

Natural State of Mind: Key Methodologies, Findings, and Research Gaps in Ecopsychology

Katilyn Mascatelli, Ph.D.

Ecopsychology Research Scientist

Phipps Conservatory and Botanical Gardens

Overview

- Highlight of benefits of nature
- Operational definitions of psychological benefits
- Operational definitions of nature
- Methodological considerations
- Opportunities



Documented Benefits of Nature Contact

Physical benefits:

- **Improved immune function** (Li and Kawada, 2011; Lowery et al., 2007)
- **Lower blood pressure** (Duncan et al., 2014; Shanahan et al., 2016)
- **Reduced mortality** (Coutts et al., 2010; James et al., 2016)



Psychological benefits:

- **Greater happiness / well-being** (Ambrey, 2016; MacKerron & Mourato, 2013)
- **Improved cognitive development among children** (Dadvand et al., 2015)
- **Reduced stress / enhanced stress recovery** (Annerstedt et al., 2013; Berto, 2014)
- **Increased prosocial behavior / social connectedness** (Broyles et al., 2011; de Vries et al., 2013)

Operational Definitions of Psychological Benefits

Happiness / Well-being

- Hedonic well-being
 - Self-reported positive emotions, life satisfaction
 - Absence of self-reported negative emotions or psychological distress
- Eudaimonic well-being
 - Self-reported sense of meaning, vitality, or transcendence

Cognitive Benefits

- Scores on tests of memory or attention
- Response time

Stress

- Physiological
- Self-reported stressors or severity of stress

Prosocial behavior / social connectedness

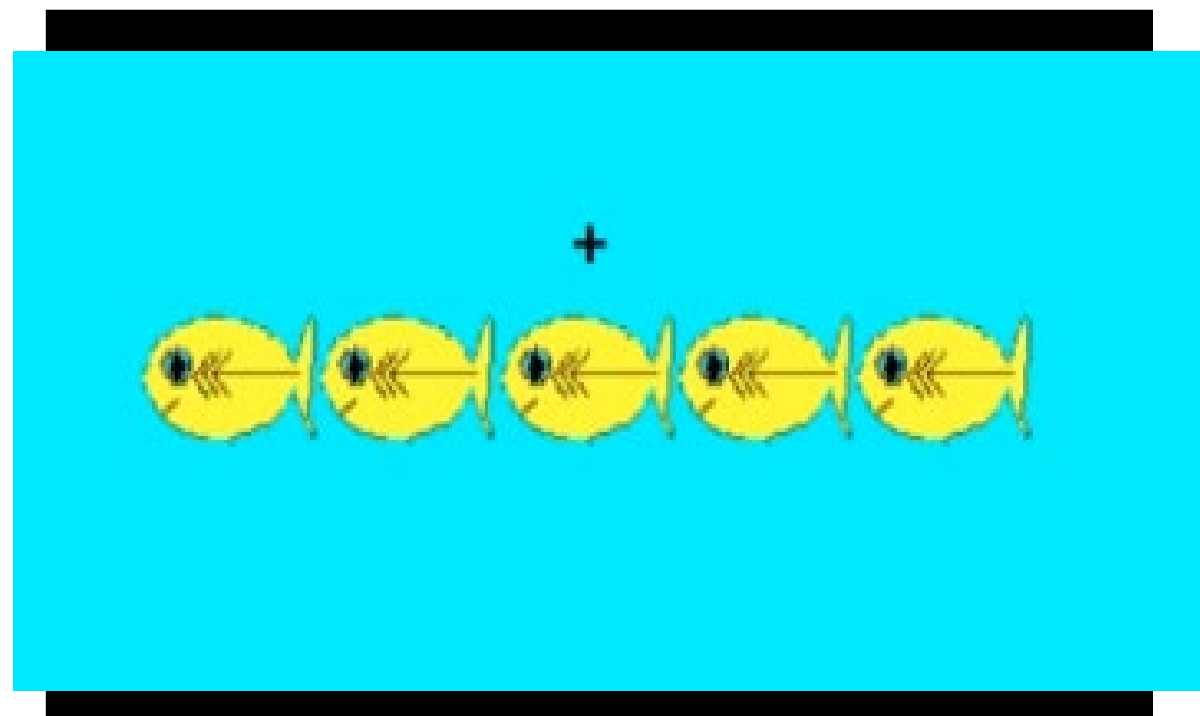
- Written responses to moral quandaries
- Self-reported feelings of social connection
- Self-reported diversity of social network

Example Study: Greenspaces and Cognitive Development in Children (Dadvand et al., 2015)

Finding:

In a sample of 7-10 year olds, those living in the greenest areas had the greatest improvements in cognitive development

Cognitive development = scores on tests of working memory and attention



Working memory = “n”-back test

Attention = attentional network test for children

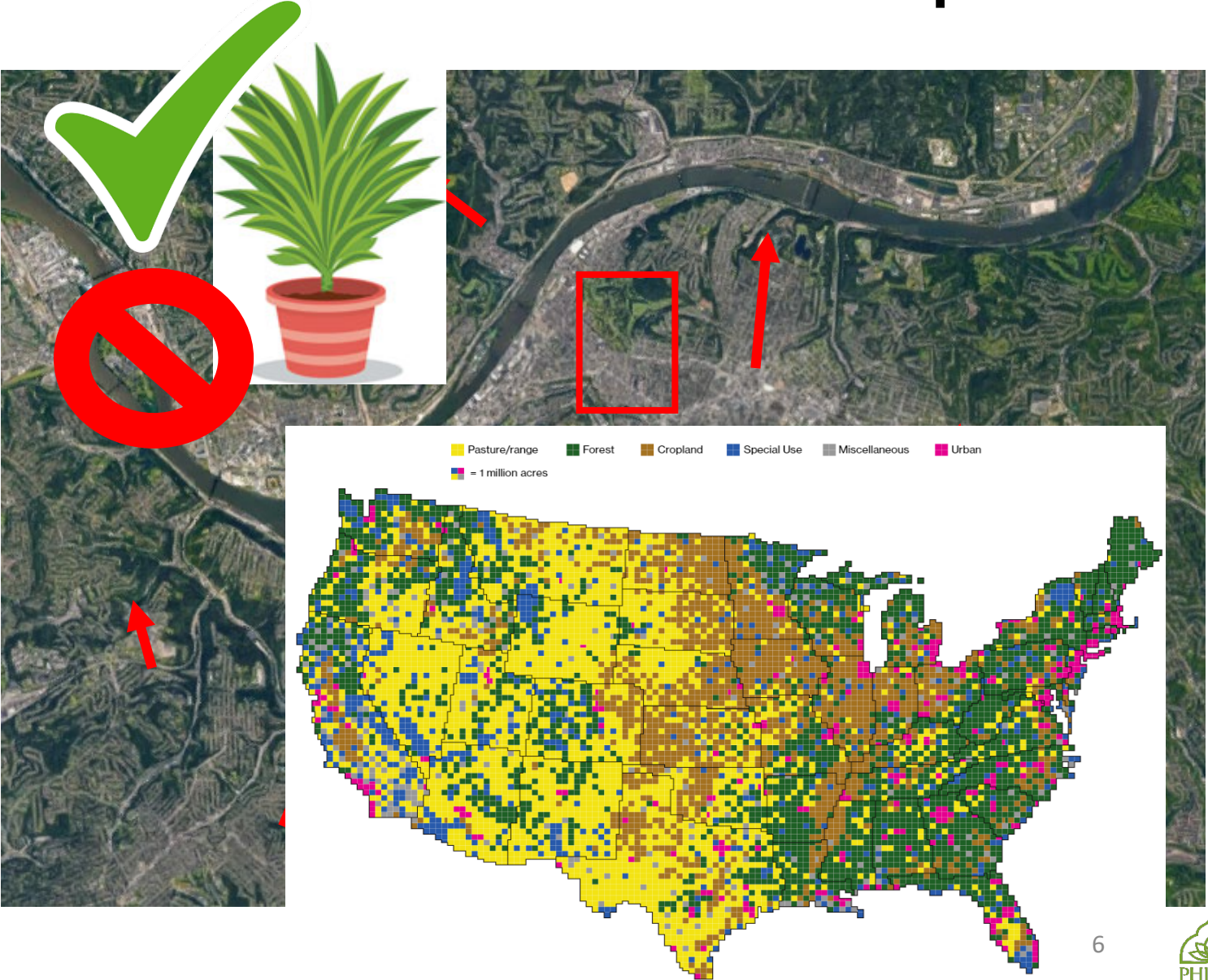
Operational Definitions of Nature Access/Exposure

Observational designs (Frumkin et al. (2017):

- Continuous
 - Satellite imagery indices
 - Distance to greenspace
- Ordinal or Categorical
 - Binary indicators
 - Categorization

Experimental designs

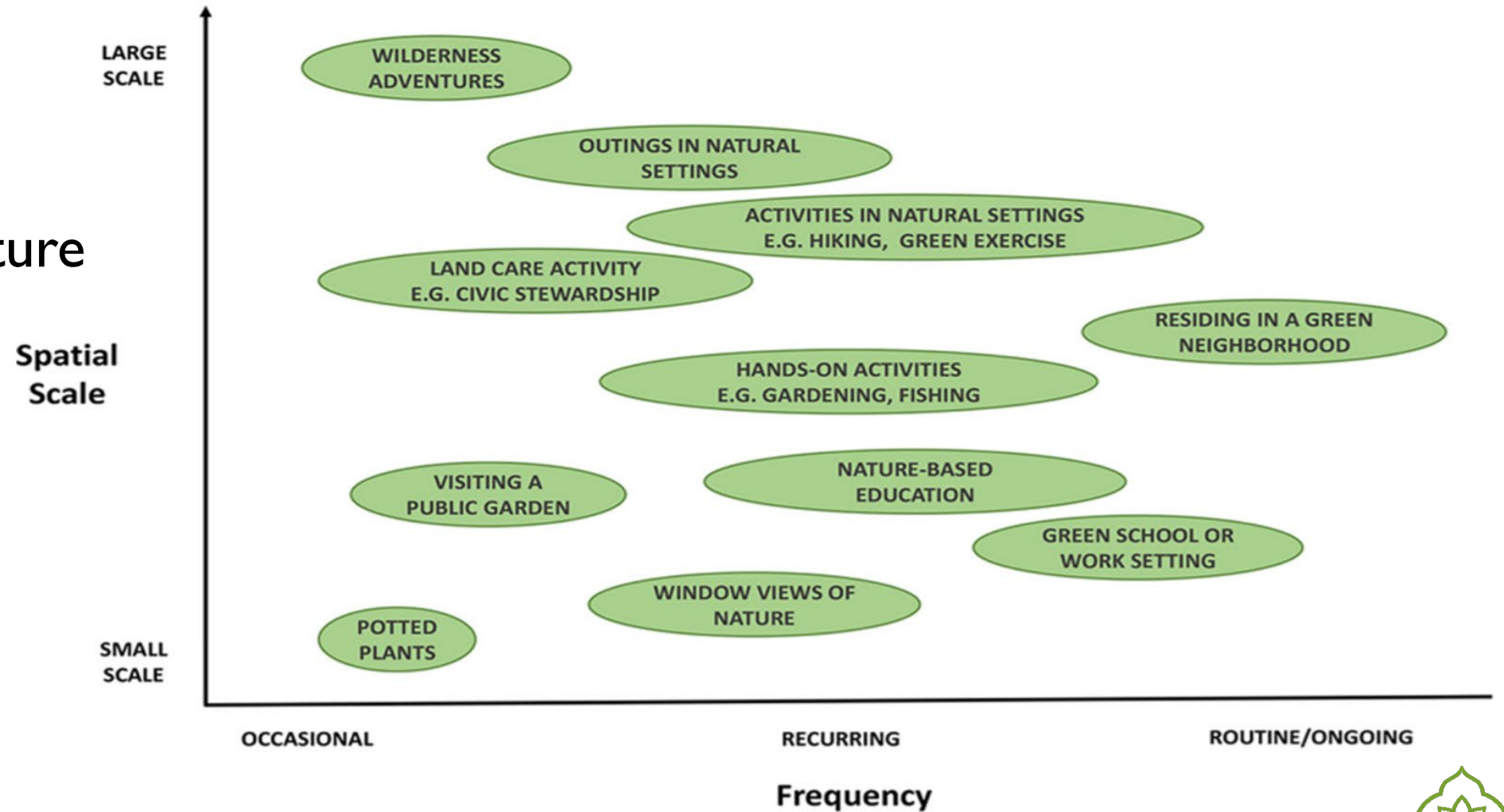
- Factorials, repeated measures, etc



Potential Issues with Nature Definitions

Across all fields:

- Dosage
- Inability to capture range of experiences
- Mechanism



Source: Frumkin et al. (2017)

Mechanisms for Psychological Benefits

Mechanisms seek to explain the *how*



Control Conditions in Experimental Research

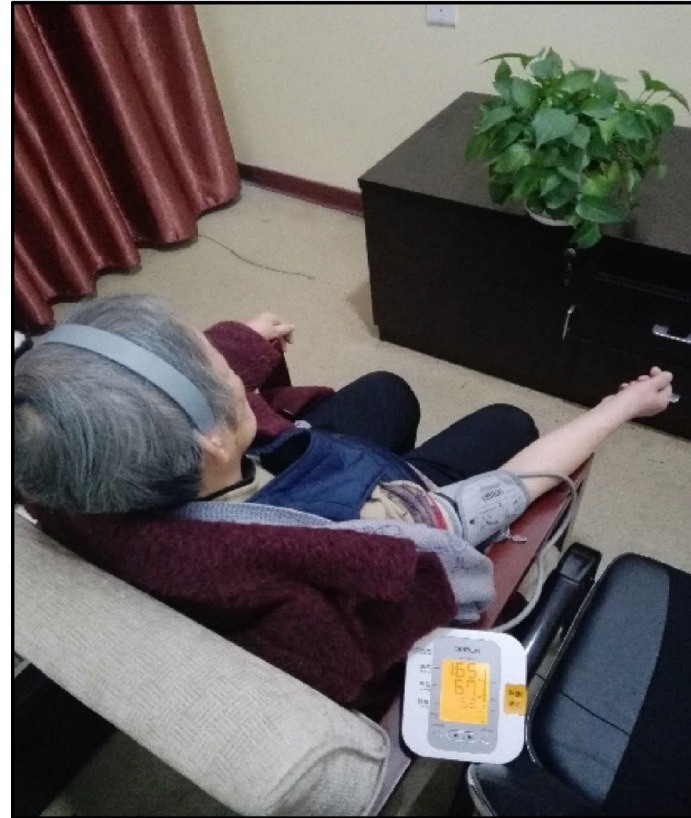
Control conditions are used to compare intervention

Identifying appropriate control or comparison conditions is difficult

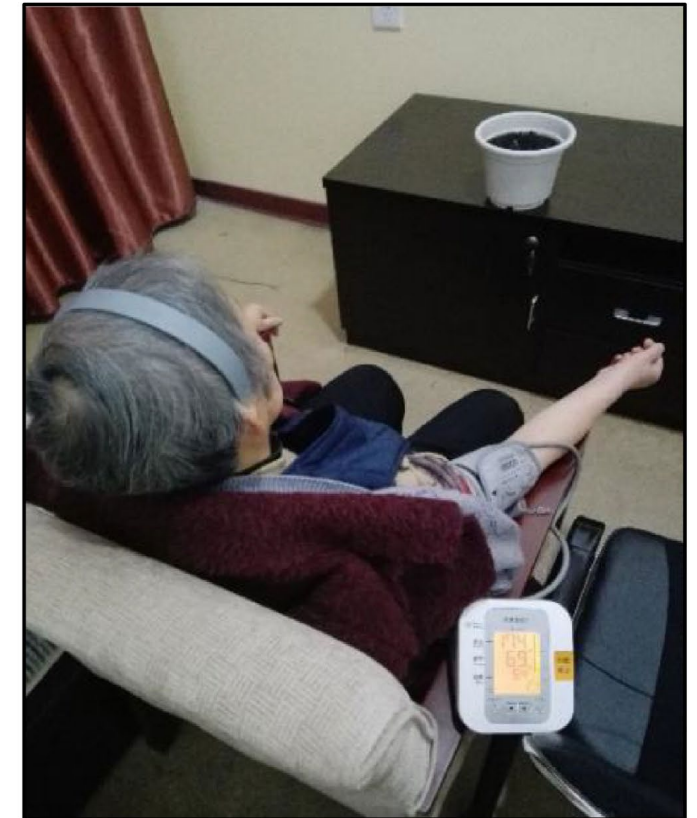
- Simplicity vs real-life accuracy
- Only want to change one thing between control and experimental group

Potential issues with:

- Practicality
- Conceptual designs

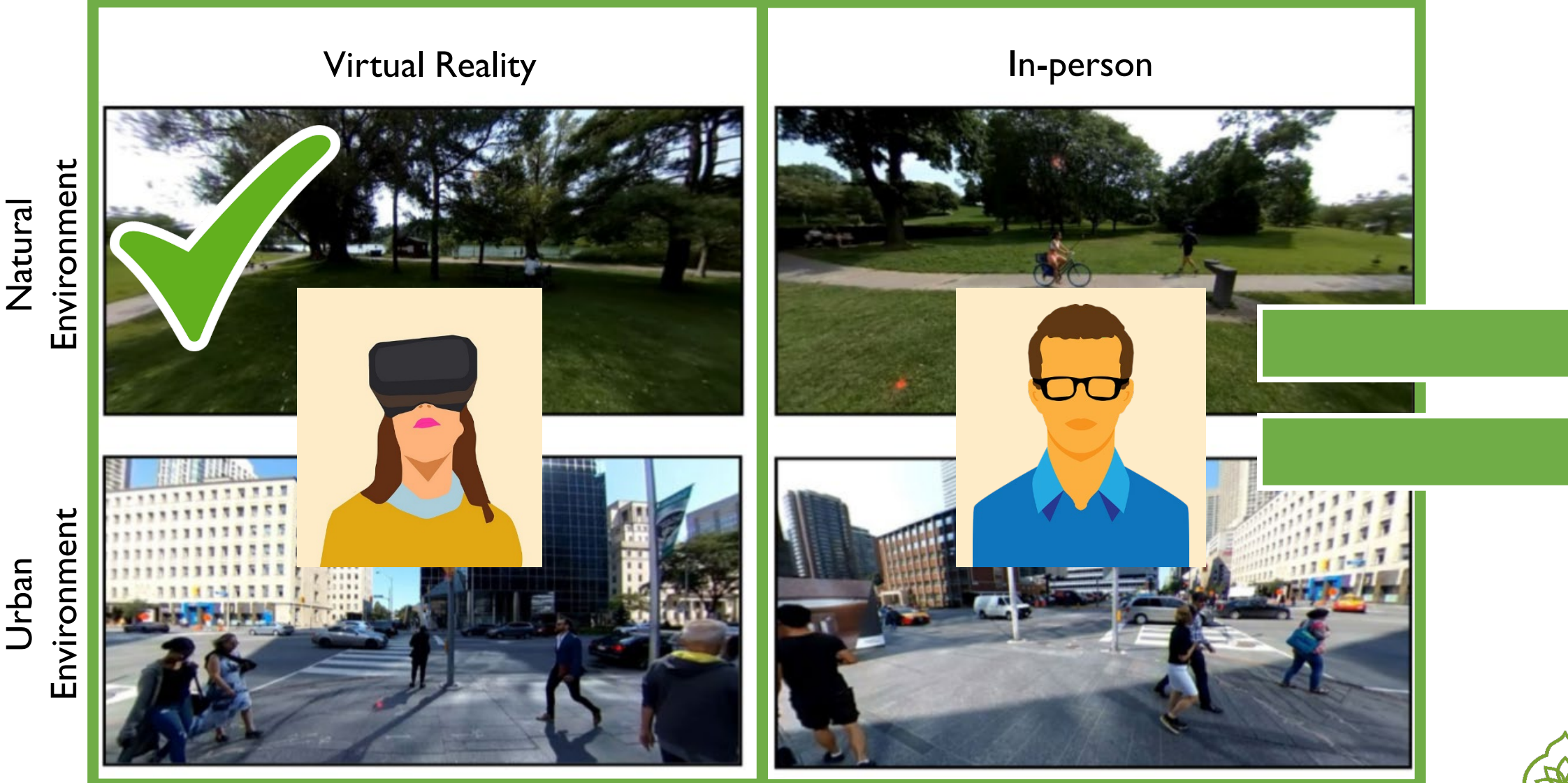


Money Plant



Control

Example Study: Creativity in Nature



Source: Palanica et al., 2019

Opportunities

- Understand operational definitions of psychological outcomes and nature to identify useful studies
- Seek to find the mechanism to replicate the magic ingredient
- Look for compelling uses of control and contrast conditions to be sure of the findings



Thank you