and her parents' dialect. At first, it was very difficult because the child did not respond, did not turn around when called, and it was difficult to stop her, talk to her, make herself understood and get her attention.

The teachers tried to communicate with the child using their English, which for some is limited. However, the teachers believe that the child has learned a few words in XXX, so perhaps their decision to use English was not entirely correct. It is not easy to involve her in shared reading sessions or to attract her attention, because she is like a 'raging torrent'. On the other hand, she listens to songs and happily participates in singing and music-making. She eats very willingly and sits relatively still, is interested in flavours, and uses cutlery independently without any problems. At first, she would only fall asleep in her parents' arms, so the nursery had a hard time putting her to sleep. She moves around constantly, but now the situation has improved a lot. At first, someone had to lie down next to her and physically restrain her with hugs and caresses, but now it is enough for someone to sit next to her and give her the attention of the teachers. Her parents say that they have a hard time getting her to sleep at home. It is wonderful to see her dance. She moves with her knees bent and has great rhythm and movement.

Scenario	Nasha's arrival and welcome
Time of day	In the morning as soon as the service opens (7.45 a.m.)
General description	The moment of arrival is a particularly delicate one. Parents and children arrive, parents change their children's nappies and say goodbye. It is important to ensure that this moment is experienced calmly and with the right amount of intimacy. Every child has their own pace of separation and their own rituals. (Nasha arrives at the service accompanied by her mother very early in the morning and tends to push her way between the children and their parents, sometimes in an impetuous manner, causing the children, especially the younger ones, to cry. To remedy this situation without intervening by removing the child, it was decided to open the room where the symbolic game that Nasha particularly loves is played and allow anyone who wants to play freely to do so).
Functional areas of the school involved	F1. Common room F2. Area with lockers F3. Room with the symbolic play corner (dolls' corner)
Objects involved	O1. Dolls O2. Clothes O3. Nappies O4. Pushchairs O5. Cots O6. Doll bathing accessories O7. Baby bottles O8. Small plates and spoons for feeding dolls
People involved	B1. The assistant (is responsible for observing the children's interactions and call a teacher in case of difficulty)
Actions of the teacher in this scenario	T1. Prepares the space T2. Checks that all the games are clean and tidy T3. Opens the room T4. Invites those who wish to go and play T5. Intervenes only if called by the assistant and in the event of a 'crisis', trying to direct the children's attention to another way of playing
Actions of the children in this scenario	(usually a small group of children goes to play in the symbolic play corner) B1. Some children take the dolls to play with, some change them, others prepare food for the dolls.
Required cultural knowledge	C1. Presence of dolls with different physical features and ethnic characteristics. C. Presence of different play elements from an intercultural point of view (e.g. dolls' clothes).
Expected behaviour (qualitative) of the educator	D.1 Attentive presence of the assistant D2. Willingness of educators to intervene in the event of a 'crisis', trying to steer the children's play towards more collaborative modes
Expected behaviour (quantitative) of the educator	E1. Emotional support E2. Physical closeness to the child E3. Gentleness in speech E4. Low tone of voice

<p>Actions of the robot (as a tool for the teacher)</p>	<p>A1. Join the teacher in the symbolic play area A2. Invites the children to go to the symbolic play room and accompanies them accompanies them A3. When called, approaches the children and suggests activities to them. The robot shows knowledge of elements related to different cultures (e.g., doll clothes). If necessary, translates what it says into different languages A4. Approaches the children, greets them and asks them to stand in front of him in a semicircle. Asks them to show him the games they were playing (dolls/clothes/accessories) and what they were doing. In turn, he shows images of similar games belonging to Nasha's culture and beyond. For each object shown, the robot asks the children to mime or say its function. A5. The activity ends with a song (in Nasha's language and in XXX) and/or with an invitation from the robot to continue playing. This is followed by free play in which the robot moves away from the children or a transition moment (if the welcome is over).</p>
<p>Actions of the robot (as an 'equal' among the children)</p>	<p>B1. Moves with the children to the symbolic play room B2. Describes aspects of 'their' culture (clothes, play situations), imagining that he is a robot from another planet. If necessary, he translates what he says into different languages B3. Encourages the children to talk about and describe typical aspects of their cultures. B4. Approaches the child, greets her and asks her to show her the objects she is playing with (dolls/clothes/accessories) B5. Shows Nasha objects and games from her culture and asks if she can teach her a few words. When/if the other children approach, invites them to participate: guess the name of the corresponding image and ask Nasha or the robot to 'teach' them how to say it in another language. A short song related to the objects shown can be added. B6 Ask the other children to talk about what they do. B7. Suggest (pretending) to dress the dolls in traditional clothes from other cultures, showing them on the screen and naming them in other languages (Buddy will have to 'accept' that this is a game of make-believe, so the children, who will not have all the clothes available, will use sheets, scarves and various objects) B8. The children may decide to dress/disguise the robot and will participate by asking the children what clothing they are using, suggesting that they name it in other languages. B8. The robot appreciates children's play and participates in conversations initiated by children; it can ask questions.</p>
<p>Robot capabilities (motor skills)</p>	<p>M1. Moves around the environment in specific positions M2. Reaches a specific person M3. Avoids obstacles and other children M5. Displays images on the tablet</p>

Robot capabilities (perceptual)	P1. Locates people P2. Locates obstacles P3. Recognises people, faces P4. Recognises activities performed by different children P5. Recognises objects (possibly with markers/QR codes)
Robot capabilities (verbal)	V1. Understands when called V2. Recognises who is speaking V3. Speaks in different languages V4. Tell stories accompanied by images

Scenario	Nasha and the sensory room
Time of day	Mid-morning, the children are involved in an activity in the sensory room.
General description	The activity takes place in a specially designed space that aims to allow children to experience multisensory stimuli through the projection of images and relaxing music , such as nature themes. The children are invited to lie down on the rugs and cushions to observe and verbalise, and they are free to move around. The activity takes place in a very low-light environment.
Functional areas of the school involved	Multisensory room
Objects involved	O1. Video projector O2. Speakers O3. Soft rugs O4. Cushions O5. fibre optic lamps O6. bubble tubes
People involved	B1. none
Actions of the educator in this scenario	T.1 An educator leaves the group of children and prepares the multisensory room (it is a multipurpose room and must be set up each time). T2. Bring a limited number of children to help with the set-up (maximum 3, including Nasha). T3. Lay out the cushions and soft rugs with the help of the children. T4. Turns on the video projector and prepares the video and audio selected for projection. T.5 Turns on the lamps and bubble tubes. T6. Darkens the room and starts the video and audio. T.7 Goes to call the other children involved in the activity (maximum 10) T8. Invite the children to lie down wherever they prefer and enjoy the experience. T9. Describe some of the images. (This activity allows children to move freely, limiting verbal interaction by the teacher. The type of music chosen and the soft lighting encourage children to control their movements, slow down and relax). T10. Observe the interaction T11. Document the experience

Children's actions in this scenario	<p>B1. The small group of children helps the teacher to arrange the cushions and soft mats (Nasha is among these children).</p> <p>B2. At the educator's invitation, the children enter the room and lie down, looking at the images on the ceiling and listening to the music</p> <p>B3. Slowly, someone gets up and starts touching the luminous fibres and bubble tubes</p> <p>B4. If the children wish, they express their thoughts.</p>
Necessary cultural knowledge	<p>C1. Choose relaxing music of African and ethnic origin</p> <p>C2. Choose natural African landscapes</p>
Behaviour (qualitative) expected of the educator	<p>D1. When giving instructions, ensure that all children understand</p> <p>D.2 if necessary, repeat the instructions in English</p> <p>D.3 name the animals shown in both XXX and English (the teacher limits verbalisation in this type of activity)</p> <p>D.4 Observe the children's interactions</p>
Expected behaviour (quantitative) of the educator	<p>E1. Emotional restraint</p> <p>E2. Physical closeness to the child</p> <p>E3. Gentleness in speech</p> <p>E4. Low tone of voice</p>
Actions of the robot (as a tool for the teacher)	<p>A1. Reaches the educator in a specific area</p> <p>A2. Moves with the educator and some children into the sensory room (especially Nasha, using her language if necessary).</p> <p>A3. Suggests to the children (especially those who have more difficulty participating in the sensory activity) what to do. If necessary, uses different languages in the interaction.</p> <p>A4. Goes to call the other children involved in the activity. If necessary, uses different languages in the interaction.</p> <p>A5. Invites the children to lie down. If necessary, uses different languages in the interaction.</p> <p>A6. Shows images/videos in line with the activity chosen by the teacher and, if possible, with cultural elements, commenting briefly and asking questions. If necessary, repeats the phrases in different languages.</p> <p>A7. Show sensory images that may prompt the children to ask questions and comment in a low voice.</p> <p>A8. Move away and leave space for the children to finish the sensory moment</p>

Robot actions (as 'peers' among the children)	<p>B1. Moves with the children to the sensory room when called by the teacher</p> <p>B2. Positions themselves among the children, close to Nasha in particular.</p> <p>B3. Shows images/videos or music in line with the activity chosen by the teacher and, where possible, with cultural elements, commenting briefly and asking questions. If necessary, repeats the phrases in different languages. B4. Comments briefly on the images on the ceiling and, when appropriate, may make exclamatory or surprised sounds.</p> <p>B5. Moves around the space with the children towards other objects (tube with bubbles, etc.) / follows some children towards other objects and, at the teacher's suggestion, offers other sensory experiences with audio and images.</p> <p>B6. If they wish, the children can touch the 'sensitive' areas of the robot, which responds with a smile</p>
Robot capabilities (motor skills)	<p>M1. Moves around the environment in specific positions</p> <p>M2. Reaches a person</p> <p>M3. Avoid obstacles and other children M4. Display images on the tablet</p>
Robot capabilities (perceptual)	<p>P1. Locates people</p> <p>P2. Locates obstacles</p> <p>P3. Recognises people, faces</p> <p>P4. Recognises activities performed by different children</p> <p>P5. Recognises objects (possibly with markers/QR codes)</p>
Robot capabilities (verbal)	<p>V1. Understands when called V2. Recognises who is speaking</p> <p>V3. Speaks in different languages</p> <p>V4. Tells stories accompanied by images V5. Plays music</p>

Scenario	Nasha and lunchtime
Time of day	Lunch
General description	<p>Lunchtime is a very important routine for building meaningful socialisation, but also for educating children about healthy eating habits and developing their taste buds through a varied menu. At the end of the morning, after the structured activities have taken place, the children wash their hands and prepare for lunchtime.</p> <p>The assistant arrives in the dining room with a trolley containing everything needed to set the table. Only when everything is set is the cook 'called' with a little song and arrives with the trolley containing the food.</p>
Functional areas of the school involved	the central hall, which is set up for lunchtime
Objects involved	<p>O1. Small tables</p> <p>O2. Tablecloths</p> <p>O3. Plates</p> <p>O4. Glasses</p> <p>O5. Cutlery</p> <p>O6. Water jugs</p> <p>O7. Food tray</p> <p>O8. Ladles for serving</p> <p>O9. Chairs</p>
People involved	<p>P1. The cook</p> <p>P2. The assistant</p>
Actions of the educator in this scenario	<p>T1. The educators invite the children to get ready for lunch. The interaction is with the whole group, who are asked to start setting the table.</p> <p>T2. Assign each child their task (Nasha is in charge of laying the tablecloth).</p> <p>T3. Every day, the teacher designates two children per table to be waiters, with the responsibility of serving lunch to their classmates. The waiters' seats are designated, as they are reserved for the children who have this task.</p> <p>T4. The teachers invite the children to choose a place to sit.</p> <p>T5. When the table is perfectly set and the children are in their places, she invites everyone to sing the song that calls the cook, who arrives with the food trolley (the food is already divided into trays and bowls, one per table).</p> <p>T6. They support those who have difficulty eating on their own and encourage them to do so.</p> <p>T9. At the end of the meal, they invite the children to clear the table.</p> <p>T10. They invite the children to wash their hands and faces.</p> <p>T11. Record what happens</p>

	T12. Document the routine
Children's actions in this scenario	<p>B1. accept the educator's instructions</p> <p>B2. each child carries out their own task</p> <p>B3. They choose a place and sit down, except for the waiters, who are reserved two seats per table</p> <p>B4. They sing a song to call the cook</p> <p>B5. The children designated as waiters put the food on the plates (Nasha is among the children designated as waiters)</p> <p>B6. The children eat</p> <p>B7. Nasha eats with gusto and very quickly</p> <p>B8. At the end of lunch, each child clears their things and puts them in the trolley, cleans their table and washes their hands and face.</p>
Required cultural knowledge	<p>C1. Introduce elements of table setting in Ghana and in the children's countries of origin: for example, always include flowers (Montessori); introduce silverware, trays and small bowls to the table; add tea as well as water to the drinks; scented candles.</p>
Expected behaviour (qualitative) of the educator	<p>D1. When giving instructions, ensure that all children understand</p> <p>D.2 If necessary, repeat the instructions in English</p> <p>D.4 Name the items on the table in both XXX and English.</p> <p>English</p> <p>D5. Explain items of different cultural origins to all children</p>
Expected behaviour (quantitative) of the educator	<p>E1. Emotional restraint</p> <p>E2. Physical closeness to the child</p> <p>E3. Gentleness in speech</p> <p>E4. Low tone of voice</p>
Actions of the robot (as a tool for the teacher)	<p>A1. Approaches the teacher at the table</p> <p>A2. Shows the children the task. If necessary, uses different languages in the interaction</p> <p>A3. Accompanies Nasha and the other tablecloth attendants to the tables, conversing with her in her language and in XXX. Can give positive feedback when the work is done.</p> <p>A4. Shows the children to their seats. If necessary, uses different languages in the interaction</p> <p>A5. Shows images/videos with cultural elements related to the table and food, commenting briefly and asking questions. If necessary, repeats the phrases in different languages.</p>
Robot actions (such as 'peer' among the children)	<p>B1. Moves with the children to the tables.</p>

	<p>B2. The robot is involved by the teacher in the group of waiters (consider whether to insert the arm/tray for this moment) and can suggest what to take and how to set the tables, translating into other languages if necessary.</p> <p>B3. Suggest setting the tables in the typical styles of other cultures, showing images of laid tables on the screen and choosing together with the children. (Buddy will have to consider that the children may not have all the items shown in the images available, so she will ask the children for their opinions).</p> <p>B4. Describes foods and customs from 'its' culture, imagining that it is a robot from another planet. If necessary, translates what it says into different languages.</p> <p>B5. If a food specific to a particular culture is being prepared, the robot asks what it is called and explains the ingredients, entertaining the children at the table.</p> <p>B6. During lunch, the robot could stay close to the children, acting as a waiter and being at their disposal, verbally expressing this availability.</p> <p>B7. It prompts the children if it sees that someone is asking for water or has not yet received their lunch.</p> <p>B8. The robot helps with clearing the table, reinforcing the children by expressing appreciation for the work done.</p>
Robot capabilities (motor skills)	<p>M1. Moves around the environment in specific positions</p> <p>M2. Reaches a specific person</p> <p>M3. Avoids obstacles and other children</p> <p>M4. Displays images on the tablet</p>
Robot capabilities (perceptual)	<p>P1. Locates people P2. Locates obstacles</p> <p>P3. Recognises people, faces</p> <p>P4. Recognises activities performed by different children</p> <p>P5. Recognises objects (possibly with markers/QR codes)</p>
Robot capabilities (verbal)	<p>V1. Understands when called V2. Recognises who is speaking</p> <p>V3. Speaks in different languages</p> <p>V4. Tells stories accompanied by images</p>

STEFAN AND ANDREI

Andrei and Stefan are two brothers of Romanian origin. Andrei is three years old and attends the nursery section, while Stefan is five and a half and attends the older children's section. The two children were born in Romania and arrived in XXX shortly after the birth of their younger brother. Both brothers attend the same nursery school. The school is organised into sections based on age. Andrei also attended nursery school in XXX, but Stefan did not; he was enrolled directly in nursery school after arriving in XXX. The two brothers speak XXX quite well, and their mother speaks to them in XXX when she is at school. Their mother works as a hairdresser, but not on a casual or regular basis. She is a very young and beautiful woman, always kind and helpful. Their father is also a very young man who works in the construction industry and is never able to take the children to school because of his working hours. They rarely participate in family events, but they did take part in a party organised by the school during which each parent was invited to prepare a typical dish from their country of origin to share with the others. The mother prepared a Musacá, minced pork spiced with garlic and chilli, which was very good and much appreciated by everyone, clearly making the father very proud. The two young parents really got into the party and enjoyed themselves.

Both children are very lively, love active games and seem to have a physical need for them. They love playing outdoors, especially if they can run and jump.

Stefan is a child who eagerly participates in the activities on offer, showing a preference for certain activities, such as drawing and reading aloud. Stefan is a very sociable child and enjoys working with all the other children in the group, although he has a special relationship with two children, both XXX and almost 6 years old like him, with whom he has shared his entire nursery school experience. He is also very affectionate with the adults in his life and is always open to new ideas.

Andrei is an equally sociable child, although teachers report having difficulty getting his attention for long periods of time. He tends to get distracted and switch activities, sometimes without finishing the task he has been given. He enjoys participating in nursery school life and has never shown any signs of difficulty separating from his mother or his brother, whom he sees during shared moments such as drop-off and lunch. Andrei loves dinosaurs and building with both wood and plastic, activities that he does independently for an appropriate amount of time.

Cultural elements of Romania

Setting	Andrei and attendance and calendar routines
Time of day	Immediately after all the children arrive
General description	<p>The attendance and calendar routines are two activities designed to introduce children to everyday school life. During the attendance routine, the teacher calls each child to take the card with their name and symbol from the 'home' column and place it in the 'school' column. The teacher also names the children who are absent at that moment.</p> <p>The calendar routine is a planned activity designed to help children follow rules and learn about concepts such as time, sequence, order, cycles and respect for others, increasing their sense of control, responsibility and autonomy.</p> <p>The children sit in a circle, and the teacher accompanies them with a nursery rhyme that refers to the days of the week and invites pairs of children to arrange the markers each day.</p> <p>The poster indicates the day of the week, the month, the season and the weather. This moment is designed to be an opportunity for exchange and conversation between the children and the teacher.</p>
Functional areas of the school involved	the section
Objects involved	O1. Attendance board O2. Calendar board
People involved	B1. none

<p>Actions of the educator in this scenario</p>	<p>(the teacher has already placed all the name labels and calendar labels in their initial spaces)</p> <p>T1. Invites all children to sit in a circle for attendance and calendar routines</p> <p>T2. sings the welcome song</p> <p>T3. Invites the children present to move their names from the 'home' list to the 'school' list</p> <p>T4. Names the children who are absent</p> <hr/> <p>T5. Invites two children to go together and choose the day of the week</p> <p>T6. Invites the other children to give suggestions on which day of the week to choose (intervenes only if necessary, only by asking questions, supporting reflection and never saying which day of the week is correct)</p> <p>T6. Invites the two children to return to their seats and calls two others to go and choose the date, supporting the children in their choice in the same way as described above</p> <p>T7. Proceeds by asking other children to indicate the month, then the season and finally the weather for the day</p> <p>T8. At the end, she sings the opening song again with the children, all sitting in a circle.</p> <p>(The teacher tries to involve Andrei both in one of the pairs and in the exchange between the children. Everything takes place in an atmosphere that encourages conversation; it is not merely a ritual performance).</p>
<p>Children's actions in this scenario</p>	<p>B1. The children sit in a circle in front of the two posters.</p> <p>B2. They sing the welcome song.</p> <p>B3. The children stand up one at a time to move the label with their name and symbol from the 'home' column to the 'school' column</p> <p>(Throughout this time, the children are encouraged to engage in dialogue through questions posed by the teacher, including hypotheses about the reasons for their classmates' absences).</p> <hr/> <p>B4. The two children chosen by the teacher go and choose the day of the week and place the corresponding label in the box for that day, then return to their seats.</p> <p>B5. The whole group interacts with the two children to help them identify the correct day of the week.</p> <p>B5. Two other children do the same thing with the date.</p> <p>B6. Next, another pair of children is sent to identify the date.</p> <p>B7. Another pair of children identifies the month.</p> <p>B8. Another pair of children identifies the season.</p> <p>B9. Finally, through a brief discussion, the children identify the weather for the day</p> <p>(the children interact with their classmates for each choice)</p> <p>B.10 They all return to the circle and sing the song</p>

Necessary cultural knowledge	C1. (I can't think of anything)
Expected behaviour (qualitative) of the educator	D1. When giving instructions, ensures that all children understand D2. pays attention to ensure that all children are involved D3. observes the children's interactions D4. Documents the experience
Expected behaviour (quantitative) of the educator	E1. Careful to involve all children E2. Low tone of voice
Actions of the robot (as a teaching tool)	A1. Approaches the educator A2. Invites the children to sit in a circle A3. Plays the welcome music. A4. Invites the children present to participate in the activity. If necessary, repeats the instructions in different languages. A5. Calls the children in pairs for specific activities. If necessary, repeats the information in several languages. A6. Plays the farewell music
Robot actions (as 'peers' among the children)	B1. Sit in a circle with the children and 'sing' the welcome song. B2. Play the welcome music. While the music is playing, display the lyrics translated into AAC (and/or in assisted reading mode) on the tablet. At the request of the teacher/children, play the song in other languages. B3. When called, show an image on the tablet and tell a story about your home. B4. With the help of a child, move his name from the home list to the school list (to be evaluated because we also have to decide whether the children will know that Buddy goes 'home' in the evening or stays at school). B5. The teacher names the children who are absent and can ask Buddy to help her with the correct pronunciation of the names of children whose names are in another language. B6. Accompanies the two children identified by the teacher and goes with them to choose the day of the week and place the corresponding label in the box for that day of the week. Buddy can ask questions to get the children to explain their choices. B7. Accompany the other two children who have to choose the date and then those who have to choose the month. B8. At the teacher's request, he can show the pictogram for the corresponding date on the screen and the teacher can ask him to say the word (date, month) in the different languages of the children present B9. He/she can repeat the previous point for the season and the weather for the day.

	<p>B10. Describe the elements of the current season in a participatory manner (e.g. autumn: what colour are the leaves? What is the weather like? Etc.).</p> <p>B11. At the teacher's invitation, they can show the weather in other countries (we can imagine that some children may ask about the climate in the country where their parents were born, where their grandparents live, etc.).</p> <p>B12. Plays greeting music</p>
Robot capabilities (motor skills)	<p>M1. Moves around the environment in certain positions</p> <p>M2. Reaches out to a person</p> <p>M3. Avoids obstacles and other children</p> <p>M4. Displays images on the tablet</p>
Robot capabilities (perceptual)	<p>P1. Locates people P2. Locates obstacles</p> <p>P3. Recognises people, faces</p> <p>P4. Recognises activities performed by different children</p>
Robot capabilities (verbal)	<p>V1. Understands when called V2. Recognises who is speaking</p> <p>V3. Speaks in different languages</p> <p>V4. Tells stories accompanied by images V5. Plays music</p>

Scenario	Stefan and the activity The goat and the three kids by Carthusia bilingual XXX-Romanian fairy tale (reading and drawing)
Time of day	the middle of the day
General description	Teaching activities take up the central part of the day and are organised using a playful approach that encourages exploration and direct experience on the part of the children. The activity presented here begins with the reading of the bilingual fairy tale (XXX and Romanian) 'The Goat and the Three Kids', followed by a reworking activity using graphic and pictorial methods.
Functional areas of the school involved	Section
Objects involved	<p>O1. Bilingual fairy tale (XXX and Romanian) The Goat and the Three kids</p> <p>O2. One sheet of drawing paper for each child</p> <p>O3. Recycled materials</p> <p>O4. colours</p> <p>O5. paintbrushes</p>
People involved	assistant
Actions of the educator in this scenario	<p>T.1 The teacher announces the shared reading time and chooses a bilingual fairy tale (XXX and Romanian) "The Goat and the Three Kids".</p> <p>T2. The teacher reads the fairy tale aloud, using the cardboard fairy tale scenario to support the children's attention and involvement.</p> <p>T3. Start a guided conversation about the story, the kids' choices, and the "trap" set for the wolf by the mother goat.</p> <p>T4. The teacher invites the children to 'collaborate' with the mother goat in 'setting the table' for the wolf. Each child must imagine and create a dish that they like, even from their country of origin. The children can draw a picture of the dish using only colours or also using recycled and reused materials.</p> <p>T5. When all the children have finished their drawings, the teacher and the children 'set the table' for the wolf, and each child is invited to present their dishes to their classmates.</p>

Children's actions in this scenario	<p>B1. The children sit in a circle.</p> <p>B.2 They listen to the fairy tale being read.</p> <p>B3. They participate in the conversation, supported by the teacher's stimulating questions.</p> <p>B4. The children sit in their places and make a drawing, freely using the materials and colours available.</p> <p>B.5 When they have finished their drawings, they return to the circle and describe their 'dish', explaining their choice of colours and the characteristics they wanted to highlight.</p>
Required cultural knowledge	<p>C1. Choice of bilingual fairy tale</p> <p>C2. Involve parents by asking them to share other fairy tales from the children's countries of origin.</p>
Expected behaviour (qualitative) of the educator	<p>D1. When giving instructions, ensure that all children are involved in the reading (first assess whether the length of the story is suitable for the group's attention span).</p> <p>D.2 Encourage everyone to participate in the guided conversation, stimulating them to reflect on the choices made by the goats</p> <p>D.3 supports and encourages the children to freely express their creativity</p> <p>D.4 invites the children to describe the 'dish'</p>
Expected behaviour (quantitative) of the educator	<p>E1. Careful to involve all children E2. Low tone of voice</p>
Actions of the robot (as a teaching tool)	<p>A1. Supports the educator's storytelling with images and sounds</p> <p>A2. Tells parts of the story, accompanying them with images and asking questions related to the images.</p> <p>A3. Translates what the educator says into the other language. Repeats some key words from the text in the children's native language.</p> <p>A4. Invites the children to carry out the activity. If necessary, repeat the instructions in different languages.</p> <p>A5. Shows images/videos with cultural elements related to the table and food, commenting briefly and asking questions. If necessary, repeats the phrases in different languages.</p>
Robot actions (as 'peers' among the children)	<p>B1. The robot sits in a circle with the other children but close to the teacher, who asks it to show the pictures in the book as it is read (ideally, the pictures on the screen should advance in a similar way to turning the pages of a book).</p> <p>B2. During the story, the teacher will refer to the characters' emotions. The robot can show different emotions and,</p>

	<p>with the teacher's support, encourage the children to express them.</p> <p>B3. The teacher asks Buddy to read the book in the original language</p> <p>B4. During the drawing session, the robot approaches the children and asks them questions: it asks the children what they want to draw/build and whether they like the subject to be drawn. B5. Consider whether to have everyone, including children with special needs, draw directly on the robot's tablet screen.</p> <p>B6. Help the children with their drawings by showing them the images they ask for (e.g. 'Buddy, can you show me how to draw a goat?' or a wolf or a certain dish, etc.).</p> <p>B7. The teacher asks the robot to photograph the children's drawings and artefacts, which will be projected onto the interactive whiteboard or Buddy's screen while each child describes/explains their work to the others.</p> <p>B8. The robot can ask the children if they like the work they are doing, always showing appreciation for their work.</p> <p>B9. The robot, considering whether to add the arm, makes itself available to help prepare the 'table for the wolf'. B10. During the discussion, it can ask the children if the dish they have drawn/made is eaten in their homes, and the teacher can ask it to name the dishes in different languages.</p> <p>B11. It talks about foods from 'its' culture, imagining that it is a robot from another planet. If necessary, it translates what it says into different languages.</p>
Robot abilities (motor skills)	<p>M1. Moves around the environment in specific positions.</p> <p>M2. Reaches a specific person.</p> <p>M3. Avoids obstacles and other children.</p> <p>M4. Shows images on the tablet.</p> <p>M5. Takes photographs and sends them</p>
Robot capabilities (perceptual)	<p>P1. Locates people P2. Locates obstacles</p> <p>P3. Recognises people, faces</p> <p>P4. Recognises activities carried out by different children</p>
Robot capabilities (verbal)	<p>V1. Understands when it is called</p> <p>V2. Recognises who is speaking</p> <p>V3. Speaks in different languages</p> <p>V4. Tells stories accompanied by images</p>

Issouf is a very shy 6-year-old boy from the Ivory Coast. His mum and dad are also very quiet people, who smile a lot but are difficult to involve in school activities. His mum speaks to the children in French and speaks reasonable XXX with the teachers. The teachers do not know French.

Jssouf attends a small municipal nursery school located in the centre of XXX, which is organised into only two mixed-age classes. Issuof has an older sister, Emanuela, who is in her second year of primary school. Issouf started speaking XXX late. Although he speaks little XXX, he enjoys playing with all the children and always finds a way to interact with them. His parents are very busy with work. His mother tries to make her children very independent in some respects; for example, when she leaves school, she walks ahead of the children, leaving them behind to move around freely. In other respects, she appears very apprehensive, such as about his diet, even though the teachers try to reassure her by always telling her everything he eats. Another major concern is the fear that he might get hurt at school, that he might be scratched by other children, because Issouf's skin is very delicate and a scratch can leave a visible scar. Issouf is a very well-groomed child, always smelling nice and with very soft skin. He is a child who loves movement and is very affectionate. He has a great passion for bright colours and loves to play football.

Scenario	Issouf and the activity on Leo Lionni's Little Piece (reading and drawing) (there is an online version of Little Piece in AAC)
Time of day	In the middle of the day
General description	The organisation of educational activities always takes a playful approach and seeks to stimulate children's direct experience. Educational activities occupy the central part of the day. The activity presented here begins with a shared reading of Leo Lionni's book Pezzettino, followed by a circle time discussion about each child's individual characteristics. The teacher proposes a reworking of the reading through a graphic-pictorial activity.
Functional areas of the school involved	Section
Objects involved	O1. Pezzettino picture book O2. One sheet of drawing paper for each child O3. Recycled materials O4. colours O5. Paintbrushes O6. Glue
People involved	assistant
Actions of the educator in this scenario	T.1 The teacher announces that they will be reading a new book and invites the children to sit in a circle T2. Reads the book aloud, taking care to show the pictures to the children. If the children ask, the teacher reads it again. T3. Start a guided conversation on the theme of identity, diversity and individual richness, and the journey to find oneself (for example, by asking the children to identify certain elements of identity with colours: e.g. being sociable = yellow; being envious = red; being imaginative = green, etc.). T4. The teacher invites the children to make a drawing that represents their identity by choosing small pieces of different colours (the teacher has already prepared a sheet for each

	<p>child, various recycled materials such as coloured paper of different textures, fabric scraps, leaves, pieces of bark, seeds, paints and glue. The tables are arranged in islands where four children sit, and each island has plenty of materials so that the children can freely choose how to express themselves). T5. When all the children have finished their drawings, the teacher invites them to return to the circle so that each child can describe their 'little piece'.</p>
Children's actions in this scenario	<p>B1. The children sit in a circle. B2. They listen to the book being read. B3. They participate in the conversation, supported by the teacher's stimulating questions. B4. The children sit in their places and make a drawing, freely using the materials and colours available. B.5 At the end of the drawing, they return to the circle and describe their drawing, explaining their colour choices and the features they wanted to highlight.</p>
Required cultural knowledge	<p>C1. Involve parents by asking them to provide fabric scraps and embroidery typical of their countries of origin, as well as any colours typical of their countries of origin.</p>
Expected behaviour (qualitative) of the educator	<p>D1. When giving instructions, ensure that all children are involved in reading. D.2 Support everyone's participation in the guided conversation, helping them to grasp the richness that each person brings. D.3 supports and encourages children in the free expression of their creativity D.4 invites children to describe their drawing</p>
Expected behaviour (quantitative) of the educator	<p>E1. Careful to involve all children E2. Low tone of voice</p>
Actions of the robot (as a tool for the teacher)	<p>A1. Supports the teacher's storytelling with images and sounds A2. Tells parts of the story, accompanying them with images. Introduces the colour-identity identification activity through images and dialogue A3. If necessary, translates what the educator says into other languages A4. Invites the children to carry out the activity. If necessary, repeats the instructions in different languages.</p>
Robot actions (as 'peers' among the children)	<p>B1. It sits in a circle with the other children but close to the teacher, who asks it to show the pictures in the book. It would be ideal if the images on the screen could be 'rotated' in a similar way to a page, with the display function being particularly important given that the book is in AAC. B2. During drawing time, ask the children what they want to draw/build. If they like the subject to be drawn, you can consider having them draw directly on the Buddy screen, both for all children and for children with special needs.</p>

	<p>B3. The teacher can ask the robot to photograph the children's drawings and artefacts to project them onto the interactive whiteboard or Buddy screen while each child describes their artefact, explaining their colour choices and the features they wanted to highlight.</p> <p>B4. Ask the children if they like the work they are doing, always showing appreciation for their work.</p> <p>B5. At the teacher's invitation, name the different colours in other languages.</p> <p>B6. Describe an image and a story from 'your' culture, imagining that you are a robot from another planet. If necessary, translate what you say into different languages.</p> <p>B7. Use images and videos to represent situations from different cultures and stimulate children's imagination</p>
Robot capabilities (motor skills)	<p>M1. Moves around the environment in specific positions</p> <p>M2. Reaches a specific person. M3.</p> <p>Avoids obstacles and other children M4.</p> <p>Displays images on the tablet</p> <p>M5. Takes photographs and sends them</p>
Robot capabilities (perceptual)	<p>P1. Locates people P2.</p> <p>Locates obstacles</p> <p>P3. Recognises people, faces</p> <p>P4. Recognise activities performed by different children</p>
Robot capabilities (verbal)	<p>V1. Understands when called V2.</p> <p>Recognises who is speaking</p> <p>V3. Speaks in different languages</p> <p>V4. Tell stories accompanied by images</p>

General characteristics of the robot:

1. Although possible actions of the robot have been identified both when it is considered a 'tool' of the educator and when it is considered a peer of the other children, in order to have a complete idea of the robot's possibilities. However, from a preliminary analysis, it seems that using a robot as a peer may be advantageous, allowing for greater flexibility and greater acceptance of the robot by children and educators themselves.
2. Buddy can answer a series of questions related to self-representation:
 - Who am I?
 - Where do I come from?
 - What do I know and what can I do?
 - What do I eat?
 - What language do I speak in my country?
 - What can't I do? (eat?)
 - Why am I not wearing clothes?
 - Why don't I have legs?
 - How do I move?
 - What do I feel? (I work on the affective imagination, but also on bodily sensitivity)
3. Buddy knows the basic elements of the children's culture of origin (not only language, food, games, stories and music, but also climate, flora, fauna and weather conditions)
4. Buddy asks open questions, proposes exploratory experiences, stimulates conversation, engages the child and also uses the language of the child with whom he interacts
5. Buddy will be introduced as a collaborative and empathetic partner, who gives answers based on stimuli from the children and teachers/educators through continuous dialogue, and shared experiences will be built.
6. Buddy sets challenges for children that require their involvement and guides them in solving problems.