



# Nurture in Nature *for* Nurture of Nature

Citizen Science can Change Youth Environmental Values, Knowledge and Behaviour

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# IMPACTS ON STUDENTS

 Short one-time citizen science experiences **can** positively impact environmental knowledge (**↑14.5%**) and behaviours (**↑4%**) of 11-19 year old students in Hong Kong local and international schools.

*(n = 187 students)*

 Co-created citizen science students had a **larger** positive impact (**↑9%**) on behaviour, compared to those who did contributory citizen science.

Which environmental behaviour psychology factors students say influence them to act?

*(n = 46 student interviews)*

More knowledge about environmental issues  
Prior experience taking action  
Belief their actions have tangible impacts

**YOUNGER STUDENTS**  
(11 - 14 year olds)

Environmental values and attitudes  
Personal motivations

**OLDER STUDENTS**  
(15 - 19 year olds)

# MOST INFLUENTIAL FACTORS ON PRO-ENVIRONMENTAL BEHAVIOUR

1

## Personal Experiences (0.419):

- personal time in nature
- school field trips in nature

2

## Preservation Values (0.218):

- one's connection to nature

3

## Household Experiences (0.184):

- talking to family about environmental issues

4

## Social Influence (0.178):

- seeing known people take positive environmental action
- hearing positive stories about environmental action





**In 13 years...**

**2200+ students  
and adults**

**50+ field trips**



# Learning where the action is...



monitoring coral health in Sulawesi, Indonesia



measuring distribution of and dissecting invasive lionfish species in Cuba



terrestrial biodiversity research in central Cuba



lepidoptera research in Sulawesi, Indonesia



marine debris and water quality monitoring in Tai O, western Hong Kong

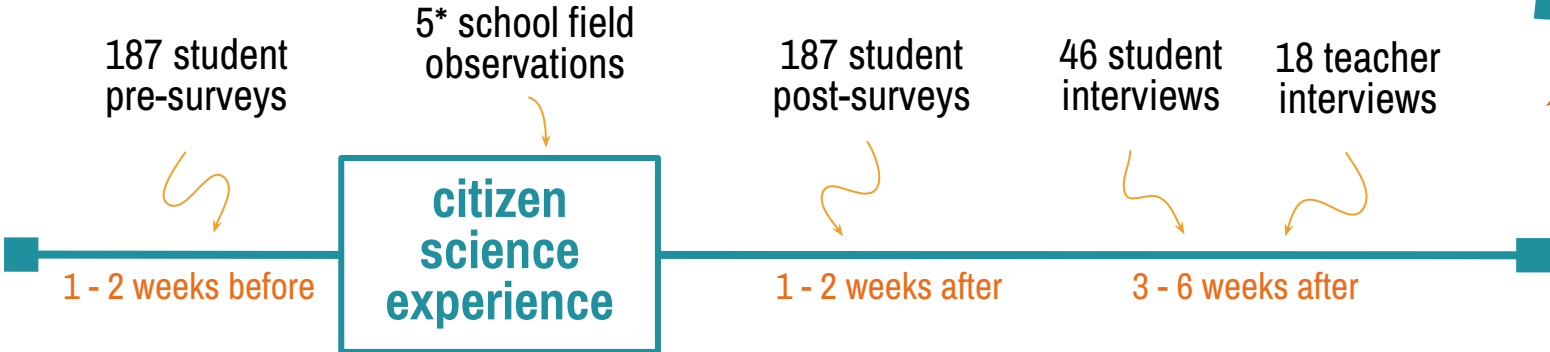


Could environmental **citizen science** experiences have an **impact on youth** pro-environmental values, attitudes, knowledge and behaviours?



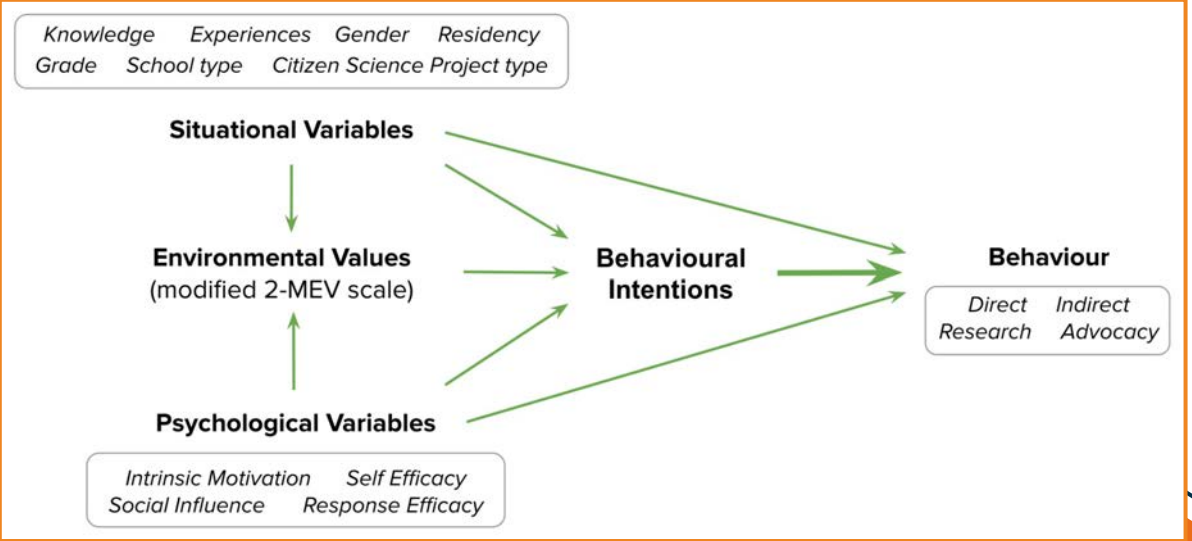


# Environmental Citizen Science in Schools



## Environmental Behaviour Psychology Framework

(modified from Barr & Gilg, 2007; Bogner & Wiseman, 1999, 2006)



**SO WHAT?**



Dr. Ed Hawkins (U. Reading)



Dr. Miles Richardson (U. Derby)

Climate Stripes [showyourstripes.info](http://showyourstripes.info) - UK Data: Met Office + Global Bio Stripes: [findingnature.org.uk](http://findingnature.org.uk) - Data: LPI 2022. Living Planet Index <http://stats.livingplanetindex.org/>



# UK Youth Climate Action Research Report 2022 - 2023

80% concerned about climate change

70% already taking action at home



40% **BARRIERS** at school

30% when out

InterClimate Network surveyed  
~10,000 students (11-18 yrs old)

Limited **time** to take action

Little / irregular time in **nature**

Frustrated with **inaction** by leaders

Lack of **infrastructure** to make taking action easy

Felt left out of **decision-making** in their community

Inconsistent **expectations** at home, school & society

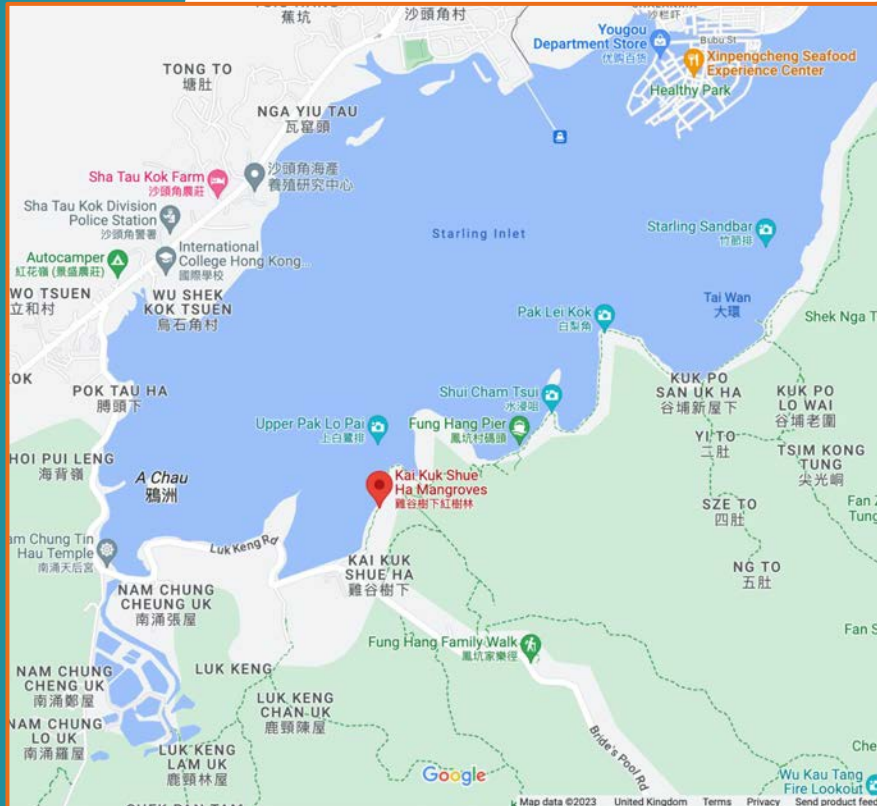
Don't want to do climate strikes / protests, want **alternatives**

Did not know how to take action, especially **collective** action



# Starling Inlet Ecological Citizen Science Study

students and teachers monitor biodiversity using citizen science and advocate for habitat conservation action in their 'backyard' with local authorities and NGOs using data



# IMPLICATIONS

What we can do to support student citizen science engagement and environmental action (with quotes)!

- ✓ **explicitly emphasize** how student *"learning by contributing"* impacts research, the citizen science community and the issue being investigated
- ✓ **reinforce learning impact** of citizen science with follow-up activities / reflections
- ✓ **make learning personally relevant** to students lived experiences and habits to enhance impact of citizen science experiences
- ✓ **give students more voice** in decision-making at all scales: school, home and communities, so they don't feel that *"adults don't really listen to children"*
- ✓ **create supportive and like-minded communities** so they do not feel that *"it's only me"* who cares enough to act
- ✓ **identify & support authentic opportunities** for students to personally engage in socio-political and environmental arenas to carry out collective action
- ✓ **increase quality and quantity** of environmental conversation and action at school
- ✓ **diversify from assessment-focused culture** that makes taking action an *"inconvenient"* and *"extra thing"* to do



**TAKE THE YOUTH  
OUTSIDE WITH  
CITIZEN SCIENCE !**



**Thank you !**  
**Happy to chat!**

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