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School greening: right or privilege? The case of Barcelona



Scientific evidence supports the positive effects of nature on mental and physical health in children. A study published by researchers from the ICTA-UAB and the Barcelona Lab for Urban Environmental Justice and Sustainability (BCNUEJ), a pioneer in spatial analysis and the composition of urban nature in the school environment, has identified different patterns of inequality in exposure and access to green spaces in the Catalan capital. The researchers conclude that these results should be taken into account when implementing naturalization programs in school settings.

Image: A recently transformed green schoolyard in Barcelona (Source: Barcelona City Council; <http://hdl.handle.net/11703/120894>; CC-BY-NC-ND)

A mounting body of research shows strong positive associations between urban nature and child well-being, including benefits related to mental and physical health. For example, children's exposure to urban green spaces has been associated with improvements of attention-deficit/hyperactivity disorder's (ADHD) symptoms. There is also evidence on the positive impact of urban nature on child behavioral and cognitive development, as well as on their overall emotional wellbeing.

However, there is also evidence that children are spending less time in natural environments than previous generations, especially those living in socially deprived neighborhoods. The COVID-19 pandemic is further aggravating these concerns. To date, most studies analyzing children's (unequal) exposure or access to urban green and blue spaces focus on residential metrics while a school-based perspective, also an essential part of children's daily

experience, is still understudied.

In our study, we carried out a spatial assessment of the amount and main components of urban nature within and around a total of 324 schools in the city of Barcelona, and we examined the equity implications of its distributional patterns. Using a multi-method approach based on geographical information systems (GIS), correlation and cluster analyses, and an online survey, the analysis identified patterns of distributional inequity according to three main dimensions: socio-demographic composition (at the neighborhood level); school type (public, charter and private); and the frequency of outdoor educational activities organized by schools.

Our findings show that schools located in the wealthiest neighborhoods of Barcelona have generally greener schoolyards, for example in terms of tree cover. In contrast, schools in lower-income neighborhoods have generally less inner greenery, though they have access to more nearby parks and playgrounds. The study also reveals that private schools have clearly the greenest settings (although only 9 were included in the analysis), while public schools (163 analyzed) are generally greener than charter schools (152 analyzed). Finally, the research also found that greener schools generally organize nature-based outdoor activities more frequently than less green schools, which suggests a potential exacerbation of green inequalities among children in Barcelona.

In the light of these findings, we contend that multiple indicators of urban nature and different dimensions of equity should be considered to improve justice in the implementation of school-based re-naturing and outdoor educational programs. As urban outdoor spaces have become even more important daily spaces for children during the COVID-19 pandemic, cities should ensure to provide safer and more dynamic learning and playful environments inside and directly around schools, with particular concern for addressing existing environmental inequities.

**The study has been published in the scientific journal "Landscape and Urban Planning"*

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References

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