thesis question

How can a designer learn to embrace the systems and patterns found in nature?
• Discussion of design process
• How can a natural system relate to a man-made system?
• Perceiving nature itself as a designer
• Coined by Edward O. Wilson in 1984
• Defined as “the affinity for life and lifelike processes.”
• Relevant to environmental design
  – Spatial relationships
  – Spatial quality
  – Materials
  – Construction methods
  – Design process
• Biophobia is the opposite of biophobia.
• An absence of nature
• Is it intentional?
  – George Ritzer’s “McDonaldization”
    • Efficiency
    • Calculability
    • Predictability
    • Control
Biomimicry

• Biomimicry is a design process where natural systems are interpreted into a design problem
• Used often outside of environmental design
• Material science sees the most benefit
Eastgate, Harare
- 'a breath of fresh air'

Diagram details:
- Natural exhaust from offices
- Solar panels for hot water heaters
- North face shading provided by deep overhang and planting
- Location of temperature data logger
- Heat energy absorbed by chimneys to improve stack effect
- Stack effect draws air from atrium
- Foodcourt
- Parking
- Shops
- Deep precast concrete overhang
- Ambient temperature
- High level room temperature
- Low level room temperature
- Mid-level room temperature
- Underfloor temperature
- Low-energy heating system
- Fluorescent lights

(from archnet.org)
• Host
• Decompose
• Colonize
• Populate
• Inhabit
goals

- Educational emphasis
- Immersion
- Strong biophilic influence
- Connect to the community
- Building mimics natural systems
influence

• *The Last Child in the Woods* by Richard Louv
  – “Nature Deficit Disorder”
  – Nature as a boogeyman

• “Re-enchanting” ourselves with nature
  – from anthropologist Peggy Bartlett

• Article in Popular Mechanics about urban agriculture
“I like to play indoors because that’s where all the electrical outlets are.”
• Developed by Maria Montessori in the early 20th century
• Came from working with mentally challenged children as a medical student
• A “virtue of patience” is one of the main goals of the learning method.
• Students have freedom within their “learning house”

• Students are given the choice of when, where, and how they complete their lessons

• It is the goal for students to master the concepts of their lessons
prepared lessons

- Children learn best through sensory stimuli
- Lessons involve any of all five senses
- Lessons teach a specific concept
prepared environment

- Environment is a “second teacher”
- Both the space itself and the objects within.
- Must contribute to the process – nothing extraneous
• Term given to Montessori teachers
• The role of the director is encouragement and guidance
• A democratic approach to conflict resolution
• Caring for plants is important in developing a virtue of patience
• The principles of biophilic design enhance the learning environment
case study
Montessori Children’s Center
1 reception
2 lobby
3 kitchen
4 classroom
5 cubbyholes
6 playground

plan 9'
east-west section
case study
Montessori Island School
Tavernier, Florida
1. Reception
2. Classroom
3. Screened porch
4. Covered deck
5. Teachers' lounge
6. Administration
7. Septic berm
case study
Milwaukee Montessori School
Milwaukee, Wisconsin
case study
Yarralumla Pre-School and Montessori School
Canberra, Australia
process

- Host
- Decompose
- Colonize
- Populate
- Inhabit
• Located in Winnipeg, Manitoba
• Population: 633,451 in 2006
• West End neighborhood has a diversity of age and culture
decompose

- Preparing the host
• How does a Montessori school occupy a grayfield site?
• Developing “DNA” for the design to grow within the host
- Process of trial and error
- DNA is further developed
• Further design development
final design
thank you