



“Exploring Children’s Needs of Natural Elements in the School Environment under Hot Desert

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AGEND

A

- RESEARCH AIM
- BACKGROUND
- METHODOLOGY
- RESULTS
- FUTURE RESEARCH

- **Aridity**
- **Lack of vegetation**
- **High Temperatures**
- **High Humidity levels**
- **Low Precipitations**

UAE's Weather



Children living in a **hot desert environment** such as the United Arab Emirates (UAE) may **lack exposure to natural elements.**



Research Aim

To investigate children's current experiences with natural elements in UAE's learning environments, and their possible need for the integration of vegetation, water and other natural elements.

BIOPHILLIA

An innate tendency and urge that humans possess to seek connections with nature and other forms of life. - Edward O. Wilson



CHILDREN'S BIOPHILIA



Why & How shall we nurture their
connection to nature?

WHAT DOES THE LITERATURE TELL US?

**90% of our time
is spent indoors**

Nature has benefits on
cognition, mood,
productivity surgery
recovery, mental health...
etc.

Specific benefits of nature
to children's development
and learning experience

Biophilic Design

HOW CAN WE BRING THE OUTDOORS IN?



14 Patterns of Biophilic Design

Direct Connection

1. Visual Connection with Nature
2. Non-Visual Connection with Nature
3. Non-Rhythmic Sensory Stimuli
4. Thermal & Airflow Variability
5. Presence of Water
6. Dynamic & Diffuse Light
7. Connection with Natural Systems

Indirect – natural analogues

8. Biomorphic forms & patterns
9. Material connection with nature
10. Complexity and order

Human Spatial response

11. Prospect
12. Refuge
13. Mystery
14. Peril

Research with Young Participants

- Anonymity, confidentiality and safeguarding
- Visual data
- Drawing allows children to elaborate and provide more verbal input
- The challenge of Attention Spans
- The age range



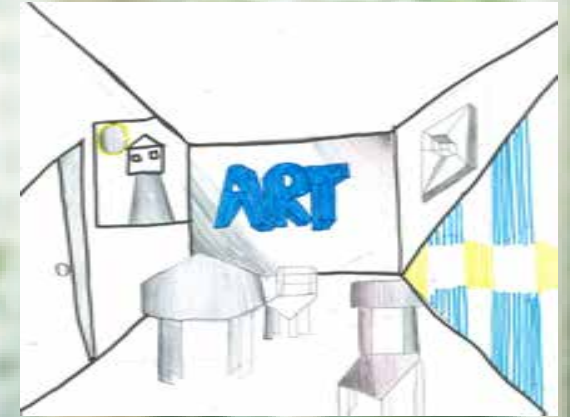


Draw & Tell

**Picture
Selection**

**Semi-
structured
Interviews**

Draw & Tell Sessions






















Nature-deficit Disorder:

“it is not meant to be a medical diagnosis but rather to serve as a description of the human costs of alienation from the natural world” - Richard Louv



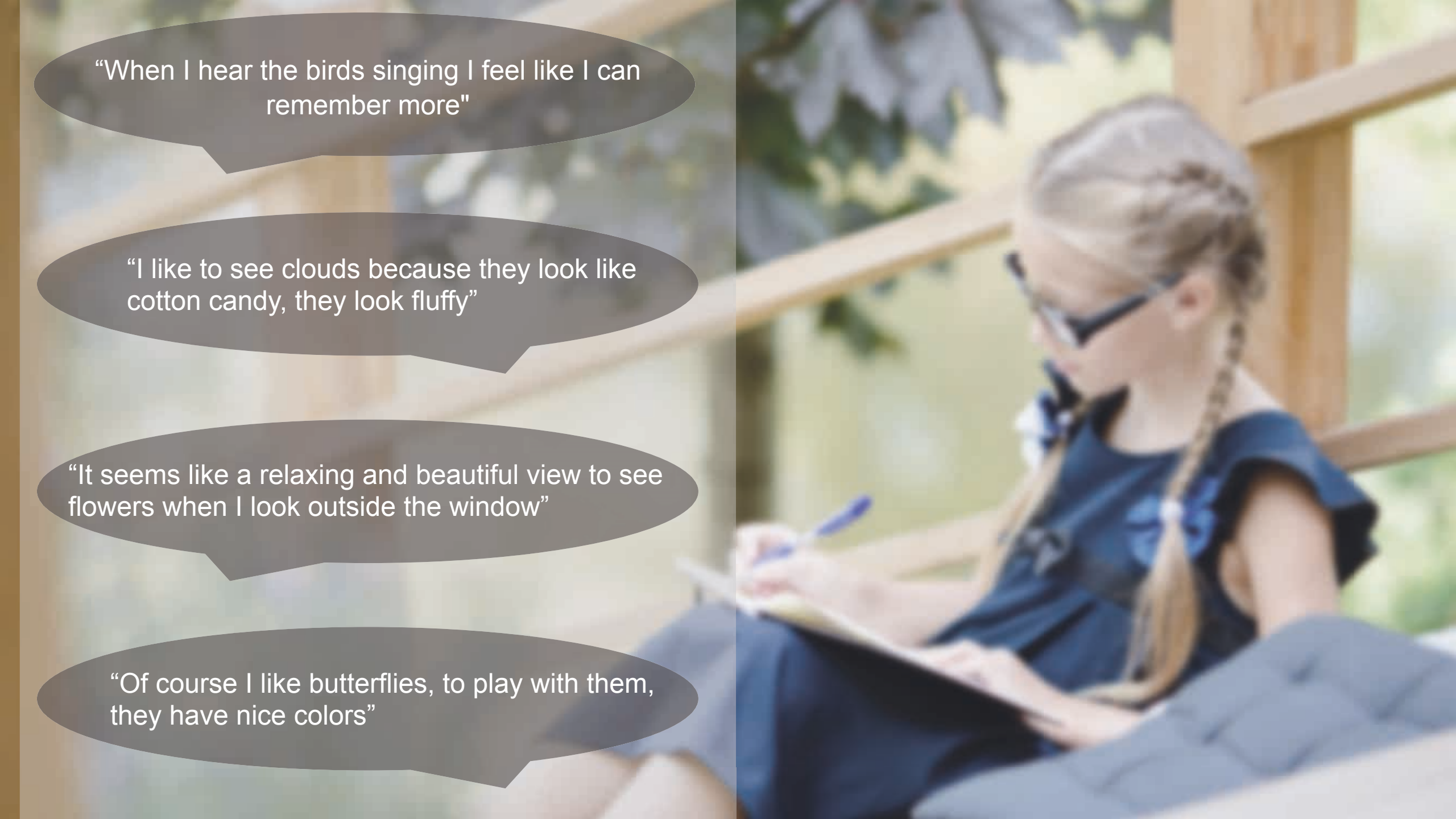
Photo-Selection

WATER  STILL WATER  FLOWING WATER	PLANTS  PLANT  GREEN WALL  FLOWERS  TREE 	SKY  SUNLIGHT  AIR  CLOUDS	OBJECTS  WINDOW  SAND  FIRE  ROCKS	ANIMALS  CAT  DOG  RABBIT  HAMSTER 
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WINDOW VIEWS		
 SUNLIGHT	 GREEN	 CLOUDS
 FLOWERS	 SAND	 GREEN WALL

Photo-Selection

Material	Mardie	<input type="checkbox"/>		
	Stones	<input type="checkbox"/>		
Plants	Plant	<input type="checkbox"/>	To decorate / they have Nice colors	Preference
	Green wall	<input type="checkbox"/>	Sees real flowers and plants around the school now/waters them sometimes	Current
	Flowers	<input checked="" type="checkbox"/>		
	Tree	<input type="checkbox"/>	To play on it, because if you fall on the floor you will get hurt, grass is safe	Preference
	Grass	<input checked="" type="checkbox"/>		
Sky	Sunlight	<input type="checkbox"/>		
	Air	<input type="checkbox"/>		
	Clouds	<input type="checkbox"/>		
Objects	Window	<input type="checkbox"/>	Wants sand to play , sees sand now in the school	Preference/Current
	Sand	<input checked="" type="checkbox"/>	Doesn't want to see fire in the school "Maybe it will make a big fire", dangerous	Preference
	Fire	<input checked="" type="checkbox"/>		
	Rocks	<input type="checkbox"/>		
Animals	Cat	<input checked="" type="checkbox"/>	Sees them in school now, they don't break things, students play with them a little bit	Current
	Dog	<input checked="" type="checkbox"/>	To play with it / In the Playground / not class because he will break things	Preference
	Rabbit	<input type="checkbox"/>		
	Hamster	<input type="checkbox"/>		
	Fish	<input type="checkbox"/>		
Window Views	Sunlight	<input type="checkbox"/>	Wants to see clouds out the window, loves clouds	Preference
	Green field	<input type="checkbox"/>	Wants to see flowers out the window, because they have a nice color	Preference
	Clouds	<input checked="" type="checkbox"/>		
	Flowers	<input checked="" type="checkbox"/>	Currently sees a Green wall from the classroom window (opens to inside the school) / doesn't sit next to window/would like to	Current
	Sand	<input type="checkbox"/>		
	Green wall	<input checked="" type="checkbox"/>		



“When I hear the birds singing I feel like I can remember more”

“I like to see clouds because they look like cotton candy, they look fluffy”

“It seems like a relaxing and beautiful view to see flowers when I look outside the window”

“Of course I like butterflies, to play with them, they have nice colors”



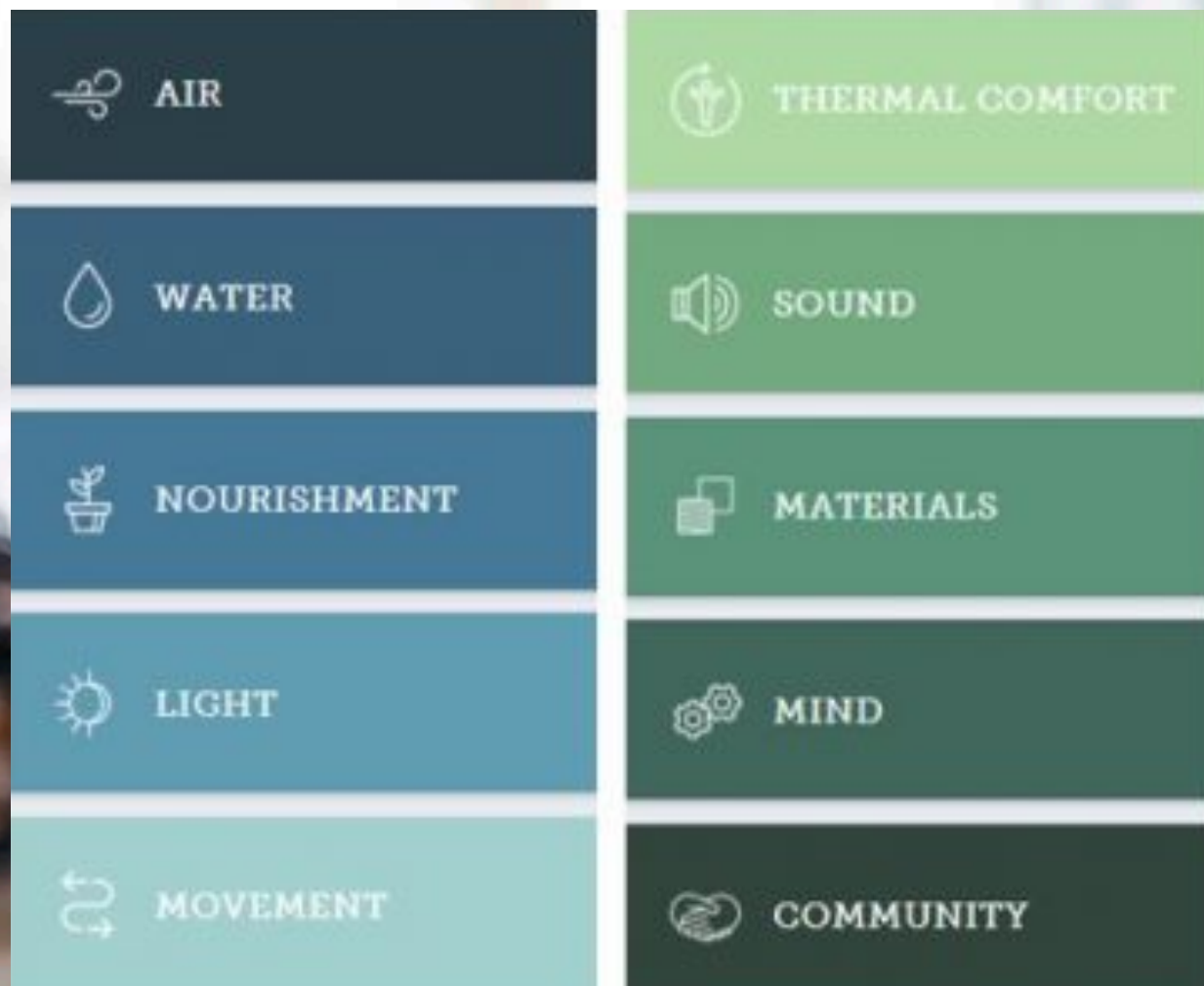
“It would be nice to have a green wall like this! It would be like I’m walking in the forest”

“Because the sand lets you jump and fall without hurting”-

“ I hate that I can’t open the windows in my classroom”

I guess you could put like rocks under the flowing water, it would add relaxation”

The WELL Building Standard



CONCEPTS / MIND / FEATURE M02

PRECONDITION

Access to Nature

Support occupant well-being by incorporating the natural environment through interior and exterior design.

What's next?

School-specific methods of Biophilic design applications

Gender / Age differences or common themes





Thank you!