

APPENDIX D

SAMPLE TRANSCRIPT & THEMATIC ANALYSIS PROCESS

Sample Transcript (translated from Arabic to English)

Teachers' focus group discussion, conducted on November 01, 2018

Duration: 35 minutes

School Code: A

Number of participants: 7

1. What do you remember about the outdoor activities in nature you used to do while you were young? Usually, where did you play as a child?

“Yeah I remember when our parents used to take us frequently to Dhour Chouei, for example; we enjoyed our time because there were tree groves and much more, so we used to be very happy whenever we knew that we were going up there”. **What did you used to do in that place?** “ We used to climb trees.... My parents had friends living up there so we used to go visit them and they had gardens and groves close by... we used to pick up blueberries...”

“We used to go to the village during summer; usually in villages there is more green spaces, there is a lot of We used to play with sand, we stacked rocks above each other, we threw rocks...or we used to play for example...umm picking things... We used to play mostly as bride and groom because there were blueberries that we were able to use as lipstick and to put above our eyes, there was a flower we used to pick and it opens so we used to put it as earrings; there was some yellow substance inside it. I remember a lot that we were very happy using these colors; we couldn't use real lipstick like nowadays; we were pleased with the colors of nature and that they actually give a color/tone when using them. We used to play with them a lot. Even the smell.... for example when I go up to the village now, the smell of wood which was mostly used to boil water and do the laundry, really this smell reminds me a lot of my childhood because we used to feel that we are actually living these things.” **So you grew up with these things?** “Yes, and you feel that it is different from the city life, you don't smell such odors here; and you feel that these things make you in contact with nature. All these things remind me of my childhood”.

“We used to go to the Beqaa, we were small and we used to go to the Beqaa Valley. There you would see all types of plants, each with different form and structure.... for example how the watermelon plants crawl across the field and you would see things that grow on trees. We used to pick the small things; we used to like it more than the bigger ones. We were very happy”.

Who lived in the city all of the time? “All of the time” (multiple respond by participants all together) “we only used to go to the village during the weekends”.

2. Did you have any pet or animal inside or outside the house?

“Yes, I had cats; I still have cats till now, I can't live without them. Also, once, I raised birds but they didn't last long. But, mostly cats, one goes and one comes”.

“Long time ago, we had in our house in Beirut, birds, but now we only have in our mountain house; there we have around 10 cats in the garden and they became house cats, they got used to us and to the house. They do not go inside

the house, they only stay outside; we feed them; they even reproduce and multiply...”

3. Nowadays/as a grown up/ did your relation with nature (as expressed above by the outdoor activities in nature) change? If so, whether it was a positive or negative change, what do you think are the drivers of this change?

“ Yes, there is a change, a negative change also, because first of all, due to the duties and concerns of life, you always have things to do; the chance of finding an empty day is very minimal especially that we teach. We choose Sundays or the weekends to relax even though this is negatively affecting our children and us”.

You don't think you can relax by escaping to nature?

“ On the contrary, I wish that.”

“ I love a lot, whenever there is a chance, okay, whenever there is a chance to go out according to the circumstances of the kids and house chores, yes, the first thing is nature”

“ Usually when I go up to nature, I go because it is my village and my extended family is there too. The weather really helps in relaxing and forgetting everything; really I feel as if I have traveled to another country. Ohhh and by the way, my kids have learned after me, for example my kids nowadays do the things I used to do when I was a child. So, I feel how much parental influence is very important on kids; when parents sit and tell their children about the things they used to do in the past, where they played and with what...etc. So my kids, because they regularly go up to the village ever since they were young, therefore, I feel that now they really love it and they enjoy it a lot. They do the same things we used to do as children, so I look at them and say; by the way I used to play with the same things. They really enjoy hearing my stories about nature”.

“Duties and concerns of life: because we do not have enough time and because we do not have a mountain house. So this means we have to go out specifically for an outing”.

“ We have a mountain house in the Barouk area but we rarely go there”.

“ I feel that in the city, the green spaces are becoming very limited. Also, the traditions of people in the city are different from those of people in the village, this has an effect too. For example, my husband is from Beirut where as I am from the village, when I first introduced my village to my husband, he was very pleased and happy, he told me one thing; we don't have like this in the city. They don't have a piece of land to cultivate. Even in the village there is traditions and habits different from those in the city; for example the door at my parent's house is never closed, people always visit each other, they are very hospitable. People even go to each other's lands and no one gets bothered. I feel that this, belonging to a village, helps a lot in creating a bond between you and nature because there is very simple things like odors ... that reminds you of nature”.

“This idea of people constantly visiting each other and coming over to each other’s houses, I remember when we were young, our parents rented a house in the mountains (we are from Beirut) and it had an outdoor terrace, so a lady passed by and sat. Oh how did she sit? How did she come in? From where she came? Yeah so she came in and sat with us and started talking as if she knew us Yeah we were surprised”.

“ We are not used to such habits, we usually knock the door” (group comment).

“ Based on this same concept, each house in the village has a piece of land nearby, so my kids when they go over to visit their friends in the village, they might have a tree which we don’t have in our land, so they pick from its fruits and bring some back with them; mama see what we bought with us. There in the village, the child doesn’t get distracted with things like IPAD like in the city”.

“ True, even T.V, believe me, we do not watch when we go to the village because there are much more enjoyable things to do, like picking up fruits from trees, discovering plants, playing in nature....etc.”

“ You feel there is more safety, familiarity, comfort and love between people in the village compared to the city”

“ The weather”

“ If you want to sit in the balcony in Beirut, there is a lot of traffic and cars but up in the mountains no. You escape and breathe clean air.”

4. What do you think is a better learning approach for children in the outdoors/nature: Guided play or Free play? Positives and negatives of each of the two approaches

“ Yes sure I am with both approaches”

“ Of course guided play, you can not leave children play like this because the child underestimates danger and might not be aware of the things that might harm him/her; of course each child according to his/her age. Therefore, you should guide him/her first then leave him/her play.”

“ There has to be a certain goal or objective for the child while playing, not just leave him/her play and tell him/her go play, like this”

“ For example, if I provide for the child a space or an environment with all safety measures, only then, I can leave him/her play freely. I know that he/she will not go to a place where there might be harm or danger. However, if this is not applicable then of course I should guide and monitor them”.

“Commenting on what my [colleague] said, when the place has safety standards, you can leave the child without giving him/her guidance because children love to discover; they like to discover things by touching, seeing, they might even get hurt...”

“Children might grab your attention to things you haven’t noticed before”

“ When they get hurt, they learn”

“ A minor injury is ok. However, if there is big danger and risk, then for sure you should guide the children and put certain standards which they should follow; like do this not that and so on. But when everything in front of them is safe, they can discover and have fun; we encourage such type of discovery and learning.

“ There is a concept we follow in our curriculum which states that children learn through discovery (discovery learning) and this is very important.”

5. Other than the assigned school curriculum, what do you think is the best method to introduce students to natural experiences and to develop their love for nature through school’s outdoor playground?

“Planting activities” “ To plant”

Do you already do planting activities with you students? “Yes, there is an activity about planting, theme of agriculture where kids get to know about the different vegetation and we teach them how to plant”

Where do they keep/display their plants after planting them? “ They take them home and they tell us with excitement about the plant’s growth and how they are watering it and taking care of it”.

“ The cycle of life where they see the different stages of a plant’s growth, how it starts from a seed, then grows to have roots and so on. They also learn the different parts of the plant itself. I have taken my students outside, to the playground for the elementary classes, to show them what a plant becomes when it grows; they saw the trees outside. Such activities are part of our curriculum, to introduce children to plants and horticulture.

“ Teaching children the benefits of horticulture and plants themselves”.

6. Other than the assigned school curriculum, and in the case of not being able to access the outdoors for various reasons, how do you think you can extend the outdoor activities to the indoor classrooms?

“Mostly, I let them watch a video about nature and they used to like it a lot.”

“ We also teach them about the four different seasons of the year, and the appearances of each season, this allows children to get to know more”

But do children feel the seasons (seasonal change)? “ Yes we ask them for example, to get autumn leaves in order to learn about the different colors. Children get excited when we ask them to do so; even when they go outside

the class to the outer playground, they find fallen autumn leaves and they start picking them up”

“Or an activity or a field trip during the autumn season. We usually take children to a field trip where they collect fallen leaves, and then when we return to the class we do an activity related to the theme, for example they stick the leaves on a silhouette of a tree.”

More ideas? “Maybe because in our school we don’t have green spaces, so the activities are very limited. But it’s really nice to have green spaces and vegetation in schools, and to have games and certain activities within this green space so even if the child falls, he/she would have a touch with nature, he/she would feel the texture of the soil, the texture of the plants. That’s really nice”.

“During my college years, we had a course called “ Learning through Play”, we took a case study in which a professor had a big playground so he dedicated a corner for soil then asked his students to plant it. Then he asked them to monitor the growth of the plants; afterwards the students started observing insects that are attracted by the fruits on the fruit-bearing plants. Students also observed the difference between fruit-bearing vegetation and non-fruit bearing ones”.

“As my colleague has mentioned, we also included in our curriculum for KG3, Science. We talked about insects, butterflies, and ants in nature and their different characteristics and of animals in general.”

7. Do you feel capable, through your current knowledge and experience, to be a role model for your students in presenting love, care, attachment and protection to nature?

“I teach my students and I focus a lot each year that the most important thing is taking care of the environment as a whole. When we do so, we are preserving nature. I talk to them about these matters and the importance of having a clean environment so that the air we breathe is clean and the public gardens we visit are clean as well. I constantly repeat that the public places we visit should be clean and we should not litter because such things affect us as well. I think that, if I didn’t believe in the importance of this I wouldn’t have communicated such information to my students and reinforced it in them as they grow. Also, as they constantly hear such information from stage to another, they would gradually apply it and it would become part of them.”

“Children get affected by their teachers and what they say”

“Parents’ role is very important as well. Parents who really like their children to discover nature.. I have a lot of students in my classroom, when I ask them on a Monday, where did you go in the weekend, there is a lot of kids who don’t go out. Parents do not have this culture of allowing their children to even go to the public gardens to play.”

“Yes me too, multiple times I have asked my students on Monday, what did you do during the weekend, a lot would reply: we stayed at home”.

“As a teacher, a role model, of course we will guide our students and give them valuable information but parents should reinforce these information and help us. It’s a stage in which parents should continue. When teachers give information, kids should go and experience it. For example, I talk to my students about artifacts and archeology. Children do not know what archeology is; so I explain what are archeological sites and how many castles we have in Lebanon, I name their places, where they are located and I show them pictures. However, it is different when the child goes and sees an archeological site, this way he/she would actually experience it, then the information would be reinforced and he/she would have a strong bond between himself/herself and nature or the things he/she is seeing. It is different from just listening about things. So I tell my students to ask their parents whenever they go to Saida, to go visit the castle there.”

“Children would see things up close, it will no longer be just an idea he/she heard about in class. This way, the information will be strengthened in his/her brain”.

8. Describe the perfect ideal outdoor play space in your opinion that should be implemented in every school environment, whether public or private.

“Moquette” or carpet, trees like the one found in universities”

“ Open yard with sand”

“ Spacious and big”

“ The school I did my internship in, had two playgrounds: a winter playground for kids with a lot of toys, slides and bicycles; and a summer playground. The later, had a sand corner with a tent for kids to play in sand, another corner had tires for kids to climb. It was open. I really like this”

“ Yeah so the kids won’t be deprived from playing even when the weather is raining”

“ The playground should look like a garden, like the Sanayegh Garden, with a pond in the middle, and the kids would swim”.

“ Besides the concrete playground for playing football and other games, it is nice to have an area with green lawn. I once saw on Facebook, kids in a nursery conducting planting activities. It was very nice that in front of the nursery, in the outdoor space, they planted lawn and had flowers. The tables were placed on the lawn and the kids were conducting the activity outdoors. So it is very important to have a green space.

“The child can sit on the lawn, or he/she can lay back.... that way we give them freedom to feel free in nature”

“Not everything should be orders...do this don't do that”

“Contain play equipment”

“Trees, like a garden”

“Also, it would be nice to have some pets like birds, personally I like this a lot”

“Yeah pets in a cage would be nice”

- 9. Suppose an expert in landscape design and environmental education came to help in developing your school campus by creating a holistic environment through developing different spaces for conducting different activities related to nature, how would be the school's administration reaction to this scenario?**

“As administration and teachers, of course they would be very cooperative. But as parents, some would encourage, but the majority would not”

From what perspective are you assuming that the parents would not encourage such initiative and be cooperative?

“Financially, if there is an additional cost for the parents. Another thing, if the parents don't take their kids out on Sundays, so it wouldn't matter with them anyways.”

“Not all parents have enough knowledge and awareness in this matter”

“Not all parents are of the same educational and financial level”

Photo-Discussion:

Do you consider the elements or features presented in each of the photos below crucial for strengthening children's love for nature?

- **Picture 1** (6/6 participants Agree)

“Yes”(multiple answers)

“Children at this age like to invent things from different pieces, they might do a robot from plastic bottles or even cardboards”

“True, kids need to have creative energy that they would release by collecting such things and creating something meaningful”

“Children like to collect fallen tree leaves in order to do something artistic. Usually we ask our students to do something similar during the autumn season or we take them to the elementary playground in order to observe how leaves fall off trees during this season”

“Of course this strengthens kids’ connection with nature, because while the child is collecting these elements from nature, he/she would start to pay attention to the trees, their leaves, their different shapes and diverse colors. So of course this is very important”

“ You can also benefit from this activity by creating something artistic and creative from the elements of nature”

- **Picture 2** (5/6 participants Agree - 1/6 participants Disagree)

“Yes, construction games are very important and kids enjoy them”

“They are constructing using things that are part of nature, forest, garden... part of the place they are trying to connect to”

“They might play with natural components, this is very important and healthy as well” **Why do you think its healthy?** “Because it can help broadens the perception of child and bring him/her closer to nature”

“Kids can construct with such elements, different structures; kids love a lot such activity especially at this age”

“Children would start to see the trees or anything else in nature as something they can play with and enjoy”

“Umm in this picture, because it’s a tree trunk and its cut, therefore if you want to link children to nature, you are supposed to teach them not to cut down trees. So I don’t know how much this activity (since it’s a cut tree) will develop in the child a sense of responsibility. There will be a discrepancy because anything that is suppose to link children to nature will have to start by teaching them not to cut down trees in the first place”

- **Picture 3** (6/6 participants Agree)

“Of course, planting is very important”

“We already do planting activities with our students and they love it”

“Planting is one of the most important activities to link children to nature. Kids at this age understand about agriculture and plant irrigation”

“ You might talk to the child about trees, their beauty, their benefits and how birds use them to construct nests and so on... however the child won’t see and appreciate this and connect to it as much as if the child plants his/her own tree, of course in this case the child won’t plant a tree, he/she would plant any small plant. The child will participate in something that he/she would see growing and would water on daily bases. The child will learn that if he/she left the plant one day without water it will wither. The child will see in this plant himself/herself, that he/she is an important factor in the growth and continuity of this plant. The child will learn how much the plant depends on him/her”

“ Yes me too I would like to add, all of this will develop in the child a sense of responsibly towards nature more than anything else, because the child will realize this in front to his/her eyes, how the plant is growing day after day”

- **Picture 4** (5/6 participants Agree - 1/6 participants Disagree)

“Of course, because here you are developing in the child the love for exploration; when you give the child a magnifying glasses and ask him/her to explore things around him/her”

“Yes.... it’s like an adventure for the kids.... it is something mysterious the child is trying to discover alone without anybody telling him/her what to see in specific (Ex: see this and see that). The child can go alone and explore the vegetation and insects; to seek it himself/herself”

“I believe that there should be a teacher, someone to guide the children during the activity, for example to instruct them where to search for insects. The child might not know the places where insects might exist, therefore the role of the teacher here is to educate children about the places and habitats of insects for example under rocks, then the teacher would leave the children to go and explore these places but of course under her supervision”

“As my colleague said, before this activity, there should be a lesson inside the classroom about the habitats of insects and insects’ different characteristics. In fact, we do this for KG3 students, but it would be nicer if there was physical application of this lesson in the outdoors”

“This activity, regardless if it was conducted in nature or not, is an excellent scientific activity for it develops a lot of skills other than just connecting to nature”

“True, and most importantly is that when the child explores nature, he/she will see how much nature is rich with fun elements, in this way children will love nature”

“But some insects might bite kids or sting them. I think they can do something similar inside the classroom or in the lab. I don’t know ...personally I don’t like insects, I get Goosebumps when I see one” **How they can do something similar inside the classroom?** “ Umm may be insect toys that are not real and students can create the different habitats through art projects”

“Watch a movie about insects, may be”

“In the contrary, it would be fun if children would find something that jumps and hops like a grasshopper. Kids would love to follow it. It will be exciting”

- **Picture 5** (1/6 participants Neutral – 5/6 participants Disagree)

“I can’t find anything in this activity that builds up a connection with nature”

“There is no goal or aim here, other than it is a messy pool”

“We will love this activity and parents too, they would be very happy (sarcastic tone)”

“Umm the component is mud, something from nature”

“Yeah but as far as in know, mud might have germs and might cause diseases for children if they swallow it. So it’s not safe”

“I don’t know...kids seem happy in the picture.... but still I don’t know”

- **Picture 6** (6/6 participants Agree)

“Of course recycling is a very very important theme and it should be incorporated at all educational levels”

“Also, recycling teaches the child to main the cleanliness of the place and the environment around him/her, which is what we lack nowadays, sadly. Everywhere you go, garbage is on the streets and on the roads”

“However, according to my experience, using reading and theoretical things, for this specific topic (recycling), with children at this young age (KG level), is a bit complicated for them to grasp, unlike not cutting a tree for example. It requires a certain level and older age students to really understand what is recycling, what really it does to the environment, and how it can help with reducing pollution. It’s not an easy theme. But this does not mean that we can not start at this young age to teach them at least how to sort and to main cleanliness even if at a small scale”

“Very true, also the child needs to feel the importance of this in real life”

How? “ For example, students might go on filed trips to recycling factories and see how plastic products can pollute the environment if not treated properly”

“As I have told you earlier, I try as much as possible to educate my students about this issue at least throwing trash in its specific place, but really it needs constant parental follow up”

- **Picture 7** (3/6 participants Agree - 3/6 participants Disagree)

“I believe it’s a very spontaneous activity to do in nature, I used to climb trees when I was a child back in my village”

“ Yeah, playing with nature as it is”

“But there is no structured exercise to tell the kids what to do?”

“But kids just love to climb on things whether trees or other climbing structures”

“Don’t forget, there is the risk of falling and hurting themselves, which might be our responsibility as teachers. Parents can blame us for not taking good care of their kids. I wouldn’t risk it for my students. No”

“Yeah of course, I meant if the surroundings are safe, then it is ok”

“Also, some inquires won’t really harm the child. I believe they will stand up and continue playing as if nothing happened. This happens with my own children”

- **Picture 8** (6/6 participants Agree)

“I wish we had like this here at our school, it looks like the picture is taken in a western country”

“I think it’s the same concept of the previous picture: basically, the idea of enjoying nature as it is. Being in nature”

“However, at the same time, kids are reading stories while sitting in nature. This might increase children’s interest in reading”

“Kids seem so comfortable”

“Just the fact that kids are enjoying their time and doing the activities they like and in nature, it connects them to the environment. They can feel nature as their home”

“To add on what my colleague said, if kids enjoy this setting and felt as if it’s their own home, this will definitely be reflected on them and their personality”

- **Picture 9** (6/6 participants Agree)

“Of course this is important, animal care in general and taking care of pets is an important topic to teach students”

“We teach students about farm animals and their products, like in the picture (chickens). This way they can relate more”

“True, it would also be nice if we arrange a trip to a farm or a zoo”

“Or, once in my child’s day care, they had one day where they bought a duck, a goat, and a rabbit to the day care and they allowed children to observe them and touch them. Why not do something like this? May be raise an animal here in our school”

“Don’t forget our KG playground is very small”

“We can put it in the outer elementary playground that way students from all grades can participate and take care of it”

“This would also teach students to be responsible as they need to take care of the animal, for example: feed it, put water for it, may be clean its cage...”

“Also, the importance of these animals in relation to nature and the environment”

“Its fun, animals are cute. I think it’s nice to observe them”

Sample Thematic Analysis for Question 4.

CONDENSED MEANING UNITS	CODE	CATEGORY	THEME
"both approaches"; "I believe both concepts are important"; "both concepts"	free and guided play are important	importance of free and guided play approaches	Integrated Free and Guided Play Approaches
"guided play because the child underestimates danger and might not be aware of the things that might harm him/her" ; "I would guide them before they play so that they won't do something dangerous or hurt themselves"; "need to inform them about the risks and dangers: what they can do and what they can not do"; "I would guide them before letting them play so that they won't do something dangerous or hurt themselves"; "guided play because if I leave the children to play freely, they might hurt themselves and each other, therefore; there should always be someone guiding them"; "there has to be guidance"	guided play because children may harm themselves and underestimate danger and possible risks	children's safety	Choice of play approach depends on child-related factors
"guided or free play depends on the age group"; "guided or free play depends on each child according to his/her age"; "dealing with 3 years old children is different from 6 years old children". "6 years old children are more aware and mature, know what is wrong and right, and what they can and can't do"	guided VS. free play depending on age	children's age	Choice of play approach depends on child-related factors
"guided play where you guide the child first then leave him/her play"; "guided play meaning you give the child instructions at first: don't go far, stay close... then you can leave him/her play on his/her own"	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"guided play because you can not leave children play like this"; "there has to be a certain goal or objective for playing not just leave the child play"; "There has to be a goal, not just leave the child play alone";	guided play with goal or objective	there should be a goal for playing	Choice of play approach depends on educational goals
"If the space/environment has all safety measures, only then, I can leave them play freely"; "when the place has safety standards, I can leave the child without giving them guidance because children love to discover"; "when everything in front of them is safe, they can discover and have fun; we encourage such type of discovery and learning"; if the space/environment has all safety measures, I would know that they will not go to a place where there might be harm or danger"	free play if place is safe	play space safety measures	Choice of play approach depends on conditions of the play space
"if the space/environment does not have safety measures, then of course I should guide and monitor them" ; "when there is big danger and risk, then you should guide the children and put certain standards which they should follow"; "guidance at first for the children's safety"	guided play if place is not safe	play space safety measures	Choice of play approach depends on conditions of the play space
"Children like to discover things by touching, seeing, they might even get hurt" ;	free play helps in sensorial discovery	advantages of free play	Free Play Approach

"Children might grab your attention to things you haven't noticed before"	free play helps in noticing unseen things and materials	advantages of free play	Free Play Approach
"When they get hurt, they learn"	"When they get hurt, they learn"	advantages of free play	Free Play Approach
"A minor injury is ok"	"A minor injury is ok"	advantages of free play	Free Play Approach
"free play to let kids discover on their own"; "free play because it is normal for the child to discover"; "free play because it's nice to see a child discovering by himself/herself"; "free play because children have love for knowledge so this way we would leave them to learn and discover more"; "Children learn through discovery (discovery learning) and this is very important"	free play develops discovery learning	advantages of free play	Free Play Approach
" free or guided play depending on the goal/objective I want the kids to achieve"; "If you are working on a certain theme or you have a certain goal/objective, then it has to be directed play"; " if there is no goal/objective, then it can be free play at first then you guide them"	free VS. guided play depending on goal or no goal	there should be an objective for playing	Choice of play approach depends on educational goals
"in the case of the outdoors, you start with Free play approach then guided play; because you want to see at first what the kids want to do"	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"some games and activities would be more enjoyable for kids with free play approach while others it's nice to guide them if you want to achieve a certain goal"	free VS. guided play depending on goal or no goal	there should be an objective for playing	Choice of play approach depends on educational goals
"free play because you can still observe what the kids are doing, what's their reaction, and how they are behaving"	free play helps in understanding children's interests and behaviours	advantages of free play	Free Play Approach
"Just leave kids play in the garden while you sit and enjoy a cup of tea or coffee or hookah"	free play gives adults/teachers some free time/break	advantages of free play	Free Play Approach
"free or guided play depending on the place"; " if it's the Sanayegh Garden then it will be free play without guidance because all the play equipment and games are known for them"	free VS. guided depending on place	location of play space/area	Choice of play approach depends the on conditions of the play space
"guided play because if I leave them play freely on their own they will dirty themselves"	guided play to avoid getting dirty	advantages of guided play	Guided Play Approach
"guided play because if children play freely, they won't understand the value or the concept of what they are playing or the goal of the game"	guided play with goal or objective	there should be an objective for playing	Choice of play approach depends on educational goals
"When they play in a free manner they will not acquire the required goals"	guided play with goal or objective	there should be an objective for playing	Choice of play approach depends on educational goals
"You can't just constantly keep on guiding kids, this annoys them"	free play gives freedom	advantages of free play	Free Play Approach

"It is not wrong to leave kids play on their own"	free play gives freedom	advantages of free play	Free Play Approach
"free or guided play depending on the time"; "if there is plenty of time during class session, I leave the students to play on their own, other times I don't"	free VS. guided depending on duration	duration of play time	Choice of play approach depends on conditions of the play space
"It is normal for children to dirty themselves but to a certain extent"; "If they dirty themselves of course it is better because they would learn"; "we should have no problem if they get dirty"; "if children didn't dirty themselves while playing, they won't feel that they played properly and enjoyed themselves"; "if they dirty themselves of course it is better"	free play gives enjoyment by getting dirty	advantages of free play	Free Play Approach
"personally, I always take with me extra clothes for my kids so they can play whatever they want"	dealing with free play and kids getting dirty	adapting to free play approach	Free Play Approach
"combine both approaches in a way that the child is playing on his/her own but you are watching and observing what he/she is doing"; "both concepts complete each other because first you need to guide the children in order for them to know the way to play, then you leave them for their own freedom"; "both concepts have to be implemented together, first guided play then you give the children their freedom to play on their own so they can discover"	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"When you directly leave the child to play freely, he/she will feel lost; at first, there has to be instructions from the teacher then free play"	guided play to avoid confusion in children	advantages of guided play	Guided Play Approach
"first it has to be guided play then free play where innovation will come in"	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"Free play because when children have freedom while playing, they will explore their creativity and innovation"	free play gives freedom and expose creativity	advantages of free play	Free Play Approach
"guided play because according to our students, they do not know how to play in nature the way we used to play as kids"	guided play because children have no connection with nature	children's level of nature connection	Choice of play approach depends on child-related factors
"free play because the child will be going to nature with him/her mom, so there will be safety (not going to dangerous places)"	free play if accompanied by adults	children's safety	Choice of play approach depends on child-related factors
"guided play because in nature you can not know what there is in the corners, a valley, a slope; you don't know what you might face especially if you didn't check up on the place from before; they might fall off trees, insects might bite them"; "guided play, because you can not leave the child on his/her own freedom in an outdoor place in nature, he/she might fall down in the valley"	guided play because children have no previous experience in nature	children's level of nature connection	Choice of play approach depends on child-related factors

"Free play in the sense that the children doesn't stay at the house all time and they would have a chance to release their energy"	free play to release energy	advantages of free play	Free Play Approach
"guided play just by the fact that we are present with them in nature"	guided play if accompanied by adults	children's safety	Choice of play approach depends on child-related factors
"free play but at the same time guided play: the child has the freedom to do whatever he/she wants but of course within the supervision of an adult because the child won't take into consideration whether this thing might hurt him/her or if he/she is in danger or not"	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"between free play and guided play; first I will explain for the children what they would benefit from nature and explain for them how to play in an educational way ; if something happened they are under my supervision";	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"guided play but at the same time I am letting children benefit from nature because some children do not have game ideas like the ones we used to play when we were young, others might not even care or might not even know how to play, ex: if you give a child a rock it won't occur to him/her to do with it a baby"	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"if you give a child a rock, he/she would hit his/her friend with it because nature is no longer within their interest"	guided play because children have no connection with nature	children's level of nature connection	Choice of play approach depends on child-related factors
"free play but guided at the same time, in between both concepts. You tell the child go and play and discover, bring me something from nature that can benefit me in doing something else"	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"guided play because there has to be a goal, what the children should acquire as skills like exploring their 5 senses"	guided play with goal or objective	there should be an objective for playing	Choice of play approach depends on educational goals
"guided play or semi-guided play because kids won't differentiate between what is right and what is wrong; as a teacher, I should guide them, then I leave them for free play while I observe their play"; "give instructions at first in order for them to know what they should do then you leave them on their freedom"	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"1: you guide kids and give them directions; 2: you let them play freely; 3: you observe them while playing"	integrated free and guided play	integrated approach	Integrated Free and Guided Play Approaches
"instructed and guided play because when children are engaged in a certain game, they might get inspired to create another game"	guided play inspires kids to create new games	advantages of guided play	Guided Play Approach

"free play but it is guided at the same time we explain for children that they play as they like but do not cross the play rules and instructions, there has to be rules and limits"; "safety rules to prevent anything from happening; guide them not to place random things, non edible things in their mouths"

integrated free and guided play

integrated approach

Integrated Free and Guided Play Approaches

"guided play because child safety in nature"

guided play to ensure child's safety

children's safety

Choice of play approach depends on child-related factors

"They might also have allergies towards certain plants,so as a teacher we need to know all that in advance"

guided play to ensure child's safety

children's safety

Choice of play approach depends on child-related factors

"guided play because children can play alone when they are with their families, parents would be responsible, but here in school, no, the teacher has to know the game, its goal, and what the child will acquire from playing, but of course not restricting the child and not being over his/her head all the time"

guided play with goal or objective

there should be an objective for playing

Choice of play approach depends on educational goals

APPENDIX E

RESULTS TABLES

- Matrix for enabling environments
- Panel of experts' photo booklet results
- Compiled background information of participants
- Open-ended questions result tables

Strengthen children's Biophilia = Love for Nature

General Objective	Key theories from literature	Theory Explanation	Major theory attributes in relation to children	Child's health and well-being developmental phases	Domain of Learning	Play Level	Sample of play activities	Main elements of play level	Space needed for activities	Mutually Inclusive Categories for Enabling Environments
Strengthen children's Biophilia = Love for Nature	Gadamer concept of play (2004)	"play described as a social and bodily action in active interaction with space"; " interaction and dialogue between living organisms and the environment forms basis and human lived experiences"	1- Increase pro-social skills and behaviors 2- Increase friendship development 3- Reduce anti-social behaviors	* Social development	Affective and Cognitive	1- Creative: symbolic play 2- Creative: socio- dramatic play	The types of activities that focuses on children's interaction with other kids and with adults, in relation to the environment; • Painting and drawing on walls • Arts and crafts activity using recycled materials and elements from nature (ex: paint ramps, leaves stamps) • Play involving counting like counting colored flowers in spring, collecting and counting rocks and stones • Reading aloud stories in the outdoors • Child sized board games on floor (ex: maze, snake and ladder, hopscotch) • Pretended play in sheltered/ constructed child sized houses • Role playing games	1- Fix man made / built 2- Fix natural 3- Movable natural 4- Movable buit/man-made	* Space for arts and crafts *Space for outdoor classroom * Space for floor games * Special places for retreat *vertical space for wall activity	Little Artists Little Builders
	Affordance theory in natural settings	"children focus on function rather than form; in which children perceive the functions of the landscape and use them for playing"	1- Increase physical activity (gross motor skills) 2- Increase play 3- Increase sense of exploration	* Physical development * Brain and cognitive development	Psychomotor	1- Active play	• Sliding down small/ medium mounds • Rolling along open grass • Climbing on trees/ climbing walls • Playing hide and seek in the outdoors • Swinging across bars • Balancing games on large tree logs • Rain water puddle play • Jumping and skipping on stepping stones/logs	1- Fix man made/ Built 2- Fixed natural	* Space for strucured games (slides, swings, climbing walls) * Open space for movement and physical activity	Little Gardeners
	Free play	"play as a spontaneous and child - initiated action"; "play that is not highly supervised by adult's presence and management and with fewer formally organized activities "	1- Increase creativity/imagination and fantasy 2- Increase phisical activity (Fine motor skill) 3- Increase play	* Physical development * Brain and cognitive development	Psychomotor and Cognitive	1- Creative: construction and problem solving play (play with objects) 2- Active play 3- Creative: symbolic play	• Constructing shelters and dens • Digging pits for fire, sand, mud..etc. • Sorting and classifying natural elements • Creating/constructing garden beds • Building animal shelters and niches (ex: bug hotels) • Creating land art displays and projects • Designing windmills, kites, boats, to experiment with wind	1- Fix natural 2- Movable natural 3- Movable man made/built	* Space for display * Space for construction with storage space for construction tools and equipments * Space for pits	Little Explorers
	Horticulture therapy	" Passive involvement with nature through the senses"; " Active participation through the practice of horticulture"	1- Increase attention 2- Reduce stress 3- Engagement of 5 senses	* Emotional development * Physiological development	Affective and Cognitive	1- Creative: sensory-motor play (play with object)	• Planting vegetables/ herbs/ scented garden • Watering vegetation (irrigation) • Tree planting and maintenance • Seeding activity • Composting activity • Meditation/ enjoying nature through classroom window during extreme weather conditions • Nature tables indoors in extreme weather conditions or limited outdoor space • Reading aloud stories in the outdoors • Sitting around a fire pit • Eating in the outdoors/under the shade of a tree • Planting green walls	1- Fix nature 2- Movable man made/built 3- Fix man made/built	* Space for outdoor classroom * Vertical space for green wall * Space for pits * Space for gardening. * Space for composting	Sensory World Enviromental Care
	Naturalistic Intelligence (Howard Gardener multiple intelligence theory)	"The ability to observe patterns in nature and understand natural and human made systems"; "Ability to function well in natural environments"	1- Increase in knowledge and observation. 2- Engagement of 5 senses. 3- Increase sense of exploration	* Emotional development * Brain and cognitive development	Cognitive and Affective	1- Creative: sensory-motor play (play with object) 2- Creative: symbolic play	• Collect and learn about elements of nature • Monitor/ learn/ experiment with seasonal changes • Collect opposite textures • Observe different patterns in nature • Sand play/ mud play/ water play • Harvesting herbal plants and vegetables and preparing edible food recipes • Exploring the "underworld" using dental mirrors (to view the underside of plants and leaves) • Use "rainbow chips", which are cut-up paint samples, to match with similar color in nature	1- Fix natural 2- Movable natural 3- Movable man made/built	* Space for hunting/gathering of natural treasures * Space for water feature/play (collected from rain water) * space for sand/mud play	Little Gymnast Quiet Retreat
	Theory of mind	"Ability to attribute mental states (beliefs,intents,desires, knowledge) to oneself and others and to understand that others have beliefs, desires and intentions that are different from one's own"; "Children as thinkers who are trying to understand the world around them"	1- Increase empathy with plans and animals 2- Increase/develop sense of caring	* Emotional development	Affective and Cognitive	1- Creative: socio-dramatic play	The types of activities that focus on children's interaction with the outside environment; • Exploring wildlife • Learning and implementing the 3E's: recycling, reusing, reducing • Raising guinea pigs, rabbits, and turtles... • Feeding birds, ducks, and cats.... • Searching for bugs, insects, frogs, snails, worms... • Caring for animals and pets	1- Movable natural 2- Movable man made/built 3- Fix natural	* Space for recycling units * Space for animals shelters * Space for attracting wildlife	Little Vet

Panel of experts' photo-booklet results														
Enabling Environmnet	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Frequency	Selected pictures
Little Artists	6	10	10	10	10	6	10	3	3	6	7	7	10	10
Little Builders	6	2	10	2	1	1	7	9	9	5	2	9	2 and 9	9
Little Gardeners	4	3	1	5	3	2	7	2	3	3	2	3	3	3
Little Explores	8	9	7	3	1	2	8	7	7	7	7	9	7	7
Seonsory World	3	5	5	2	4	4	8	8	8	4	4	6	4	8
Environemnt Care	2	2	1	9	8	1	9	9	9	1	10	10	9	9
Little Gymnast	7	5	9	9	9	6	9	9	9	1	9	9	9	9
Quite Retreat	10	1	10	6	1	6	9	3	1	3	1	3	1	1
Little Vet	6	3	7	2	4	2	8	2	3	8	10	3	2 and 3	2

Complied background information of participants

No	Gender	Level of Education	University Major or Vocational	Name of University	Year of Graduation	Years of Experience in Early Childhood Education
P1	Female	Master's Degree	Special Education	Lebanese University	2017	4
P2	Female	Technical Baccalaureate	Vocational Certification			25
P3	Female	Bachelor's Degree	Elementary Education	Open Arab University	2017	15
P4	Female	Bachelor's Degree	Arabic Language and Literature	Lebanese University	2014	4
P5	Female	Bachelor's Degree	Arabic Language and Literature	Lebanese University	2006	12
P6	Female	Bachelor's Degree	Elementary Education	Lebanese International University	2017	1
P7	Female	Master's Degree	Social Psychology	Lebanese University	2017	4
P8	Female	Master's Degree	Educational Supervision	Lebanese American University	2018	5
P9	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2017	1
P10	Female	Technical Baccalaureate	Vocational Certification	Teachers' House / Makasid Institute	1983	35
P11	Female	Master's Degree	Early Childhood Education	Lebanese University	2004	11
P12	Female	Bachelor's Degree	Science in Education	Saint Joseph University	2003	10
P13	Female	Master's Degree	Science and Mathematics for Elementary Education	Lebanese University	2014	2
P14	Female	Lebanese Baccalaureate				29
P15	Female	Bachelor's Degree	Social Sciences	Lebanese University	2011	6
P16	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2017	1
P17	Female	Bachelor's Degree	Arabic Language and Literature	Beirut Arab University	1996	2
P18	Female	Bachelor's Degree	Early Childhood Education	Lebanese American University	2012	5
P19	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2009	8
P20	Female	Bachelor's Degree	Early Childhood Education	Haigazian University	2016	2
P21	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2015	3
P22	Female	Lebanese Baccalaureate				21
P23	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2004	15
P24	Female	Lebanese Baccalaureate				10
P25	Female	Bachelor's Degree	English Language and Literature	Lebanese University	2010	8
P26	Female	Bachelor's Degree	Social Sciences	Lebanese University	2018	3
P27	Female	Bachelor's Degree	Law and political Science	Beirut Arab University	2005	20
P28	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2017	1
P29	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2014	2
P30	Female	Bachelor's Degree	History	Lebanese University		28
P31	Female	Bachelor's Degree	psychology	Lebanese University	2018	6
P32	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2008	10
P33	Female	Bachelor's Degree	Pre-school Education	Lebanese American University	1984	30

P34	Female	Bachelor's Degree	Math Education for Secondary Level	Lebanese American University	2007	4
P35	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2015	3
P36	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2015	3
P37	Female	Bachelor's Degree	Pre-school Education	Lebanese American University	2007	12
P38	Female	Master's Degree	English Language and Literature	Lebanese University	2014	3
P39	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2012	7
P40	Female	Bachelor's Degree	Early Childhood Education	Lebanese University	2006	13
P41	Female	Bachelor's Degree	Accounting	Beirut Arab University	2004	26
P42	Female	Bachelor's Degree	Teaching English as a Foreign Language	Lebanese American University	2003	15
P43	Female	Lebanese Bacculaureate				10
P44	Female	Lebanese Bacculaureate				14

Open-ended questions result tables: methods to introduce nature through outdoor playgrounds and indoor classrooms



Methods to introduce nature in outdoor playgrounds	Examples
Nature through gardening	<ul style="list-style-type: none"> a. Gardening activities b. Learning about agriculture (growing and harvesting fruits, vegetables and crops)
Nature through urban vegetation	<ul style="list-style-type: none"> a. Visiting and observing green areas in the context of the city/school
Nature through exploration	<ul style="list-style-type: none"> a. Through the five senses b. Through inquiry c. Through sand play
Nature through outdoor physical activity	<ul style="list-style-type: none"> a. Psychomotricity and developing of motor skills
Nature through climate	<ul style="list-style-type: none"> a. Learning about seasonal change
Nature through compassion	<ul style="list-style-type: none"> a. Animal/pet care and compassion b. Environment care and compassion
Nature through outdoor classroom	<ul style="list-style-type: none"> a. Studying and reading outside
Nature through art	<ul style="list-style-type: none"> a. Arts and crafts



Methods to introduce nature in indoor classroom	Examples
Nature through Audio-visuals	<ul style="list-style-type: none"> a. Audio-visual method (Multimedia and technology)
Nature through science	<ul style="list-style-type: none"> b. Science education c. Nature tables indoor
Nature through field trips	
Nature through window views	<ul style="list-style-type: none"> a. Indoor gardening activities b. Cooking activities (harvesting then cooking) c. Constructing planters from recycled materials
Nature through window views	<ul style="list-style-type: none"> a. Related to school context and classroom location in relation to playground
Nature through indoor arts	<ul style="list-style-type: none"> a. Arts and crafts
Nature through moral values	<ul style="list-style-type: none"> b. Teaching about cleanliness of the environment
Nature through compassion	<ul style="list-style-type: none"> a. Animal/pet care and compassion (to bring pets to classroom) b. Environment care and compassion



APPENDIX F




LIST OF OUTDOR ACTIVITIES FOR ENABLING ENVIRONMENTS OF BIO-PHILIA




Litter Artists (Outdoor Art Studio)



Type of Space	Sub types of space	Sample of Activities	Space dimensions	Mood Picture
Vertical Space	<p><u>Walls / Fences:</u> cement wall - metal fence - welded wire fence - wooden fence - chain link fence</p>	Painting and drawing	<p>Width= 0.8 m, Length= 0.6 m, Area / child= 0.48 m² Area / 20 children= 9.6 m²</p>	
		Paint bombs	<p>Width= 1m, Length= 2m, Area/activity= 2m², 1 paint bomb for entire playground</p>	



		Sticky murals	Width= 0.8m, Length= 0.6m, Area/child= 0.48 m ² Area/ 20 children= 9.6 m ²	
		Decoration crafts from recycled materials (bottle cap wall murals)	Width= 0.8 m, Length= 0.6 m, Area / child= 0.48 m ² Area / 20 children= 9.6m ²	



	<p>Structures: metal, plastic, or wood; could be fixed or movable</p>	<p>Painting on art easels (double or triple plexiglass sides)</p>	<p>* 3 sided easle fits 3 children, length of panel = 1.8m, width of panel=0.03m, Area/child= 0.54 m2 Area/ 20 children= 10.8 m2 (7 triple sided easles) * 2 sided easle fits 4 children, length of panel= 0.6m , width of panel=0.10m, Area/child= 0.4m Area/20 children= 8 m2 (5 double sided easles)</p>	
		<p>Nature weaving frames</p>	<p>Width= 0.85m, Length= 0.6 m, Area / child= 0.51 m2 Area / 20 children= 10.2 m2</p>	



	<p><u>Tree bulk:</u> medium to big tree trunks with DBH (Diameter at Breasts Height) $\geq 0.3\text{m}$ and perimeter $\geq 0.94\text{m}$</p>	<p>Tree bulk rubbings/painting</p>	<p>Width= 0.4m, Length= 0.6m, Area/child=0.24m² Area / 20 children= 4.8m² (depends on tree parimeter)</p>	
<p>Horizontal Space</p>	<p><u>Structures:</u> tables- desks</p>	<p>Painting and drawing</p>	<p>Width= 0.65m, Length= 0.65m, Area/child= 0.42m² Area/ 20 children= 8.45 m²</p>	
		<p>Crafts activities from natural elements</p>	<p>Width= 0.65m, Length= 0.65m, Area/child= 0.42m² Area/ 20 children= 8.45 m²</p>	



	<p><u>Floor (any type):</u>bare grounds, asphalted surface, pavement, surface planted with ground cover or grass</p>	<p>Painting and drawing</p>	<p>Width= 0.6m, Length= 1.2m, Area/child= 0.7m² Area/ 20 children= 14.4m²</p>	
		<p>Paint ramps</p>	<p>Width= 1m, Length= 3m, Area/1 paint ramp=3m² 1-2 paint ramps for entire playground</p>	
		<p>Land art projects (Leaf start, petal rainbow)</p>	<p>Width= 0.6m, Length= 1.2m, Area/child= 0.7m² Area/ 20 children= 14.4m²</p>	



		<p>Child-size board games</p>	<p>1 type of game for entire playground, Sundial=6m x 4m, Area of sundial= 24m² Twister=5.4m x 2.4m, Area of twister= 13m², Hopscotch=4.5m x 3m Area of hopscotch= 13.5m²</p>	
		<p>Mini-car tracks</p>	<p>Width= 3m, Length= 3m, Area/activity= 9m², 1 mini-car track for entire playground</p>	



Litter Builders				
Type of Space	Sub types of space	Sample of Activities	Space dimensions	Mood Picture
Vertical Space	<u>Walls / Fences:</u> vegetated fence- green wall- metal fence - wooden fence - chain link fence	Building bug hotels	Depends on the design of the structure, 1 bug hotel for entire playground Depth= 0.2m, Height= 0.8m Width= 0.6 m Horizontal area/structure & 1 child= 0.48m ²	
		Magnetic wall with magnet chutes and tubes	Width= 0.8 m, Length= 0.6 m, Area / child= 0.48 m ² Area / 20 children= 9.6 m ²	


		Peg boards	<p>Width= 0.8m, Length= 0.6m, Area/child= 0.48 m² Area/ 20 children= 9.6 m²</p>	
	<u>Tree bulk / branches:</u>	Building bird houses or feeders	<p>Width= 0.4m, Length= 0.6m, Area/child=0.24m² Area / 20 children= 4.8m² (depends on tree parimeter)</p>	

<p>Horizontal Space</p>	<p><u>Structures:</u> construction table - tool kit table</p>	<p>Pretended play as construction worker or engineer</p>	<p>1 construction table for entire playground (dimension includes table with sapce around for children's movement) Width= 2.2m , Length= 1.1m, Area/table= 2.42m²</p>	
	<p><u>Floor (any type):</u> bare grounds, asphalted surface, pavement, surface planted with ground cover or grass</p>	<p>Balancing / gravity activities on small scale</p>	<p>Width= 0.6m, Length= 1.2m, Area/child= 0.7m² Area/ 20 children= 14.4m²</p>	



		Balancing / gravity activities on large scale	Width= 3m, Length= 3m, Area/activity= 9m ² ,	
		Building with recycled materials (ex: tunnels, bridges, other structures)	Width= 3m, Length= 3m, Area/activity= 9m ² ,	



		Life-size building blocks	Width= 3m, Length= 3m, Area/activity= 9m ² ,	
	<u>Floor (only pervious surfaces):</u> surface planted with ground cover or grass, gravel, sand, soil	Digging pits / holes	Width= 3m, Length= 3m, Area/activity= 9m ² ,	

		River foil	<p>Width= 0.6m, Length= 1.2m, Area/child= 0.7m² Area/ 20 children= 14.4m²</p>	
Mixed space (both vertical and horizontal)	<p><u>Surrounding trees:</u> living or dead tree trunk used as base</p>	Den / shelters/ tepees construction	<p>Width= 2m, Length= 2m, Height= 1.5m Horizontal area/activity= 4m² Vertical area/activity= 3m²</p>	



	<p><u>Structures:</u> vertical or wigwam wooden posts</p>	<p>Den making posts</p>	<p>* 5 vertical posts Height= 2.25m and below, Spacing between posts= 1.5m Area of pentagon=3.87m² *3 Wigwam posts Height= 2.3m, Length= 2m, Width= 2.3m Area/3 wigwam posts= 4.6m²</p>	
--	---	-------------------------	---	---



Little Gardeners




Type of Space	Sub types of space	Sample of Activities	Space dimensions	Mood Picture
Vertical Space	<u>Walls:</u> cement wall - brick wall	Planting green walls (structures directly attached to walls, fixed planting medium)	Depends on the design of the planters; Width= 0.8 m, Length= 0.75m (including 0.15m wall planter thickness) Area / child= 0.6m ² Area / 20 children= 12m ²	
	<u>Fences:</u> metal fence - welded wire fence - wooden fence - chain link fence	Planting green walls (using movable planting medium, could be from recycled materials)	Width= 0.8 m, Length= 0.8 (including 0.2m planter thickness) Area / child= 0.64m ² Area / 20 children= 12.8m ²	



	<p><u>Structures:</u> free-standing structures (wooden frames)</p>	<p>Planting green walls on free-standing structures</p>	<p>Width= 0.8 m, Length= 0.75m (including 0.15m structure thickness) Area / child= 0.6m² Area / 20 children= 12m²</p>	
<p>Horizontal Space</p>	<p><u>Structures:</u> tables- desks</p>	<p>Seeding activity</p>	<p>Width= 0.65m, Length= 0.65m, Area/child= 0.42m² Area/ 20 children= 8.45 m²</p>	



	<p><u>Structures:</u> wooden planters or raised beds</p>	<p>Planting flower, vegetables, herbs, or scented gardens (activities including plant irrigation, maintenance, monitoring and harvesting)</p>	<p>*Large garden bed=3.5m x 1m accommodating 20 children; Area/20 children= 2.2m x 4.7m= 10.3m² *Medium garden bed=3m x 1m accommodating 18 children; Area/18 children= 2.2m x 4.2m= 9.2m² *Medium to small garden bed=2.5m x 1m accommodating 16 children; Area/16 children= 2.2m x 3.7m= 8.14m² *Small garden bed=2m x 1m accommodating 14 children; Area/14 children= 2.2m x 3.2m= 7m²</p>	
	<p><u>Structures:</u> recycled materials planters (ex:tires)</p>	<p>Planting succulents, flowers, herbs or scented plants</p>	<p>1tire for every 4 children Width= 1.5m, Length= 1.5m, Area/4 children=2.25m² Area/20 childre= 11.25m²</p>	

<p>Mixed space (both vertical and horizontal)</p>	<p><u>Trees:</u> Around fruit bearing trees or vegetation or orchards</p>	<p>Fruit picking activity</p>	<p>Depends on the fruit trees/orchards being harvested; Width= 2m, Length= 2m, Height= 1.5m Area/activity= 4m²</p>	
	<p><u>Structures:</u>Green House</p>	<p>Various planting activities (used during severe weather conditions and for extending plants growing seasons)</p>	<p>1 green house for entire playground, dimension depends on configuration Width= ranging between 2 - 3 m Length= can reach up to 6m Popular dimensions= 2x6m or 3x4m with Area= 12m²</p>	



Litter Explorers				
Type of Space	Sub types of space	Sample of Activities	Space dimensions	Mood Picture
Horizontal Space	<u>Structures:</u> tables- desks	Nature Table Activities (sorting or counting with natural elements, exploring with patterns and textures)	Width= 0.65m, Length= 0.65m, Area/child= 0.42m ² Area/ 20 children= 8.45 m ²	
		Geology Tests (ex:testing rocks and minerals with magnifying glass, rock scratching)	Width= 0.65m, Length= 0.65m, Area/child= 0.42m ² Area/ 20 children= 8.45 m ²	



		<p>Science activities and experiments (ex:exploring natural elements using microscope)</p>	<p>Width= 0.65m, Length= 0.65m, Area/child= 0.42m² Area/ 20 children= 8.45 m²</p>	
	<p><u>Floor (any type):</u>bare grounds, asphalted surface, pavement, surface planted with ground cover or grass</p>	<p>Tangled in food web game (learning how things in a system are connected)</p>	<p>Width= 3m or 4m, Length= 2m or 1.5m, Area/ 20 children= 6m²</p>	
	<p><u>Floor (only pervious surfaces):</u>surface planted with ground cover or grass, sand, soil</p>	<p>Sediment/ soil jars</p>	<p>Width= 0.6m, Length= 1.2m, Area/child= 0.7m² Area/ 20 children= 14.4m²</p>	



<p>Mixed space (both vertical and horizontal)</p>	<p><u>Natural or landscaped area/corner:</u> ground cover or grass, soil, dense bushes or shrubs, big rocks, trees</p>	<p>Nature treasure hunt (scavenger hunt)</p>	<p>*Corner garden option1=1.5m x 3.5m = 5.3m², option2=3m x 3.5m = 10.5m², option3=3.5m x 3.5m = 12.3m², option4=2.5m x 5m = 12.5m², option5=3.5m x 4.5m = 15.75m² *Linear garden option1=5.5m x 1.8m = 10m², option2=8.8m x 1.8m = 15.8m²</p>	
		<p>Rainbow chip or color wheel</p>	<p>*Corner garden option1=1.5m x 3.5m = 5.3m², option2=3m x 3.5m = 10.5m², option3=3.5m x 3.5m = 12.3m², option4=2.5m x 5m = 12.5m², option5=3.5m x 4.5m = 15.75m² *Linear garden option1=5.5m x 1.8m = 10m², option2=8.8m x 1.8m = 15.8m²</p>	



		<p>Bird watching</p>	<p>*Corner garden option1=1.5m×3.5m=5.3m², option2=3m×3.5m=10.5m², option3=3.5m×3.5m=12.3m², option4=2.5m×5m=12.5m², option5=3.5m×4.5m=15.75m² *Linear garden option1=5.5m×1.8m=10m², option2=8.8m×1.8m=15.8m²</p>	
		<p>Free unstructured exploration of natural elements and living organisms</p>	<p>*Corner garden option1=1.5m×3.5m=5.3m², option2=3m×3.5m=10.5m², option3=3.5m×3.5m=12.3m², option4=2.5m×5m=12.5m², option5=3.5m×4.5m=15.75m² *Linear garden option1=5.5m×1.8m=10m², option2=8.8m×1.8m=15.8m²</p>	




Sensory World



Type of Space	Sub types of space	Sample of Activities	Space dimensions	Mood Picture
Vertical Space	<p>Walls: cement wall - brick wall- wooden wall panel</p>	Water canal	<p>Width= 0.8 m, Length= 0.75m (including 0.15m canal thickness) Area / child= 0.6m² Area / 20 children= 12m²</p>	
		Musical wall (recycled materials)	<p>1 musical wall for entire playground, accomodates 5 children at once Width= 2m, Height= 2m, Length=0.8m, Vertical Area/ wall= 4m², Horizontal Area/5 children=1.6m²</p>	

	<p><u>Structures:</u> free-standing structures (wooden pallets)</p>	<p>Cascading water wall</p>	<p>1 water wall for entire playground, used from both sides, accomodates 4 children at once Width= 0.8m, Length=2m(1 m from each side), Area/wall=1.6 m²</p>	
<p>Horizontal Space</p>	<p><u>Structures:</u> play kitchen desk/ setup</p>	<p>Mud Kitchen</p>	<p>1 mud kitchen for entire playground (dimension includes table with sapce around for children's movement) Width= 2.2m Length= 1.1m, Area/table= 2.42m²</p>	



	<p><u>Structures:</u> tables- desks</p>	<p>Cooking in nature (ex: chopping greens to make salad)</p>	<p>Width= 0.65m, Length= 0.65m, Area/child= 0.42m² Area/ 20 children= 8.45 m²</p>	
	<p><u>Floor/Pits (only pervious surfaces):</u> surface planted with ground cover or grass, sand, soil, gravel, vegetated swale, small stream, pond</p>	<p>Sand play</p>	<p>1 sand pit for entire playground Area / child= 0.75m² Area / 20 children= 15m²</p>	



		<p>Water play</p>	<p>1 water pit for entire playground (linear organic shape), possibility of having water pump Width= 4.7m, Length= 3.5m, Area/child=0.8m² Area / 20 children= 16.45m²</p>	
		<p>Water bottle sprinkler</p>	<p>1 bottle sprinkler for every 4 children Width= 1.6m, Length= 1.6m, Area/4 children=2.56m² Area/20 childre= 12.8m²</p>	



		<p>Fire pit (roasting snacks like marshmallow, bread, apples)</p>	<p>1 fire pit for entire playground, Fire pit diameter ranges from 0.6m-1.8m with average 1.2m, Safety space in all direction 1.5m Area/pit= 4.2m x 4.2m= 17.6m²</p>	
	<p><u>Floor (any type):</u>bare grounds, asphalted surface, pavement, surface planted with ground cover or grass</p>	<p>Mud Tub</p>	<p>1 mud tub accomodates 10 children Width= 1.5m or 1m, Length=2m or 3m , Area/tub= 3m²</p>	
		<p>Music circle (playing musical instruments)</p>	<p>Width= 3m or 4m, Length= 2m or 1.5m, Area/ 20 children= 6m²</p>	



		Tasting rain (tongue showers)	Width= 0.4 meters Length= 0.6 meters Area/child= 0.24m ² Area/ 20 children= 4.8m ²	
		Sensory path (bare foot)	1 sensory path for entire playground Width= 0.4m, Length= 3m, Linear Area= 1.2m ²	



Environemnt Care

Type of Space	Sub types of space	Sample of Activities	Space dimensions	Mood Picture
Horizontal Space	<u>Structures:</u> tables- desks	Making a rain guage from recycled water bottles	Width= 0.65m, Length= 0.65m, Area/child= 0.42m ² Area/ 20 children= 8.45 m ²	
	<u>Structures:</u> containers of any size, compost bins (wood, plastic, stainless-steel) or compost tumbler, recycling bins	Rainwater harvesting/collecting	4 children per 1 experiment Width= 1.6m, Length= 1.8m, Area/4 children= 2.88m ² , Area/20 children=14.4m ²	



		Composting	<p>1-2 compost bins depending on amount of trash produced</p> <p>*Square compost bin Width=ranges 0.9m-1.5m, Length=ranges 0.9m-1.5m, Area/bin= ranges 0.81m² to 2.25m²</p>	
		Vermicomposting	<p>Area/ 1bin & children= ranges 3.15m² to 5.67m²</p> <p>*Tumbler compost bin Width= 0.75m, Length=0.8m, Height= 1,2m, Area/bin= 0.6m² Area/1bin & 2 children= 1.1m²</p>	




		<p>Recycling and sorting trash</p>	<p>1 zone dedicated for recycling/sorting bins Width= 1.3m, Length= 2.4m, Area/1big bin with 3-4 openings=3.12</p>	
	<p><u>Floor (any type):</u> bare grounds, asphalted surface, pavement, surface planted with ground cover or grass</p>	<p>Playground clean up</p>	<p>Depends on playground size</p>	



		Making wind turbines from recycled materials	Width= 0.4 meters Length= 0.6 meters Area/child= 0.24m ² Area/ 20 children= 4.8m ²	
		Making recycled papers	Width= 0.6m, Length= 1.2m, Area/child= 0.7m ² Area/ 20 children= 14.4m ²	



		<p>Water pollution experiment</p>	<p>Width= 0.6m, Length= 1.2m, Area/child= 0.7m² Area/ 20 children= 14.4m²</p>	
	<p><u>Floor (only pervious surfaces):</u> surface planted with ground cover or grass, sand, soil</p>	<p>Landfill experiment</p>	<p>Width= 3m, Length= 3m, Area/activity= 9m²,</p>	



Litter Gymnasts



Type of Space	Sub types of space	Sample of Activities	Space dimensions	Mood Picture
Vertical Space	<p>Walls: cement wall - brick wall- pressure treated boards-plywood-composite board</p>	Toddler climbing wall	<p>1-2 climbing walls for entire playground Width=1.2m, Height= 2.4 m, Vertical area / 1 wall= 2.88 m² with 32 climbing holds Horizontal area/1 wall= 3.24m², accomodating for 3 children with 1.8m to 2.4m clear landing</p>	
Horizontal Space	<p>Floor (any type):bare grounds, asphalted surface, pavement, surface planted with ground cover or grass</p>	Running(free play)	<p>1 child needs 0.7m width and 3-4m length to run, Area / 20 children= 49m²</p>	


		Animal/nature yoga	<p>Width= 0.4m, Length= 1.1m, Area/child= 0.44m², Area/20 children=8.8m²</p>	
		Puddle jumping	<p>Several ones per playground, Width= 0.5m, Length= 1.10m, Area/child= 0.55 m² Area/ 20 children= 11 m²</p>	
		Wood pump ramp for bikes, cars, scooters, tricycles, four-wheels	<p>2 sided ramp, several ones for entire playground, Length= 2.5m, Width= 1 m, Height= 0.5m, Area/2sided ramp= 2.5m²</p>	

	<p><u>Floor (only pervious surfaces):</u>surface planted with ground cover or grass, mulch, sand, soil, rubber tiles</p>	<p>Balancing beam</p>	<p>1 beam fits 2 children at the same time, several beams for entire playground Width= 0.3 m, Length= 2.4 m, Maximum height=0.3m Area / beam= 0.7 m²</p>	
		<p>Stepping poles / stepping stones or logs</p>	<p>1 setup for entire playground Width= 3.4m, Length= 4 m, Area /setup= 13.6 m², Minimum area required= 9.6m²</p>	



<p>Mixed space (both vertical and horizontal)</p>	<p><u>Natural or landscaped area/corner:</u> ground cover or grass, soil, dense bushes or shrubs, big rocks, trees</p>	<p>Hide and seek</p>	<p>Using the entire playground space, including: *Corner garden option1=1.5m×3.5m=5.3m², option2=3m×3.5m=10.5m², option3=3.5m×3.5m=12.3m², option4=2.5m×5m=12.5m², option5=3.5m×4.5m=15.75m² *Linear garden option1=5.5m×1.8m=10m², option2=8.8m×1.8m=15.8m²</p>	
	<p><u>Mounds or hills:</u> small to medium size</p>	<p>Climbing up then rolling or sliding down (mound can include slide, tunnel)</p>	<p>Every 1m high mound, 3m to 4m width with 1 m landing sapce on top Width= 6m, Length= 6m, Diameter= 6m² Rectangular area= 36m², Circular area= 28m²</p>	



	<p><u>Play structures:</u></p>	<p>Traditional jungle gym</p>	<p>Endless design options (examples) Width= 1.8m or 2m or 3.1m Length=3.8m or 10m or 4.8m Height= 2.2m or 4m or 2m Horizontal area/structure=6.8m² or 14.9m² or 20m²</p>	
	<p><u>Surrounding trees:</u> tree trunks and branches</p>	<p>Unstructured tree climbing</p>	<p>* Good climbing tree for kids should have a first limb no more than 0.6m off the ground with additional branches spaced 0.3m to 0.6m up the stem *1.8m to 2.4m clear landing in all directions</p>	



		<p>Structured tree climbing</p>	<p>Tree diameter= 1m, Width with child= 0.4m, Length with child= 1.6m, Height for climbing=2.4m, Horizontal area/child=0.64m², 1.8m to 2.4m clear landing</p>	
		<p>Tire swing</p>	<p>1-2 tire swings for entire playground depending on availability of suitable trees *Branch diameter= 0.3m, Height= 2m from ground to hanging point, *Width of tire= 0.7m, Length of tire= 0.7m, Area/tire= 0.5m² *1.8m to 2.4m clear landing in all directions</p>	



		Rope (with knots) swing	Several ropes for entire playground depending on availability of suitable trees *Branch diameter= 0.3m, Height= 2m from ground to hanging point, *1.8m to 2.4m clear landing in all directions	
--	--	-------------------------	---	---


Quiet Retreat


Type of Space	Sub types of space	Sample of Activities	Space dimensions	Mood Picture
Horizontal Space	Structures: tables- desks picnic tables	Eating outdoors /picnic	Width= 0.65m, Length= 0.65m, Area/child= 0.42m ² Area/ 20 children= 8.45 m ²	
	Structures: porch swings- hammocks	Rocking and socializing	1-2 structures for entire playground, accomodates 2-3 children Width= 1m, Length= 5m, Area/structure= 5m ²	


	<p><u>Structures:</u> playhouses (plastic or wood)</p>	<p>Pretended play</p>	<p>1-2 playhouses for entire playground, dimensions depend on design *option1= 0.5m x0.7m = 0.35m² (for 1 child) *option2= 1m x 1.5m = 1.5m² (for 2 children) *option3= 2m x 2.3m = 4.6m² (for 5 children) *option4= 3m x 3m = 9m² (for 7 children)</p>	
	<p><u>Floor (any type):</u>bare grounds, asphalted surface, pavement, surface planted with ground cover or grass</p>	<p>Forming letters with body</p>	<p>Width= 0.4m, Length= 1.1m, Area/child= 0.44m², Area/20 children=8.8m²</p>	


<p>Mixd space (both vertical and horizontal)</p>	<p><u>Surrounding trees:</u> tree trunks and branches</p>	<p>Tree house</p>	<p>1 tree house for entire playgroud, accomodates 4 to 10 children depending on platform dimensions Height= 2.7 m off ground, Platform width= ranging from 1m to 2m, Platform length=ranging from 1m to 2m, Platform area= ranging from 1m² to 4 m²</p>	
	<p><u>Structure:</u> wooden deck- wooden pallets</p>	<p>Outdoor stage/ performance zone</p>	<p>1 stage for entire playground Average width= 2m, Average length=4.8m, Average height=2.2m</p>	


		<p>Outdoor classroom setup (ex: story reading sessions)</p>	<p>Setup includes chalk board and seatings Width= 5m, Length= 7.7m, Height= 1.4m, Area/setup=38.5m²</p>	
	<p><u>Structures</u> L-shaped or circle shaped seats-cozy nooks-tents or wigwam tents- teepees</p>	<p>Walk and talk circle (flexible seats)</p>	<p>Height= 1.4m, Length= 0.5m, Width= 0.8m Area/1 seat= 0.4m², Area/ 6 seats (arranged in circle shape)= 3.8m², accomodating for 6 children at once</p>	


		Gatherings (pairs or small groups of 3-5 children)	Height= 2.3m, Length= 2m, Width= 2.3m Area/tent= 4.6m ² , accommodating 5 children at once	
--	--	--	--	---

Litter Vet				
Type of Space	Sub types of space	Sample of Activities	Space dimensions	Mood Picture
Vertical Space	<u>Tree bulk / branches:</u>	Observing birds on bird houses or feeders	Width= 0.4m, Length= 0.6m, Area/child=0.24m ² Area / 20 children= 4.8m ² (depends on tree parimeter)	

<p>Horizontal Space</p>	<p><u>Structures:</u> cat/dog houses</p>	<p>Playing with cats/dogs</p>	<p>*Cat house Width= 0.3-0.4m, Length= 0.6m, Height= 0.6m, Area/house=0.21m² Area/house & child=0.48m² *Dog house (depends on dog type) Width= 0.6-0.7m, Length= 0.6-1m, Height= 0.7-0.8m, Average area/house=0.52m² Area/house & child=0.91m²</p>	
-------------------------	--	-------------------------------	---	---

<p>Mixed space (both vertical and horizontal)</p>	<p><u>Floor (any type)</u>:bare grounds, asphalted surface, pavement, surface planted with ground cover or grass, soil, mulch, wooden deck</p> <p><u>Fence</u>:metel fence - welded wire fence - wooden fence - chain link fence</p>	<p>Farm animals zone (including pond, hen houses or chicken coop, rabbit hutch)</p>	<p>Designed as a fenced zone including space for children's and animals' movement, Length=6m, Width=4m, Fence height=1 m, Area=24m², *Rabbit hutch, Length=1.5m, Width= 1 m, Area= 1.5m² *Pond, Width= 1.5m, Length=2.5m, Area= 3.75m², *Chicken coop or hen house, Length= 2m, Width=1.8, Area= 3.6m²</p>	  
---	--	---	--	--

	<p><u>Natural or landscaped area/corner:</u> ground cover or grass, soil, dense bushes or shrubs, big rocks, trees</p>	<p>Wildlife sactuary (turtles, small reptiles, insects, snails)</p>	<p>*Corner garden option1=1.5mx3.5m=5.3m², option2=3mx3.5m=10.5m², option3=3.5mx3.5m=12.3m², option4=2.5mx5m=12.5m², option5=3.5mx4.5m=15.75m² *Linear garden option1=5.5mx1.8m=10m², option2=8.8mx1.8m=15.8m²</p>	
--	--	---	---	--

	<p><u>Structures:</u> Aviary or walk-in aviary</p>	<p>Observing birds/butterflies</p>	<p>Depends on design and number of birds, *Aviary, Width= 1.8m, Length= 1.8m, Height=0.9m Area= 3.24m², *Walk-in aviary, Width= 1.8m, Length= 2.5m, Height=2.25m Area= 4.5m²,</p>	
--	--	------------------------------------	---	---

APPENDIX G
TRIANGULATION METHOD

Running(free play) (Area / 20 children= 49m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Animal/nature yoga (Area/20 children=8.8m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Puddle jumping (Area/ 20 children= 11m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Wood pump ramp for bikes, cars, scooters, tricycles, four-wheels (Area/2sided ramp= 2.5m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Balancing beam (Area / beam= 0.7 m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stepping poles / stepping stones or logs (minimum area required= 9.6m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hide and seek (area ranges 5 to 15.8m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Climbing up then rolling or sliding down mounds (rectangular area= 36m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Traditional jungle gym (area/structure=6.8m2 or 14.9m2 or 20m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Unstructured tree climbing (1.8m to 2.4m clear landing in all directions)	✓	✓	✓	✓	✓	✓	✓	✓	✓	x
Structured tree climbing (area/child=0.64m2, 1.8m to 2.4m clear landing)	✓	✓	✓	✓	✓	✓	✓	✓	✓	x
Tire swing (1.8m to 2.4m clear landing in all directions)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rope (with knots) swing (1.8m to 2.4m clear landing in all directions)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quiet Retreat										
Eating outdoors /picnic (Area/ 20 children= 8.45 m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rocking and socializing (hammock, porch swings) (Area/structure= 5m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pretended play (area ranges 0.3-9m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Forming letters with body (Area/20 children=8.8m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tree house (area= ranging from 1m2 to 4 m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Outdoor stage/ performance zone (area=9.6m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Outdoor classroom setup (Area/setup=38.5m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Walk and talk circle (flexible seats) (Area/ 6 seats = 3.8m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gathering tents (Area/tent= 4.6m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Litter Vet										
Observing birds on bird houses or feeders (Area / 20 children= 4.8m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Playing with cats/dogs (Area/house &child=0.48 Or 0.91m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Farm animals zone (including pond, hen houses or chicken coop, rabbit hutch) (Area=24m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wildlife sanctuary (area ranges 5 to 15.8m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Aviary (area ranges 3.24 - 4.5 m2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

culturally not acceptable

Already existing in schools

No information gathered