

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

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# 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

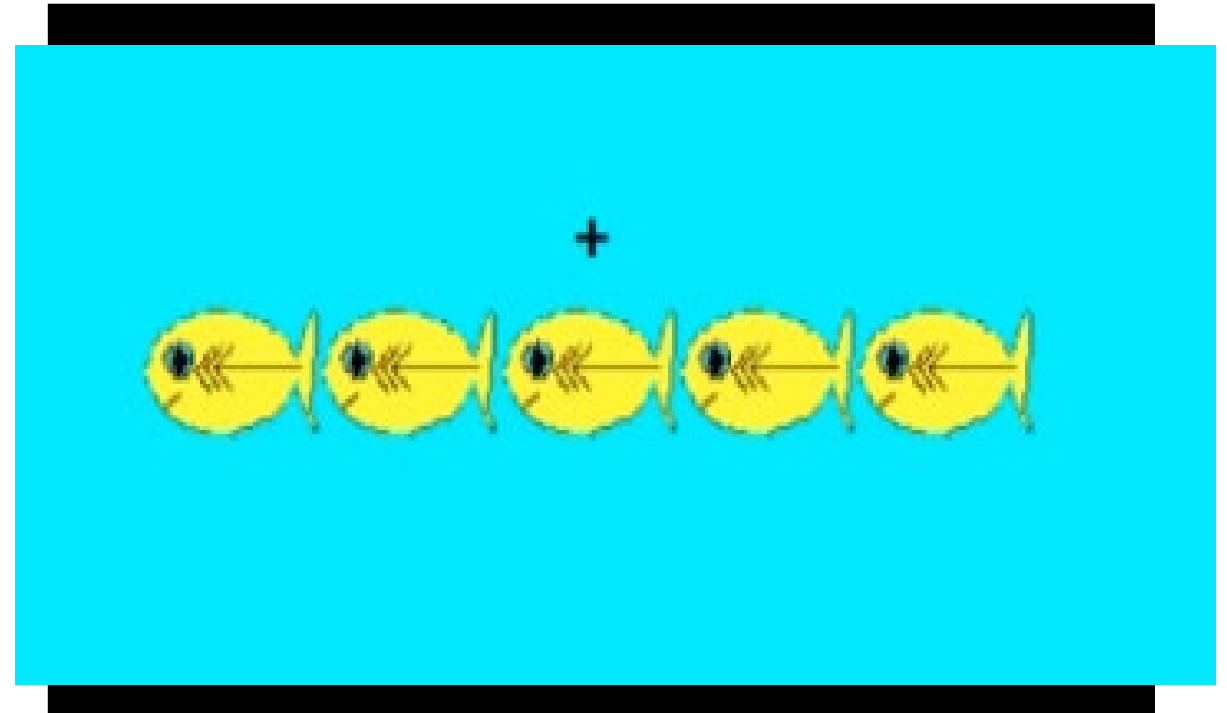
- Written responses to moral quandaries
- Self-reported feelings of social connection
- Self-reported diversity of social network

# 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

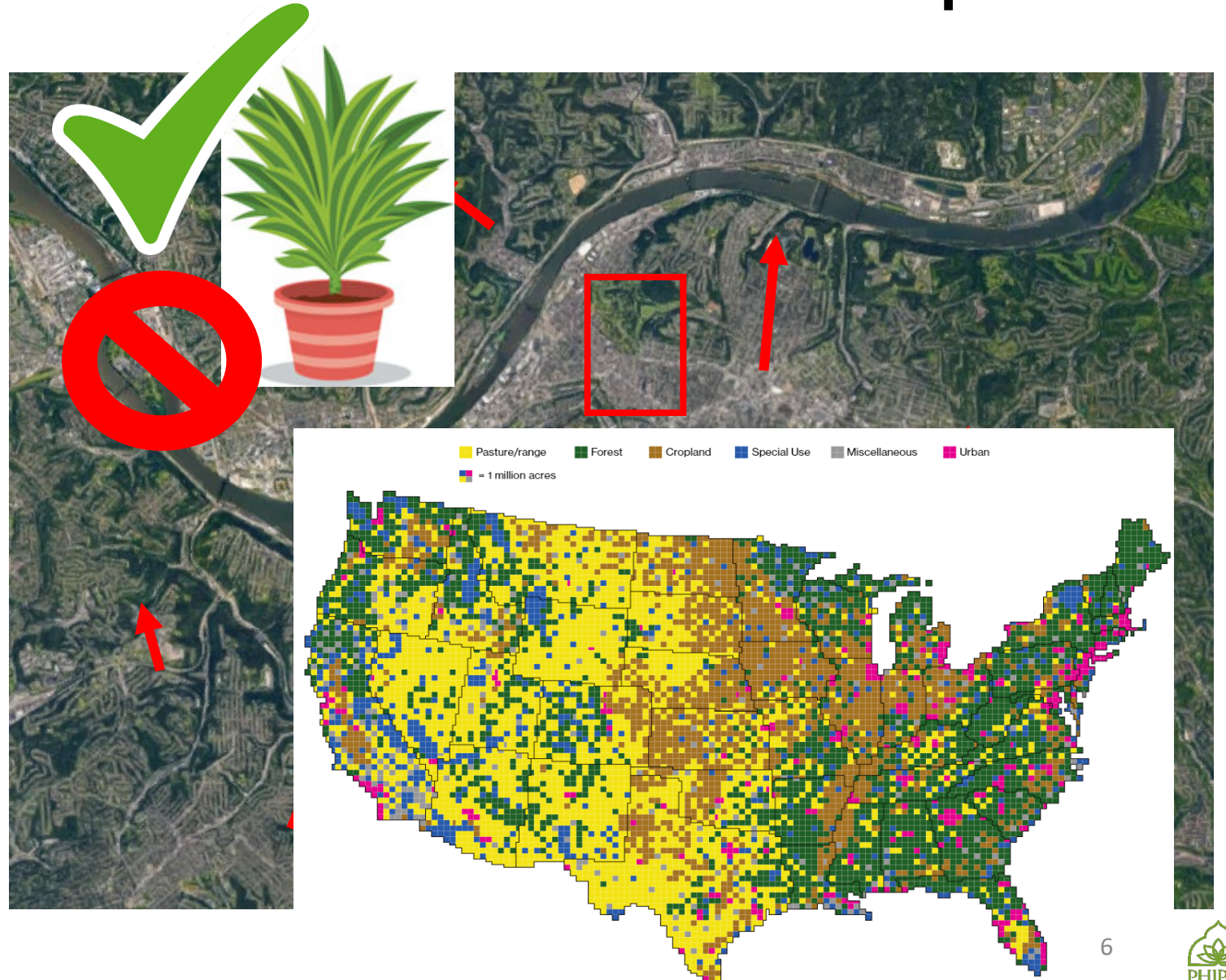
# Operational Definitions of Nature Access/Exposure

Observational designs (Frumkin et al. (2017):

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

Experimental designs

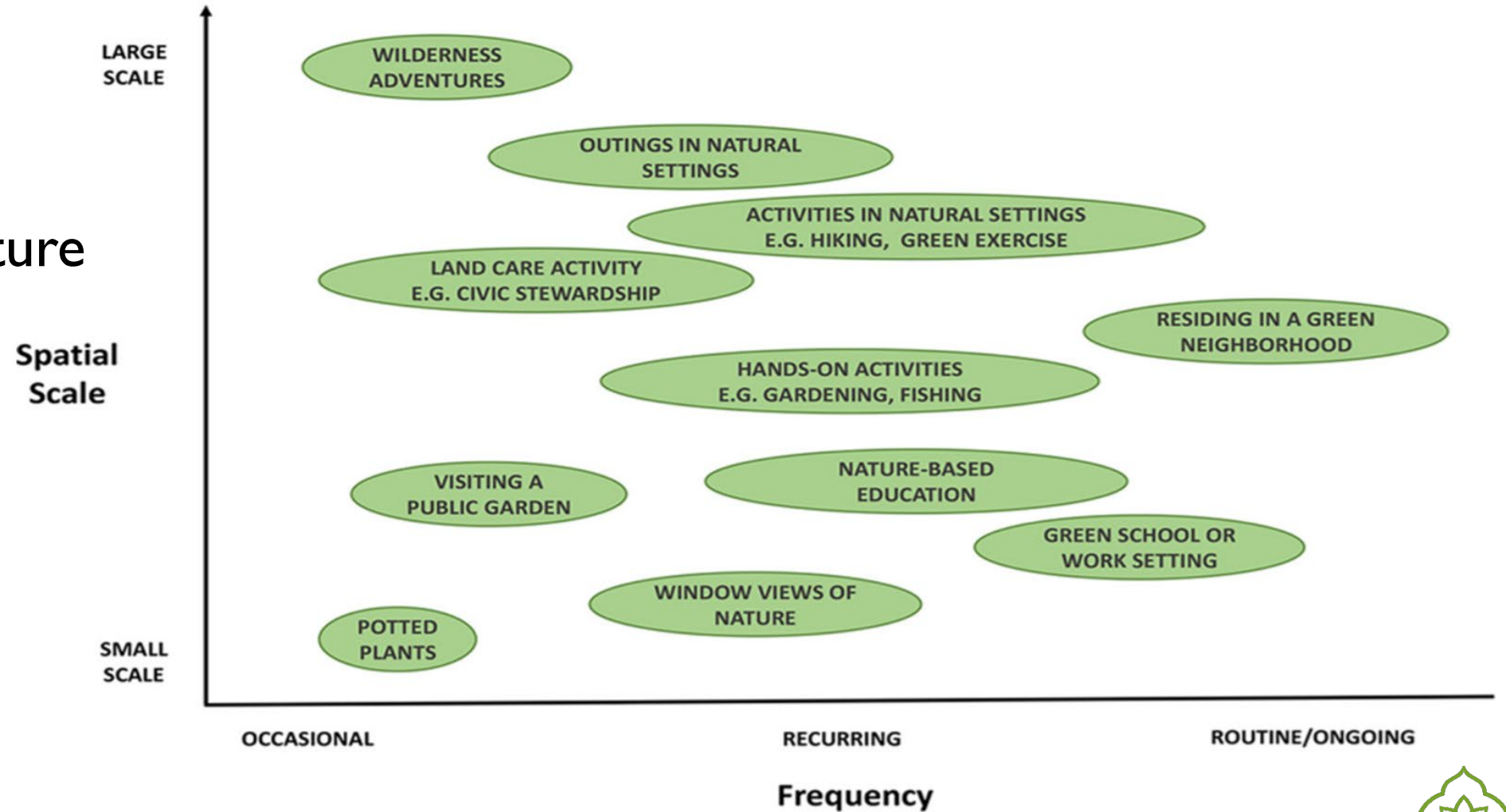
- Factorials, repeated measures, etc



# 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

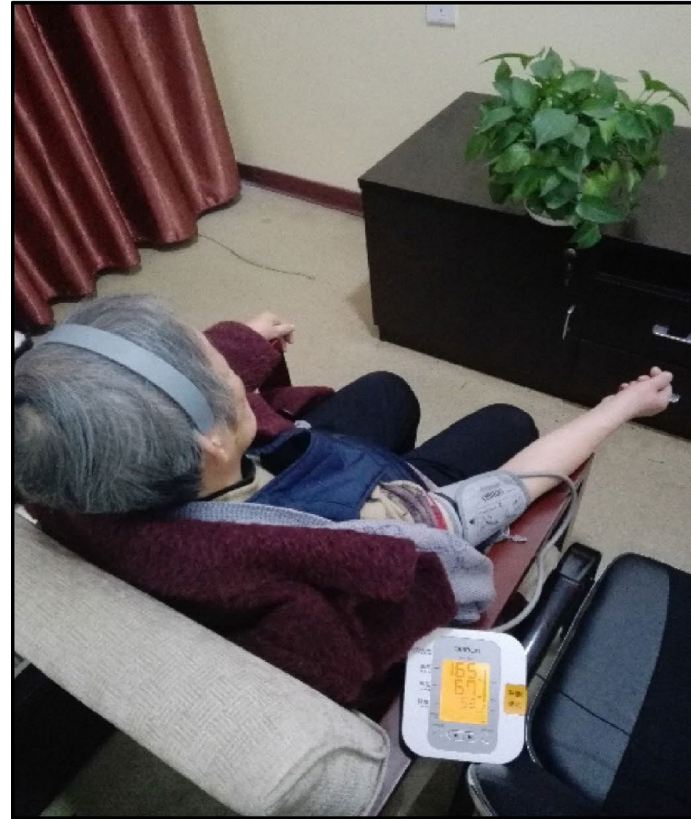
Control conditions are used to compare intervention

Identifying appropriate control or comparison conditions is difficult

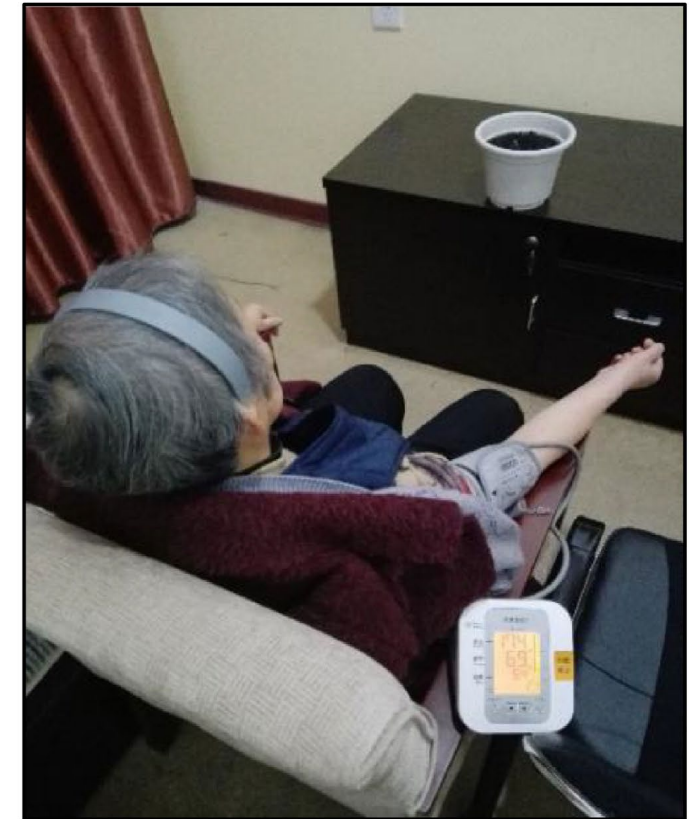
- Simplicity vs real-life accuracy
- Only want to change one thing between control and experimental group

Potential issues with:

- Practicality
- Conceptual designs

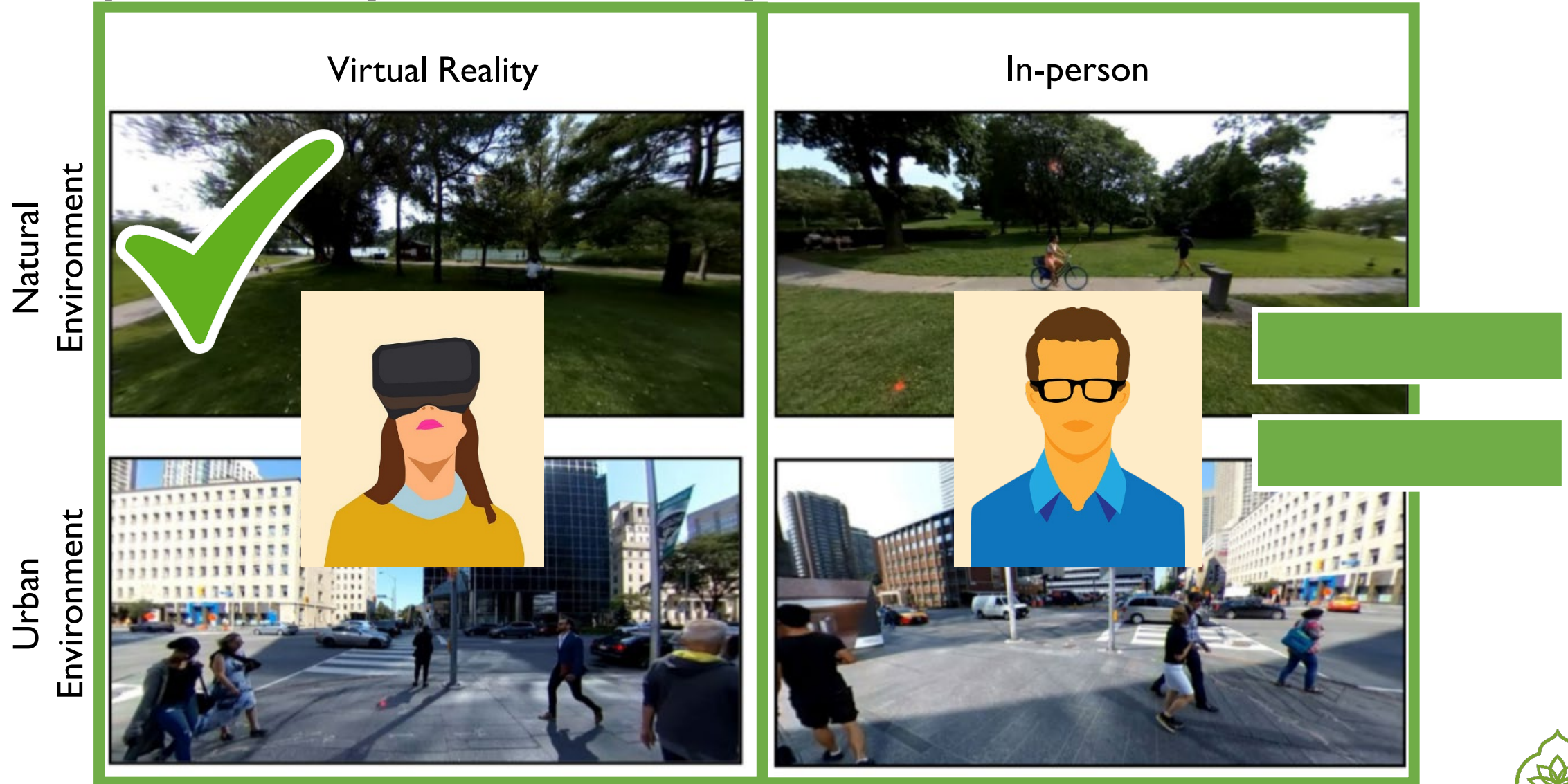


Money Plant



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