22.17 Exploratory behaviour in children

Project Name: CONNECTING Nature (Grant Agreement no. 730222)

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Exploratory behaviour in children	Health and Wellbeing
Description and justification	Regular contact with nature has many benefits for healthy child development. These range from the development of motor, cognitive, social and emotional skills; the regulation of attention and behavior; health-related benefits such as the development of a healthy immune system and a healthy vision, among others; and the development of knowledge, interest, appreciation and attachment to nature. Play is a fundamental activity in children´s healthy development as well as mental and emotional health (Gill, 2014). Free play has significant positive effects on cognitive and social- emotional development, independence and creativity (Allee-Herndon, Taylor, & Roberts, 2019). A classical study has studied a diversity of urban environments and the role of different types of landscapes on play (Moore, 1986 as cited in Chawla, 2015, p. 436). The study found that natural elements emerged as children's most frequent favourite places. Both the parks and rough ground functioned as places where children could be alone or with friends and gain environmental knowledge and awareness. Moore proposed that the number and type of skill-related behaviours supported by a given setting could be considered a reasonable measure of its childhood environmental quality (Chawla, 2015). As naturalized playgrounds have become more popular, the following elements have been described as essential to their design (White & Stoecklin, 1998): ✓ Water ✓ Indigenous vegetation, including trees, bushes, flowers and long grasses that children can explore and interact with ✓ Animals, creatures in ponds, butterflies, bugs ✓ Sand, and best if it can be mixed with water ✓ Diversity of colour, textures and materials ✓ Ways to experience the changing seasons, wind, light, sounds and weather ✓ Natural places to sit in, on, under, lean against, climb and provide shelter and shade ✓ Different levels and nooks and crannies, places that offer socialization, privacy and views

	✓ Structures, equipment and materials that can be changed, actually, or in their imaginations, including plentiful loose parts Many recent studies have shown that natural areas provide for more imaginative, constructive, sensory, and socially cooperative play than asphalt, flat expanses of lawn, or built play equipment (Fjørtoft, 2004; Fjørtoft & Sagaie, 2000; Samborski, 2010; Stanley, 2011; Cloward Drown & Christensen, 2014). Wells and Evans (2003) concluded that the benefits to children were greater when they experienced a greater amount of exposure to nature. In playground observations, Luchs and Fikus (2013) documented that children engaged in longer play episodes and a greater variety of different types of play in a natural versus traditional play area.
Definition	"Playscape" - play activities defined and classified into three categories (Frost, 1992 as cited in Fjørtoft and Sagaie, 2000, p. 86): (1) ***Functional*** play comprised gross-motor activities and basic skills and were implemented in games like play tag, chase and catch, leapfrog, hide and seek, catch a tree, making angels in the snow, and other games involving basic movements. (2) ***Construction*** play was the type of play that was afforded by landscape structures and loose parts, e.g., building shelters, dens and other constructions like a pirate ship, building with cones and sticks and other moveable things. In the winter season, snow was an excellent building material. (3) ***Symbolic*** play included socio-dramatic play and was recorded as role play and fantasy play such as play house, pirates, play farm with cones and sticks, etc.
Strengths and weaknesses	+ previous empirical evidence as to relationship between outdoor activity/exposure to nature and improved manifestations associated to exploratory behaviour in children (e.g., creativity, etc.) - complex methodologies demanding qualified researchers for both collecting qualitative data, and for its analysis
Measurement procedure and tool	☒ *Quantitative P*: Scale/Scale inventory/Questionnaire (survey procedure, paper-and-pencil administration, computer-based administration) ☒ *Qualitative P*: o T: case study methodology –case study analysis, ethnographic case study (e.g., Stanley, 2011), drawings collection and analysis, surveys, brainstorming sessions, "Walkabout" audio-recorded interviews, Informal audio-recorded observations and

	photographs (e.g., Luchs & Fikus, 2013; Samborski, 2010)
Scale of measurement	
Data source	
Required data	✓ Essential: NBS characteristics for each city/site, more specifically nature of activities one can get involved into while engaging with nature, opportunities for play and physical exercise, etc.
Data input type	Qualitative (and quantitative)
Data collection frequency	After NBS implementation and aligned with timing of HW15 study (i.e., relevant to study design, observation of children's play, etc.)
Level of expertise required	☒ Methodology and data analysis requires high expertise in psycho-social research ☒ Quantitative data collection requires no expertise ☒ Qualitative data collection (case study and narrative study methodology, for example) requires high expertise in psycho-social research
Synergies with other indicators	HW1 Sustainable nutrition/adoption HW3 General Wellbeing and Happiness HW8 Incidence of obesity / obesity rates (adults and children) HW12 Restoration-Recreation: Enhanced physical activity and meaningful leisure HW13 Levels of aggressiveness and violence HW14 Improvement of behavioural development and symptoms of attention-deficit/hyperactivity disorder (ADHD)
Connection with SDGs	Goal 3. Ensure healthy lives and promote well-being for all at all ages Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
Opportunities for participatory data collection	-
Additional information	
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22.18 Self-reported anxiety

Project Name: proGIreg (Grant Agreement no. 776528)

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Self-reported anxiety	Health and Wellbeing
Description and justification	An indicator of the level of anxiety experienced by participants based on a validated questionnaire. An accumulating body of evidence has demonstrated a protective association between green space exposure and mood disorders including anxiety disorders. However, evidence from natural experiments is lacking.
Definition	Self-reported anxiety score on a scale from 0 to 3 and by category (mild, moderate, or severe anxiety)