

How do school green space and environmental educational programs affect children's environmental attitude and proenvironmental behavior?

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Contents





1.1 Nature-deficit disorder

Background









McKinsey & Co. report "Preparing for China's urban billion" March 2009



2.74 hours City children spent in homework per day in China



1.06 hours City children spent in outdoors in China

《Blue Book of the Outdoor Activities of Chinese City Child 》 (China Network, 2012)



1.2 "Prescription" for nature-deficit disorder

Background

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Parents bring child back to nature

Join natural experience program

Learning journey "open the book of nature"





Limitation: financial、 time、system、outdoor place and logistics support (Dyment, 2005)

- Quality of natural education organization (Wang, 2016)
- Low demographic status







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City green space has similar "green benefits" as forest and other natural landscapes do. (Kaplan, 2001; Hand et al, 2017)

School green space may provide important compensation for the shortage of children's natural experience

- Many subjects can be taught outdoors (Bell, 2001);
- School garden can help children to understand nature (Blair, 2010);
- School green space can provide children with variety of play opportunity (Titman, 1994).



Global scale initiatives







Informal place-based learning in schools

Background

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research has focused on: air quality, daylighting, energy performance.

Teaching Green Buildings (Cole 2013)



1.4 The impact of SGS on children

Background







2.1 Scientific questions

Method



- What are students' perceptions about school green space (SGS)?
 Whether SGS and green activity can influence student's EA?
- 3. If so, how do they work?





2.2 Study design

Method

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Chongqing, China. 20 primary schools in city, stratified random sampling

School environment characters quantify



Amount of green area		Plant biodiversity		landscape forms
Sustainable facilities		Sports facilities	Entertainment facilities	
Pots in classroom	Сс	orridor green area	3	•••

Questionnaire with students (5 graders in primary school)



Perception of school environmentInitial activity within schoolEnvironmental attitude (Preservatio-, Utilization)self-reported pro-environmental be-zviorEt activity out of school

Teachers interview & Archives reading

School green activity conducted in last 2 years



Age

Sex

Years stay in the current school

Total sample: 1597 students



3.2 Green activity held by school

Result

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Figure 3.1 Amount of green activity held by each school (total 223)

Figure 3.2 Percentage of each kind of green activity

These 20 school has big difference in green space and amount of green activities.

Unpublished data



3.3 Q1: What are students' perceptions about school green space (SGS)?

Result

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Figure 3.4 Students' perception of school green space (n = 20)

Unpublished data



3.3 Q2: Whether SGS and green activity can influence student's EA?



Figure 3.5 the impact of CGS and green activity held by school on student's environmental value (n = 20)
 ➤ Students' perception of green space and green activity held by school had significantly positive impact on student's environmental attitude the data

Result



Green activities held by school had a significant impact on students' EA; school green space can affect students' EA through perception.

Unpublished data



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This study indicate: the better the campus green environment, the more green activities organized by the school, the better the students' environmental attitude will be. Consistent with previous research (Samborski, 2000; boeve-de Pauw and Van Petegem, 2013).

How to define "good" ?

- On the one hand, campus with enough green area, rich in plant diversity, and various landscape which can support different kinds of play of students, can be a "good" green campus.
- On the other hand, school should hold colorful green themed activity



4.2 Address natural activity within school

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Students' natural activities within school had significant impact on their environmental attitude and pro-environment behaviors, and this influence was greater than that of EE activity out of school.





4.3 Suggestions for campus design and using

Discussion

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1. Avoid to pursuit the green coverage without considering the interactivity of the environment. It is recommended to use woods, small gardens, single trees and other modules which can provide rich environmental carrying capacity;



2. Schools should pay attention to the development and utilization of outdoor environment in teaching activities;

3. Strengthen the training of teachers' outdoor teaching skills to increase the use of outdoor environment in formal classroom;

4. On the premise of safety, do not restrict the activities of the students on campus.





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School garden in Xiaojie Primary School

Promote project Guide Construction Provide seedlings

中國植物园联

Guide daily maintenance

Constructed by Xiaojie Primary School, XTBG, and BGCI



Discussion

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Students studying in school garden



Lectures for 4th graders every two month

Theme	Speaker
The wonder of diversity	He HE
The story of the invasive plants	Guangyu LIU
Biodiversity protection in BG	Ximin WANG
Climate change in my eyes	Zhen YANG
How to do nature observation?	Yanhong
	GENG
Biodiversity in Yunnan	Dan LI
Biodiversity of insects	Jie ZENG
Horticulture basics	Yonghong LIU
Protect plant biodiversity	Alison Wee
How to do nature note?	Yonghong LIU
Why we are here?	He HE
Birds in Xishuangbanna	Bojian GU



Discussion





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Nature observation club activities in Xiaojie Primary School













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THANKS