GETTING INSIDE THE OUTSIDE
THE CASE(STUDY) FOR OUTDOOR LEARNING
Hello! 
I am Jayden Smith. 
I am here because I love to give presentations. 
You can find me at: @username
What do we know about the connection between children and the outdoors?
PART 1: THE NEW CHALLENGES OF CHILDHOOD MAKING THE CASE FOR OUTDOOR LEARNING
THE NEW CHALLENGES OF CHILDHOOD:
The Child, School & Community
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The Child, School & Community

A Community Hub
As shown below, a community school functions as the hub of its community. Partners such as unions, faith-based organizations, community-based organizations, businesses, and higher education institutions collaborate to ensure that both academic and nonacademic needs are met for students and families so that students can focus on learning and educators can focus on teaching.
“Time in nature is not leisure time; it's an essential investment in our children's health.” - Richard Louv

- Children spend less meaningful time outdoors
- This affects their performance and their health in known and unknown ways
- This affects our environmental heritage
Executive functioning is the sweet spot of learning.

There is a relationship between executive functioning and directed attention.

There is a connection between increases in electronic media use and decreases in directed attention.

Media use in children is on the rise.
THE NEW CHALLENGES OF CHILDHOOD:

Stress

- There are three generally accepted levels of stress
- Some stress is good for performance
- “Toxic” Stress actually interferes with developing brain architecture and can damage children’s ability to learn
- 1 in 8 children have experienced 3 or more adverse life experiences associated with toxic stress
In addition, there are some populations much more prone to toxic stress.

Military-connected students and lower socioeconomic class have higher rates of adverse experiences.

Stress is not only for the deployed family member, but also adapting to new roles at deployment, leave or redeployment.
Obesity has tripled in the last 30 years

1 in 3 American children is overweight or obese

50% of overweight children remain overweight as adults

Poor diet and lack of physical activity is the second leading cause of deaths after tobacco use

21% of our healthcare dollars go to treating this disease

THE NEW CHALLENGES OF CHILDHOOD:

Obesity & Physical Activity

Prevalence of Overweight and Obesity in the United States, 1999-2004

Objective: To provide current estimates of the prevalence and trends of overweight in children and adolescents and obesity among adults.

Methods: The prevalence of overweight and obesity among children and adolescents, and obesity among adults was assessed using data from the National Health and Nutrition Examination Survey (NHANES), a complex, multistage probability sample of the US civilian, non-institutionalized population. Race/ethnicity was reported by survey participants. During a physical examination in a mobile examination center, height and weight were measured using standardized procedures and a stadiometer and a scale, respectively. BMI was calculated as weight in kilograms divided by the square of height in meters and was categorized using the cutpoints for overweight and obesity as defined by the National Institutes of Health, based on the 2000-2002 NHANES data.

Results: In 2003-2004, 17.6% of US children and adolescents were overweight and 32.5% were obese. The prevalence of overweight and obesity among children and adolescents has increased significantly since 1988-1994, and the trend is continuing.

Conclusions: Overweight among children and adolescents is a health concern in the United States, and overweight and obesity among adults are also significant public health problems. The prevalence of overweight and obesity among children and adolescents has increased significantly from 1988-1994 to 2003-2004, and the trend is continuing.
WHAT DO ALL THESE NEW CHALLENGES HAVE IN COMMON?

GETTING KIDS OUTSIDE CAN HELP.
Green spaces and cognitive development in primary schoolchildren

Payam Dadvand¹,a,b,c, Mark J. Nieuwenhuijzen¹,a,b,c, Mikel Esnaola¹,a,b,c, Joan Forns¹,a,b,c,d, Xavier Basagaña¹,a,b,c, Mar Alvarez-Pedrerol¹,a,b,c, Ioar Rivas¹,a,b,c,e, Mónica López-Vicente¹,a,b,c, Montserrat De Castro Pascual¹,a,b,c, Jason Sui¹, Michael Jerrett⁸, Xavier Querol⁹, and Jordi Sunyer¹,a,b,c,h

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Edited by Susan Hanson, Clark University, Worcester, MA, and approved May 15, 2015 (received for review February 18, 2015)

Exposure to green space has been associated with better physical and mental health. Although this exposure could also influence cognitive development in children, available epidemiological evidence on such an impact is scarce. This study aimed to assess the association between exposure to green space and measures of cognitive development in primary schoolchildren. This study was based on 2,593 schoolchildren in the second to fourth grades (7–10 y) of 36 primary schools in Barcelona, Spain (2012–2013). Cognitive development was assessed as 12-mo change in developmental trajectory of working memory, superior working memory, and inattentiveness by using four repeated (every 3 mo) computerized cognitive tests for each outcome. We assessed exposure to green activity are related to improved cognitive development (9). Outdoor surrounding greenness has also been reported to enrich microbial input from the environment (10), which may positively influence cognitive development (10). Through these pathways, exposure to green space, including outdoor surrounding greenness and proximity to green spaces, could influence cognitive development in children, yet the available population-based evidence on the association between such exposure and cognitive development in children remains scarce.

The brain develops steadily during prenatal and early postnatal periods, which are considered as the most vulnerable windows for effects of environmental exposures (11). However:
THE NEW SOLUTIONS OF CHILDHOOD:
1. “Nature Deficit Disorder”

Green spaces and cognitive development in primary schoolchildren
Dadvand et al, May 15 2015
- 2,593 students - Barcelona, Spain (2012–2013)

RESULTS
- Working memory increased by 22.8%
- Superior working memory increased by 15.2%
- Inattentiveness decreased by 18.9%
1. “Nature Deficit Disorder”

Effect of Time Spent Outdoors at School on the Development of Myopia Among Children in ChinaA Randomized Clinical Trial

Mingguang He, MD, PhD1,2; Fan Xiang, MD, PhD1,3; Yangfa Zeng, MD1; Jincheng Mai, BSc4; Qianyun Chen, MSc1; Jian Zhang, MSc1; Wayne Smith, MD, PhD5; Kathryn Rose, PhD6,7; Ian G. Morgan, PhD1,8

Author Affiliations

Importance Myopia has reached epidemic levels in parts of East and Southeast Asia. However, there is no effective intervention to prevent the development of myopia.

Objective To assess the efficacy of increasing time spent outdoors at school in preventing incident myopia.
Effect of Time Spent Outdoors at School on the Development of Myopia Among Children in China - A Randomized Clinical Trial

Mingguang He, MD, PhD et al, Sept 15 2015
- 1903 students - Guangzhou, China (2010–2013)

RESULTS

- 9.1% decrease in incidents of myopia in the intervention group
- 10.7% decrease in spherical equivalent refraction over 3 years, a biological determiner of myopia.

GETTING OUTSIDE HELPS MAKE KIDS HEALTHIER
2. Directed Attention Fatigue

Impact of Urban Nature on Executive Functioning in Early and Middle Childhood

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2. Directed Attention Fatigue

**Impact of Urban Nature on Executive Functioning in Early and Middle Childhood**

- Improved Attentional control (ability to use directed attention) after nature walk vs urban walk
- Improved Working Spatial Memory after nature walk vs urban walk

GETTING OUTSIDE HELPS CHILDREN FOCUS AND GET ENGAGED
3. Stress

Journal of Environmental Psychology (1991) 11, 201–230

STRESS RECOVERY DURING EXPOSURE TO NATURAL AND URBAN ENVIRONMENTS

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Abstract

Different conceptual perspectives converge to predict that if individuals are stressed, an encounter with most unthreatening natural environments will have a stress reducing or restorative influence, whereas many urban environments will hamper recuperation. Hypotheses regarding emotional, attentional and physiological aspects of stress reducing influences of nature are derived from a psycho-evolutionary theory. To investigate these hypotheses, 120 subjects first viewed a stressful movie, and then were exposed to color/sound videotapes of one of six different natural and urban settings. Data concerning stress recovery during the environmental presentations were obtained from self-ratings of affective states and a battery of physiological measures: heart period, muscle tension, skin conductance and pulse transit time, a non-invasive
Stress Recovery During Exposure to Natural and Urban environments

Ulrich et al, 1991

- Participants were put in stressful situations and then shown a film with natural scenes.
- Their Physiological reactions were monitored through the entire process.
- Exposure to natural scenes increase their recovery rate from stress
AGGRESSION AND VIOLENCE IN THE INNER CITY
Effects of Environment via Mental Fatigue

FRANCES E. KUO is an assistant professor at the University of Illinois, Urbana-Champaign. Her research examines effects of the environment on healthy human functioning in individuals, families, and communities.

WILLIAM C. SULLIVAN is an associate professor at the University of Illinois, Urbana-Champaign. His research focuses on the psychological and social benefits of urban nature and citizen participation in environmental decision making.

ABSTRACT: S. Kaplan suggested that one outcome of mental fatigue may be an increased propensity for outbursts of anger and even violence. If so, contact with nature, which appears to mitigate mental fatigue, may reduce aggression and violence. This study investigated that possibility in a setting and population with relatively high rates of aggression: inner-city urban public housing residents. Levels of aggression were compared for 145 urban public housing residents randomly assigned to buildings with varying levels of nearby nature (trees and grass). Attentional functioning was also examined for each of the buildings. Residents living in residential settings with higher nature views experienced lower levels of aggression.
AGGRESSION AND VIOLENCE IN THE INNER CITY

Kuo et al, 2001

- Surveys were done of inner city Chicago Public Housing Residents
- Comparative analysis of the violence they experienced in their daily lives and the availability and quality of natural scenes around their housing
- Residents with access to natural views and settings experienced lower rates of violence
If we know Outdoor Learning is part of the solution, why don't we do it?
THE NEW SOLUTIONS OF CHILDHOOD: GETTING INSIDE THE OUTSIDE

BARRIERS TO THE OUTDOORS

1. Funding: shortages of time & resources
2. ‘Attitudes’
3. The ‘nature’ of the space available (functionality)
4. External forces (weather)
5. Safety
6. Staff Development
7. Curricular Integration
8. More Work
PART 2: GETTING INSIDE THE OUTSIDE

CASE STUDIES IN OUTDOOR LEARNING
# Getting Inside the Outside: Case Studies in Outdoor Learning

## Some Models

<table>
<thead>
<tr>
<th>Learning Models</th>
<th>Elementary</th>
<th>Middle</th>
<th>High</th>
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<tbody>
<tr>
<td>Project-Based</td>
<td>Ferguson Elementary York, PA</td>
<td>Pali Institute Running Springs, CA</td>
<td>Hudson High School Columbus, OH</td>
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<tr>
<td>Expeditionary</td>
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<td>Service</td>
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<td>Others...</td>
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GETTING INSIDE THE OUTSIDE: CASE STUDIES IN OUTDOOR LEARNING

Some Models

Ferguson Elementary
York, PA
Problem-based Learning
Students engage in connected learning between classroom concepts and application of concepts in the real world

Pali Institute
Running Springs, CA
Expeditionary Learning
Students build social confidence through exploring a conservation curriculum in the natural world

Hudson High School
Columbus, OH
Service Learning
A partnership between the Ohio EPA and Hudson High School was the basis of the “Land Lab” where student engage in cleanup activities to improve the watershed
GETTING INSIDE THE OUTSIDE: CASE STUDIES IN OUTDOOR LEARNING

Our Model
GETTING INSIDE THE OUTSIDE: CASE STUDIES IN OUTDOOR LEARNING

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Our Model
GETTING INSIDE THE OUTSIDE: CASE STUDIES IN OUTDOOR LEARNING

Our Model

EAST NEIGHBORHOOD
- LOWER FLOOR - PRE-K
- UPPER FLOOR – KINDER

LIMM ROOMS
- CURRENTLY, ONE ON EACH FLOOR
- PER PFD ONLY ONE PERMITTED
- SPACE IS ACCESSIBLE FROM CORRIDOR AND HUB
GETTING INSIDE THE OUTSIDE: CASE STUDIES IN OUTDOOR LEARNING

Our Model
GETTING INSIDE THE OUTSIDE: CASE STUDIES IN OUTDOOR LEARNING

Our Model
GETTING INSIDE THE OUTSIDE: CASE STUDIES IN OUTDOOR LEARNING

Our Model
GETTING INSIDE THE OUTSIDE AT BUTNER ELEMENTARY: BREAKING THE BARRIERS

FUNDING
GETTING INSIDE THE OUTSIDE AT BUTNER ELEMENTARY: BREAKING THE BARRIERS

‘ATTITUDES’
GETTING INSIDE THE OUTSIDE AT BUTNER ELEMENTARY: BREAKING THE BARRIERS

PROFESSIONAL DEVELOPMENT
6+ months prior

Determine Model

Select Leader
3+ months prior

Professional Development

Develop Partnerships
First 6 Weeks

Explore Outdoor Learning Opportunities

Discuss Opportunities
First Year

Monitor Use

Share Experiences
Second Year

Grow and Extend

Develop Additional Partnerships
Outdoor Learning for All
Case Study

Butner Elementary
- Presentation of Design
Thanks!

Any questions?

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