The Impact of Nature Exposure and Crowdedness Perception on Children's Prosocial Behaviour

Tania Noël[1], Benoit Dardenne[1]
[1]Psychology and Neuroscience of Cognition Research Unit, University of Liège, Belgium

Introduction

An emergent body of evidence shows the impact of physical features of vegetated spaces on prosocial attitudes [1]. However, these spaces also include a whole "social" aspect due, for example, to the presence or absence of people. While green spaces can serve as a center of public gathering, they also meet vital needs of isolation [2]. In this study, we want to investigate the possible impact of vegetated environments and their perceived crowdedness on children's prosocial behaviors.

Hypotheses :

(H1) Children exposed to vegetated environments will behave more socially than children exposed to un-vegetated environments.
(H2) Children exposed to uncrowded environments will behave more socially than children exposed to crowded environments.
(H3) The impact of vegetated environments on social behaviors will be stronger when these environments are uncrowded.

Methods

Sample and Procedure

66 children (42.11 % female), aged between 8 and 13 years (M = 9.59, SD = 1.32) responded to an online survey. After aswering sociodemographic questions, participants where randomly assigned to one of four experimental conditions : exposure to a picture of a vegetated/unvegetated, uncrowded/crowded space (Fig. 1). After being exposed to one of the four pictures, participants played an children-friendly dictator game, aimed at measuring their prosocial behavior [3].

Measure

Pro-social behavior : Children are confronted with three different scenarios, where it is explained to them that they have 30 objects (e.g. markers). Children then have the choice of keeping all the objects for themselves or sharing them, indicating the number of objects they are ready to give to another anonymous child.

Figure 1 : A = Picture of the vegetated/crowded condition. B = Picture of the unvegetated/uncrowded condition.

RESULTS

Hypotheses were tested using an ANCOVA, controlling for children's age (Fig. 2).

H1: the first hypothesis was not supported.
H2: the second hypothesis was supported.
H3: the third hypothesis was not supported.

Children in uncrowded condition reported more prosocial behaviors (M = 11.42, SD = 4.13) than children in high crowded condition (M = 8.49, SD = 4.48).

	SS	df	MS	F	p	η^2	η^2p
vegetation	28.75	1	28.75	1.71	.196	.023	.028
crowdedness	185.86	1	185.86	11.05	.002*	.148	.158
veg. * crowd.	44.04	1	44.04	0.11	.590	.004	.005
age	4.95	1	4.95	0.59	.111	.035	.042
Residuals	992.53	59	16.82				

Table 1 : ANCOVA. Dependent variable = pro-social behaviour. * p < .05

Discussion

Our results suggest that children in uncrowded condition show more pro-social behaviours than children in crowded condition. We often assume that green places are mainly seen as meeting places, but green places also meet vital needs of isolation and provide places to relax and disconnect [4, 5]. It is conceivable that places with low attendance rate allow stress reduction, which allows mood improvement (feeling relax, energetic, enthusiastic, content, calm, or cheerful), which positively impacts attitude toward others [6]. This reasoning is in line with previous studies highlighting more aggressive, competitive and anti-social behaviours by children in crowded situations [7,8].

[1] Goldy, S.P.; Piff, P.K. Toward a social ecology of prosociality: why, when, and where nature enhances social connection. Current opinion in psychology 2020, 32, 27-31.
[2] Samuelsson, K.; Barthel, S.; Colding, J.; Macassa, G.; Giusti, M. Urban nature as a source of resilience during social distancing amidst the coronavirus pandemic. Open Science Framework 2020.
[3] Posid, T.; Fazio, A.; Cordes, S. Being Sticker Rich : Numerical Con-text Influences Children's Sharing Behavior. PLOS ONE 2015, 10(11).
[4] Samuelsson, K.; Barthel, S.; Colding, J.; Macassa, G.; Giusti, M. Urban nature as a source of resilience during social distancing amidst the coronavirus pandemic. Open Science Framework 2020.
[5] Ugolini, F.; Massetti, L.; Calaza-Martínez, P.; Cariñanos, P.; Dobbs, C.; Ostoić, S.K. et al. Effects of the COVID-19 pandemic on the use and perceptions of urban green space: An international exploratory study. Urban Forestry & Urban Greening 2020, 56, 126888.
[6] Dong, X. Good mood, good deed? The role of affect on residents' helping behavior. Travel and Tourism Research Association: Advancing Tourism Research Globally 2021, 64. 795
[7] Evans, G. W. Child development and the physical environment. Annu. Rev. Psychol. 2006, 57, 423-451.
[8] Aiello, J. R.; Nicosia, G.; Thompson, D. E. Physiological, Social, and Behavioral Consequences of Crowding on Children and Adolescents. Child Development 1979, 50(1), 195

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Contact: tania.noel@uliege.be