

Climate Change Education in Hong Kong: Role and Effectiveness of Environmental Non-governmental Organizations in Enhancing Public's Climate Literacy

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"Education, in short, is humanity's best hope and most effective means in the quest to achieve sustainable development." (UNESCO, 1997, p.16).

Research significance

Theoretical significance

- Theoretical review over the term climate literacy as a new concept in Hong Kong
- Evaluation on current CCE programme offered by ENGOs through multiple data collection processes

Practical significance

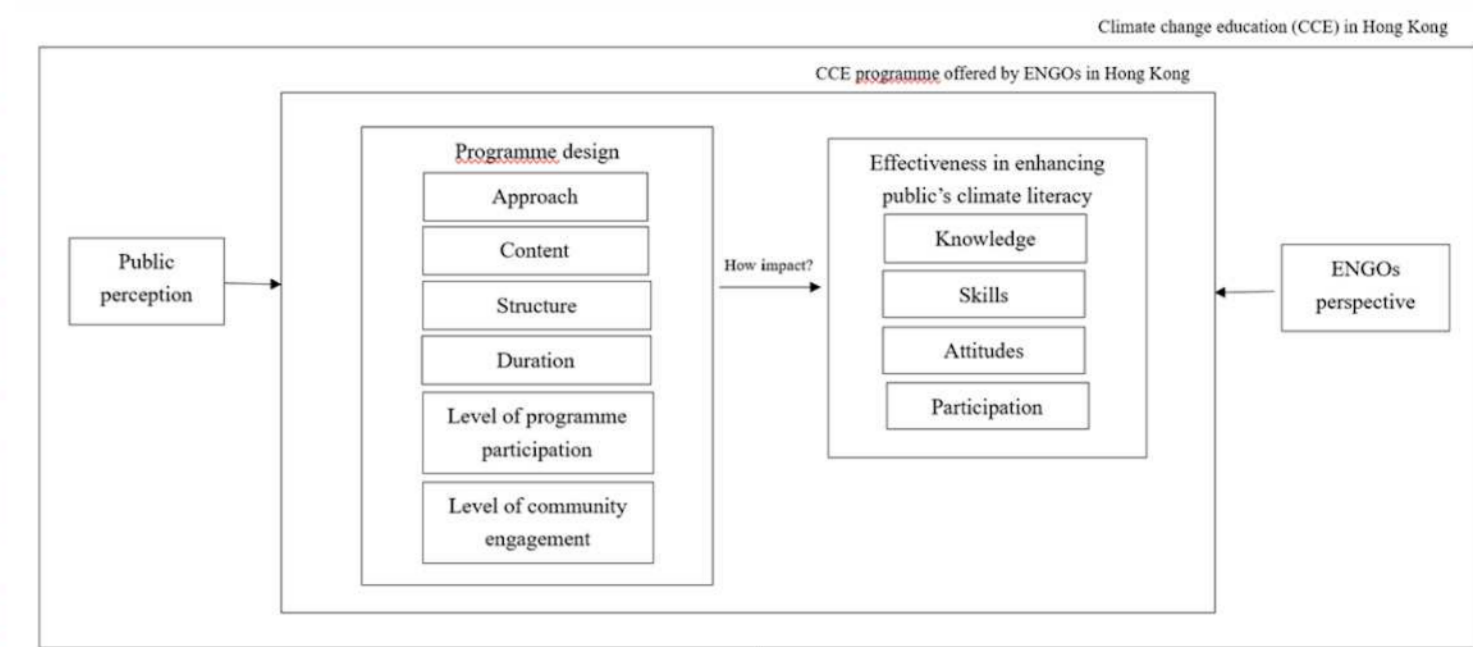
- Raise the importance and attention of CCE implementation in Hong Kong
- Effective education is urgently needed to transform scientific knowledge across societal sectors for social changes

Research objectives

Main: To evaluate the effectiveness of CCE programme provided by ENGOs in enhancing public's climate literacy

- To investigate the **relationship between programme design and effectiveness** in enhancing climate literacy
- To understand the **public perception and participation** in CCE programme
- To understand the **role and perspective of ENGOs** in providing CCE programme
- To provide **recommendations** for future implementation

Conceptual framework



Degree of effectiveness
Recommendation



Research methodology

Stage 1

Programme classification
Nov 2022



Stage 2

Field observation
Feb-Apr 2023

- Webinar
- Workshop
- Guided tour
- Competition
- Training programme

Online questionnaire
Feb-Apr 2023

Sample size = 341

CCE participants	110
Non-CCE participants	231

Stage 3

In-depth interview
Mar 2023

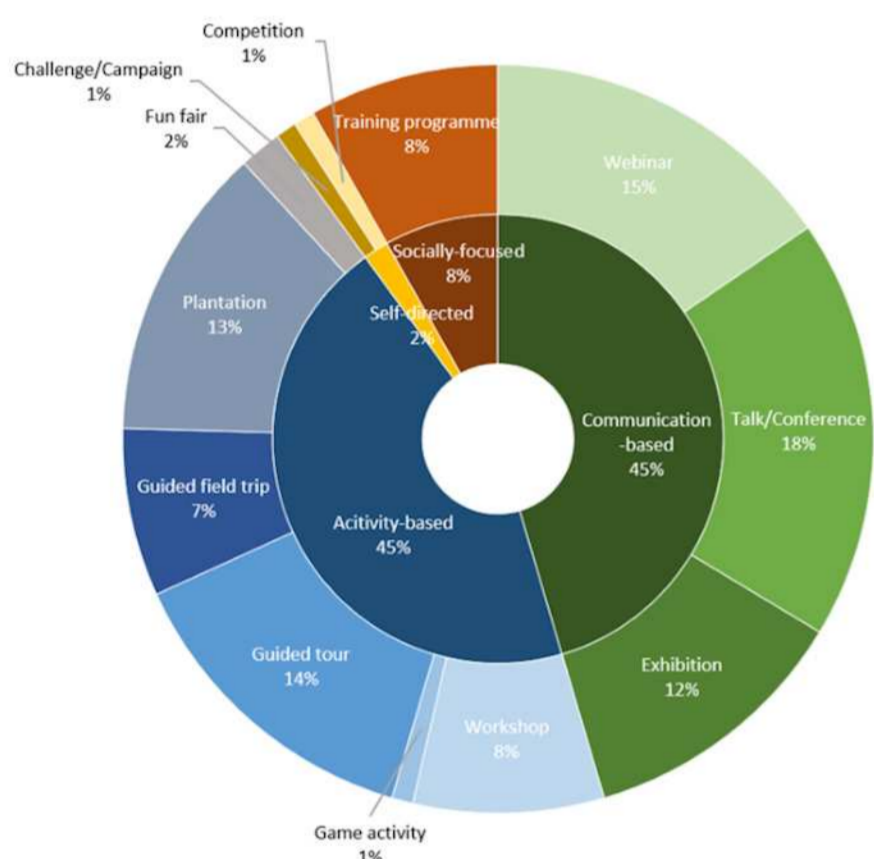
3 ENGO representatives

- Jockey Club Museum of Climate Change (MoCC)
- Green Sense
- Carbon Care InnoLab (CCIL)

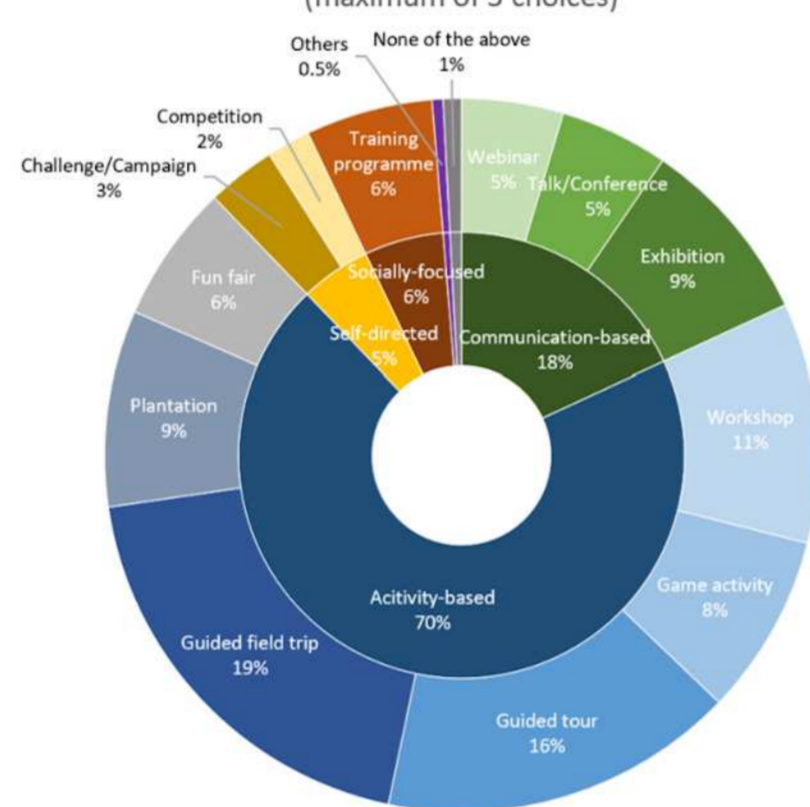
Major findings

Public participation & perception

Recall your latest joined CCE programme, which type of activity does it belong to?



Which type(s) of the programme can attract you most? (maximum of 3 choices)



Types of programme joined by CCE participants

- 45% communication-based
- 45% activity-based
- Top three types of programme:
 - Talk/conference (18.2%)
 - Webinar (15.5%)
 - Guided tour (13.6%)

Interested types of programme chosen by non-CCE participants

- 70% activity-based
- Top three types of programme:
 - Guided field trip (19.4%)
 - Guided tour (16.1%)
 - Workshop (10.9%)

Programme design & effectiveness

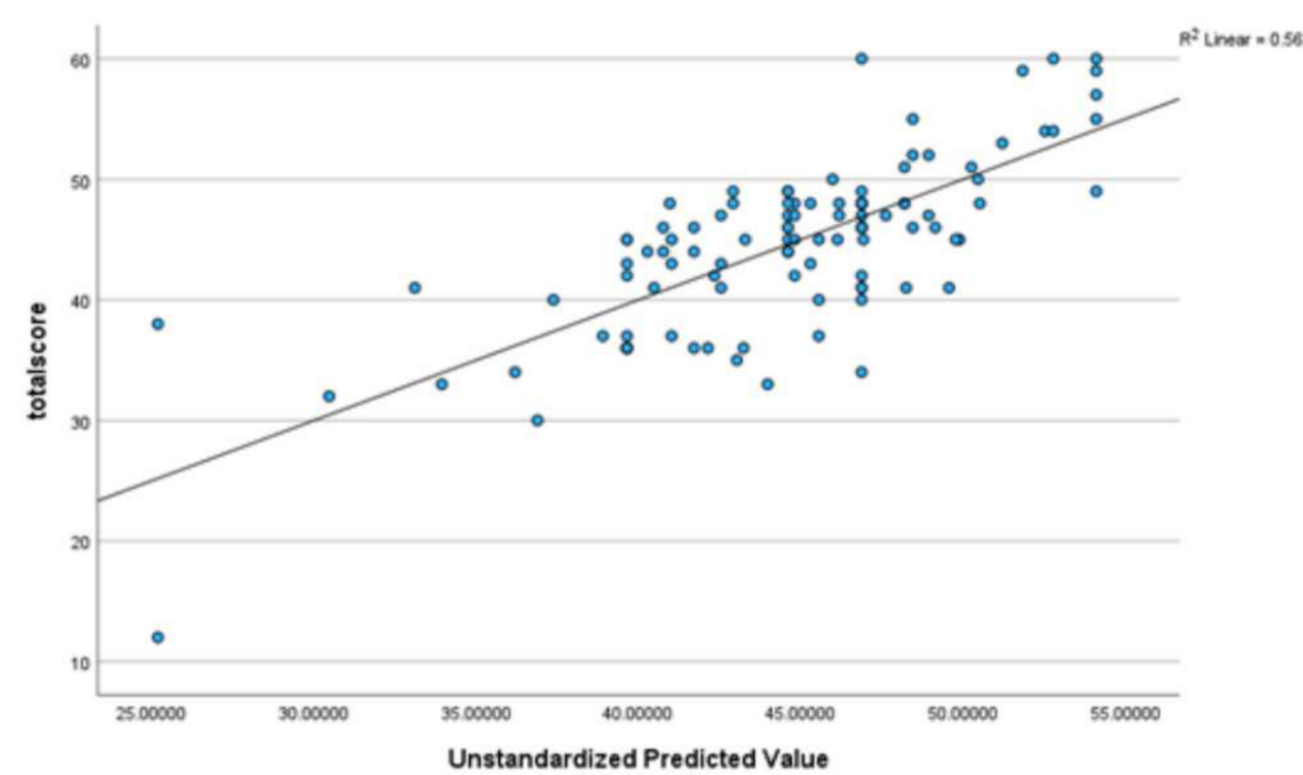
Comparison of mean score of effectiveness in enhancing climate literacy

Domain	Component	Attributes	Mean score by attribute	Mean score by component	Overall mean score
Cognitive	Knowledge	K1 System knowledge	3.62	3.63	3.72
		K2 Action knowledge	3.77		
		K3 Effectiveness knowledge	3.52		
	Skills	S1 Access to credible & relevant information	3.53		
		S2 Assess the validity of arguments about climate	3.54		
		S3 Communicate climate change in a meaningful way	3.70		
Affective	Attitudes	A1 Values	4.03	3.97	
		A2 Beliefs	3.96		
		A3 Emotions	3.92		
Behavioral	Participation	P1 Self-efficacy	3.65	3.68	
		P2 Make informed & responsible decision	3.79		
		P3 Willing to participate in climate action	3.61		

One-way ANOVA
 $F(3, 436) = 7.154, p < 0.001$
Significantly different between mean score by climate literacy components

- Highest effectiveness in changing attitudes
- Lowest effectiveness in equipping skills

Critical design factors in affecting overall effectiveness



Multiple linear regression model

R-squared = 0.562

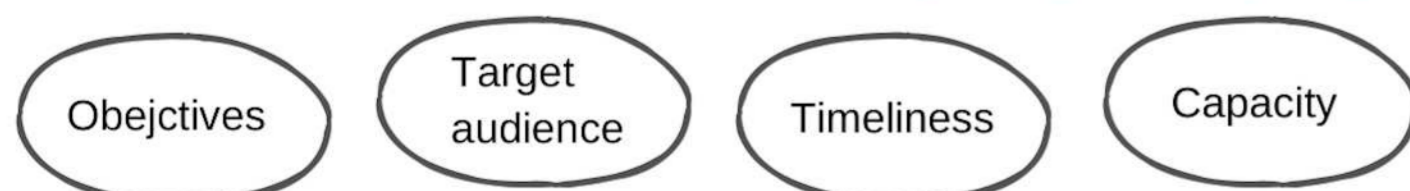
Significant predictors:

- X6_Community engagement
- X5_Participation
- X4_Structure
- X2a_Approach 1: learning about the environment

Total score of effectiveness = $17.953 + 2.065 \times X5 + 2.268 \times X6 + 1.321 \times X2a + 1.576 \times X4$

Role & functions of ENGOs

Main considerations while designing CCE programme



Advantages

- Rich environmental-related resources
- Strong collaboration & partnership
- Independent

Limitations

- Limited resource capacity
- Challenges in message delivery
- Highly affected by external environment

Role

- Non-formal educator
- Knowledge disseminator
- Policy monitor
- Community capacity builder

Discussion

n=341 (1=To no extent; 5=To a very large extent)	Mean
To what extent do you think climate change is widely discussed among the public in Hong Kong?	2.67
To what extent do you think the public is actively engaging in the climate change education provided by ENGOs?	2.46
To what extent do you think public climate change education is enough in Hong Kong?	2.26

Recommendations



- Optimizing environmental education pedagogy
 - Ensure sufficient quantity with high quality
 - Diversify programme types
 - Put new & creative elements
 - Increase high of community engagement & participation
- Target audience segmentation
 - Create specific outreach plan & pedagogies based on the attributes of target audience
- Strengthening partnership with NGOs, firms & schools

Bottom-up approach

Slow local CCE development progress

- Difficulty in approaching the inactive population
- Weak formal education
- Unfavourable social atmosphere
 - Imbalance power relationship between the civil society and the government



Government

- Emphasizing EE, ESD & CCE in formal curriculum
 - Update the Guidelines on Environmental Education in Schools
 - Placing EE with higher status in the curriculum
- Empowering the civil society
- Keeping the climate policy on track
 - Provide transparent climate & carbon reduction data
 - Create favourable environment for CCE

Top-down approach