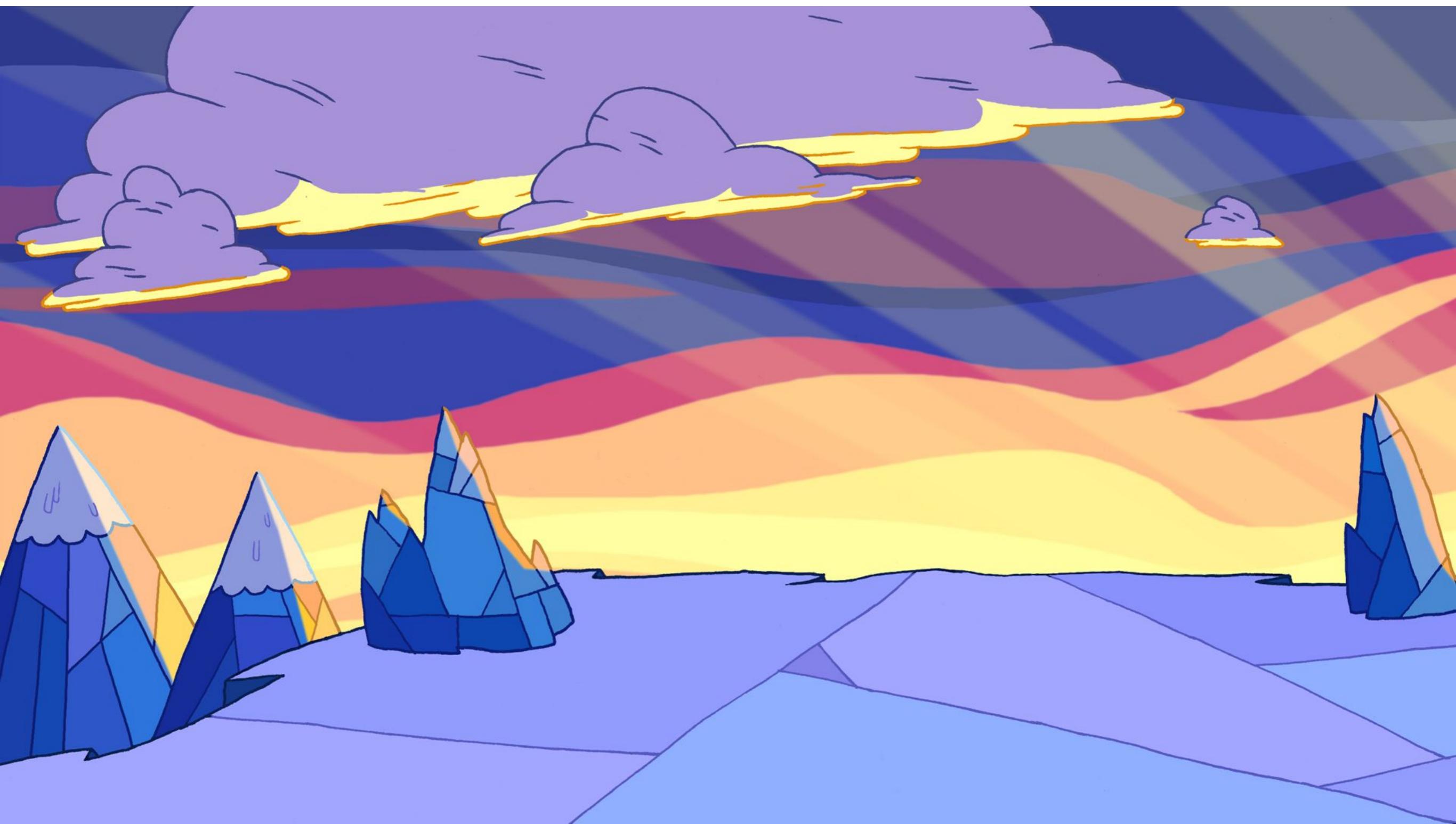
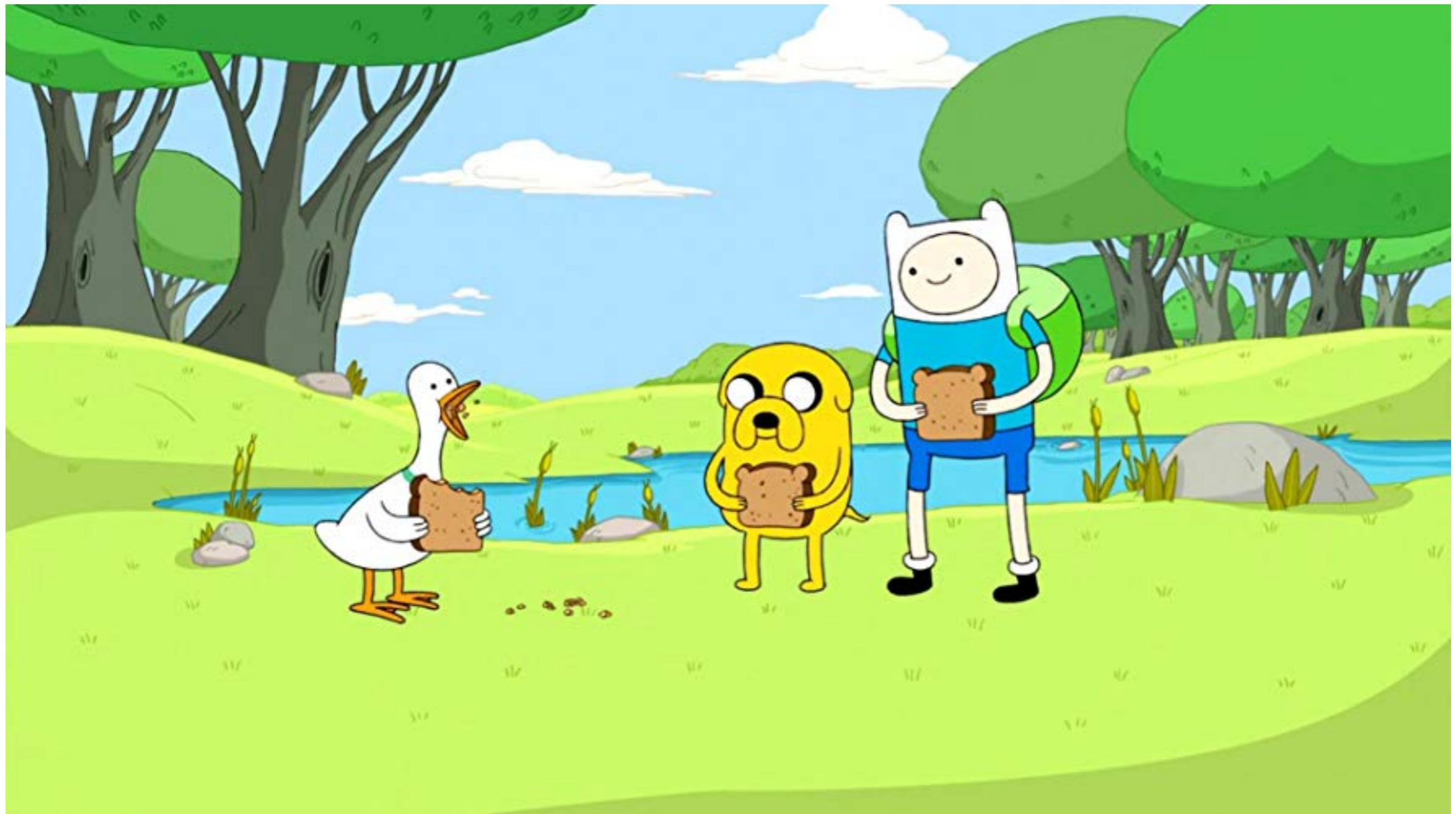


nature cognition tools

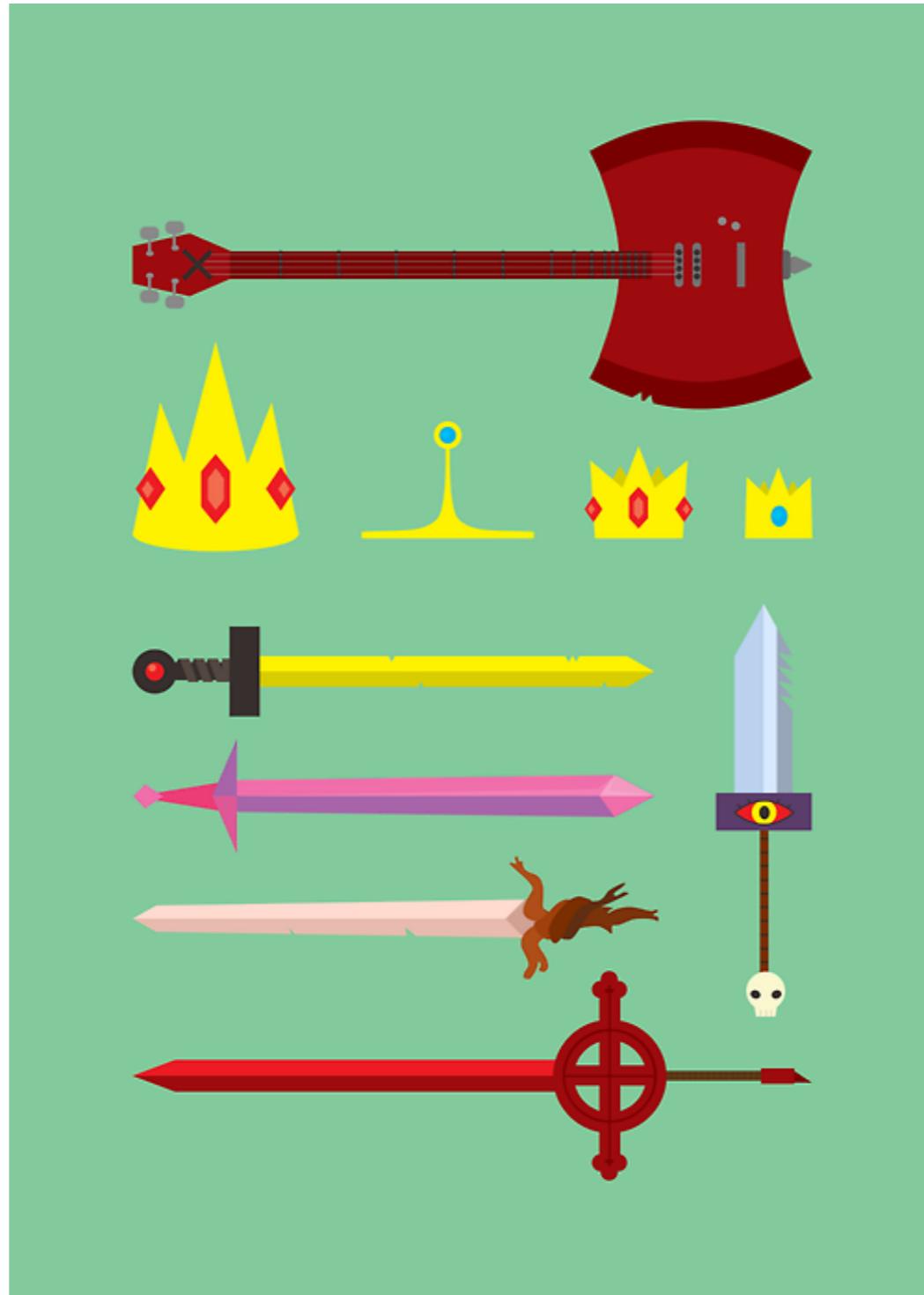


@cjlortie

a **little** nature goes a long way



a **tool** is a device or implement
used to carry out a particular function



an **adventure** is an unusual & exciting,
typically hazardous, experience or activity



nature can be a tool that enhances cognition

critical elements



movement or
directed experience

implicit mechanism

outside

novelty or risk

discovery

mental engagement





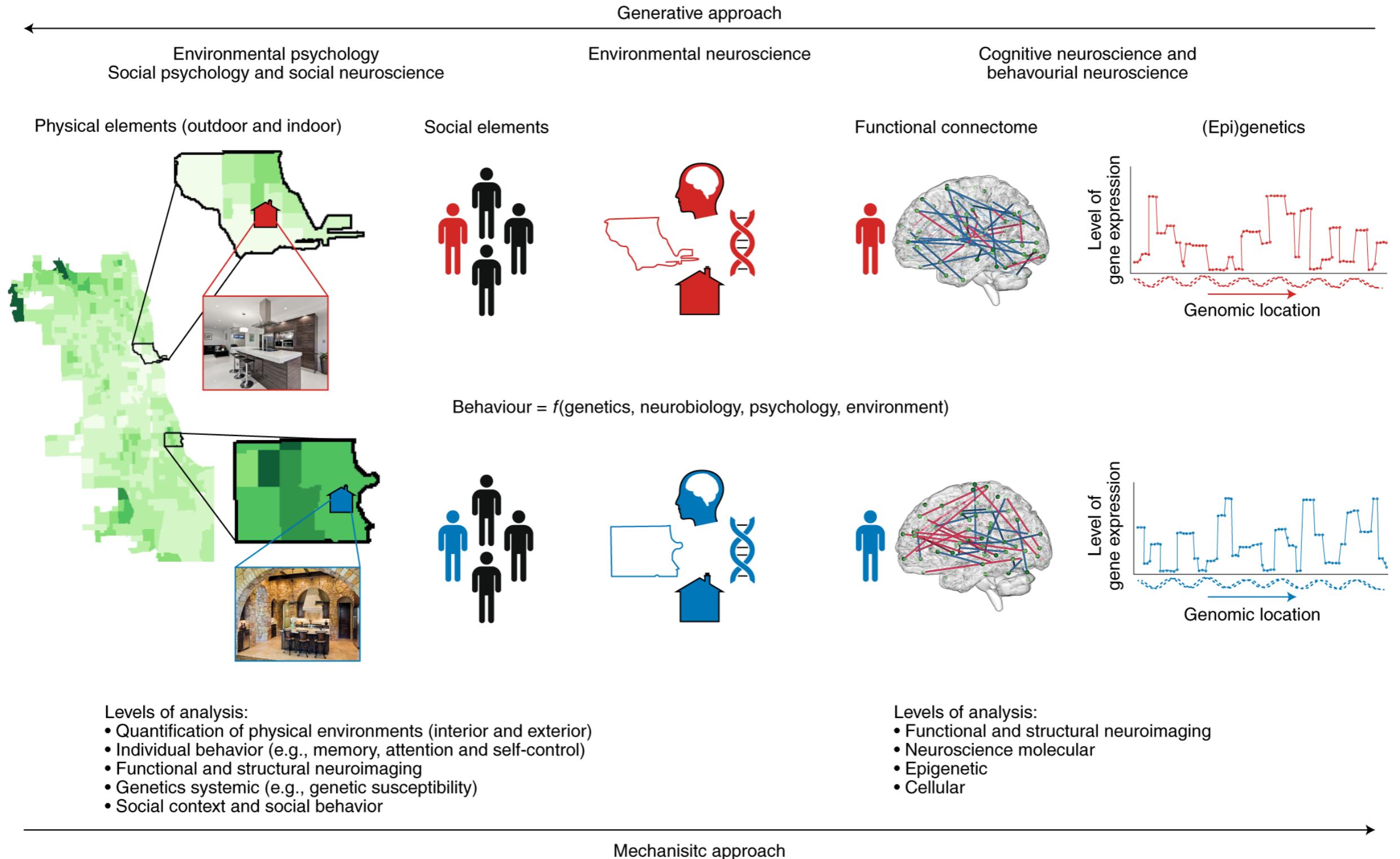


11 million bits of information per second in cities



Plambech et al. 2015

the promise of environmental neuroscience



Berman et al. 2019

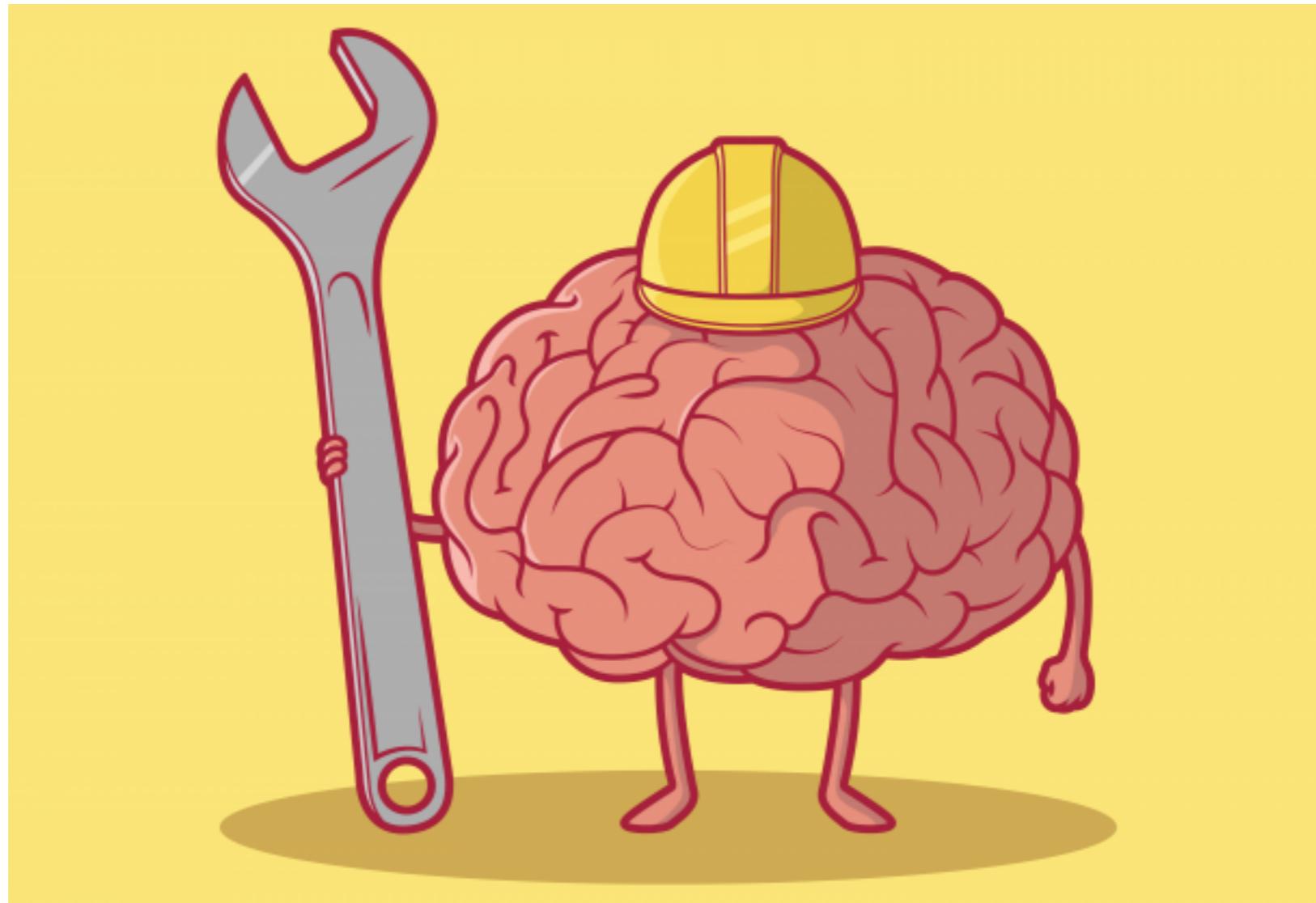
explore this interaction set



as an antidote to this interaction set



cognition



knowledge, processing, experience, perception, learning, reasoning

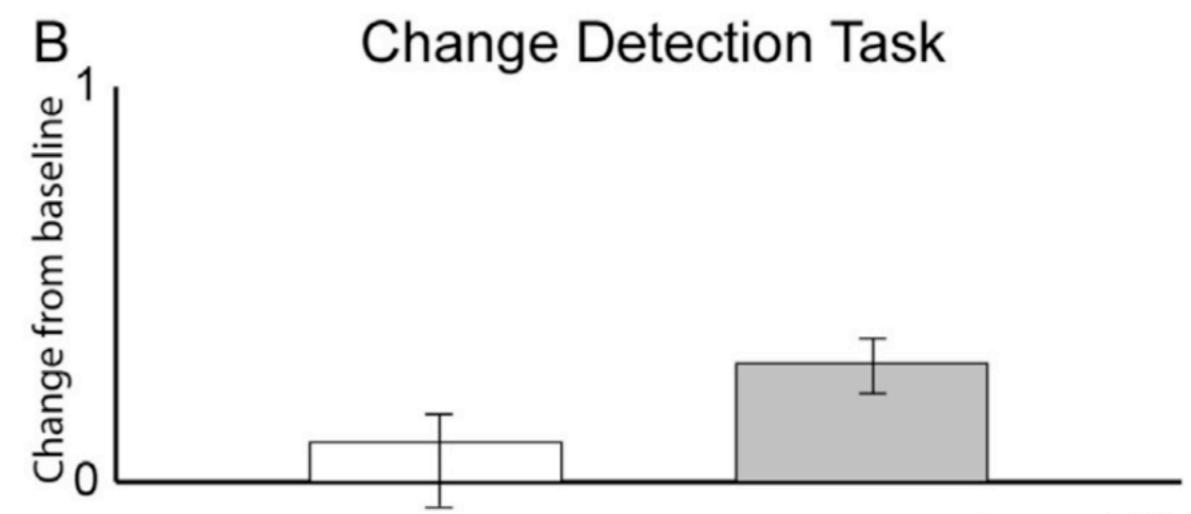
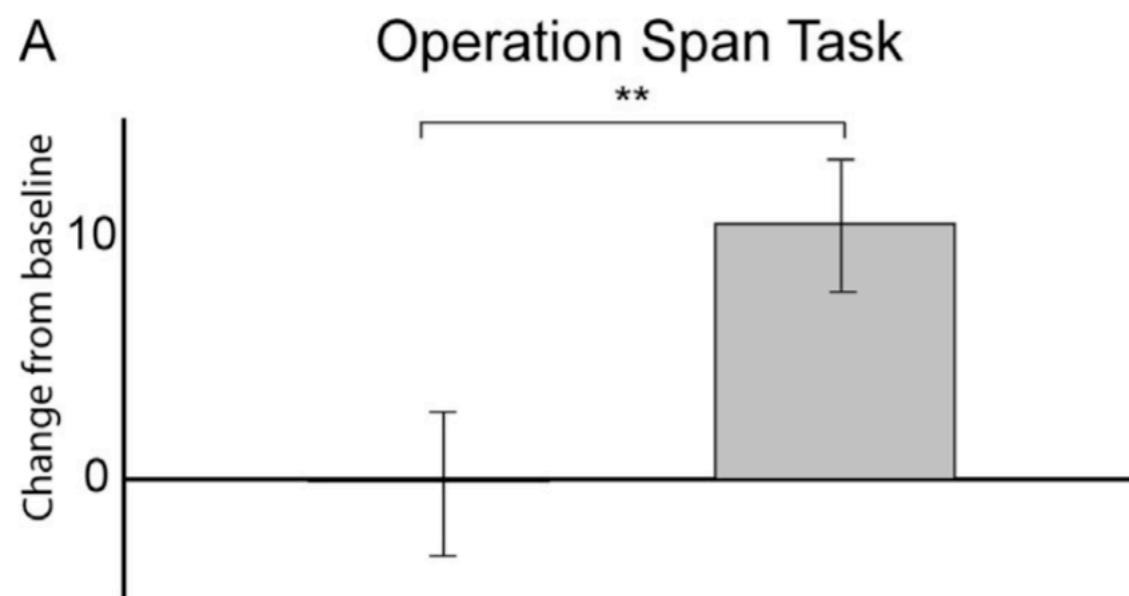
50 individuals tested all typically showed modest increases from a walk outside or imagery

TABLE 1

Behavioral Results From Experiments 1 and 2

Measure	Natural setting		Urban setting	
	Before interaction	After interaction	Before interaction	After interaction
Backward span				
Experiment 1	7.90 (0.37)	9.40 (0.41)	7.90 (0.30)	8.40 (0.33)
Experiment 2	7.92 (0.96)	9.33 (0.86)	7.83 (1.04)	8.83 (0.90)
ANT effects (ms)				
Executive	86 (11.30)	67 (8.45)	81 (15.50)	93 (17.96)
Orienting	47 (6.46)	55 (7.33)	46 (10.01)	43 (4.73)
Alerting	32 (6.86)	31 (5.23)	36 (6.52)	46 (5.63)

Berman et al. 2008



~**250** people test to date show mean change at
+**20%** with a short walk (15-50mins)

Bratman et al. 2015

2356 people tested
20-40% of variation explained by experiencing nature
(viewing or outside)

Table 3. Overall effect size estimates for the effect of brief exposure to natural environments on positive and negative affect.

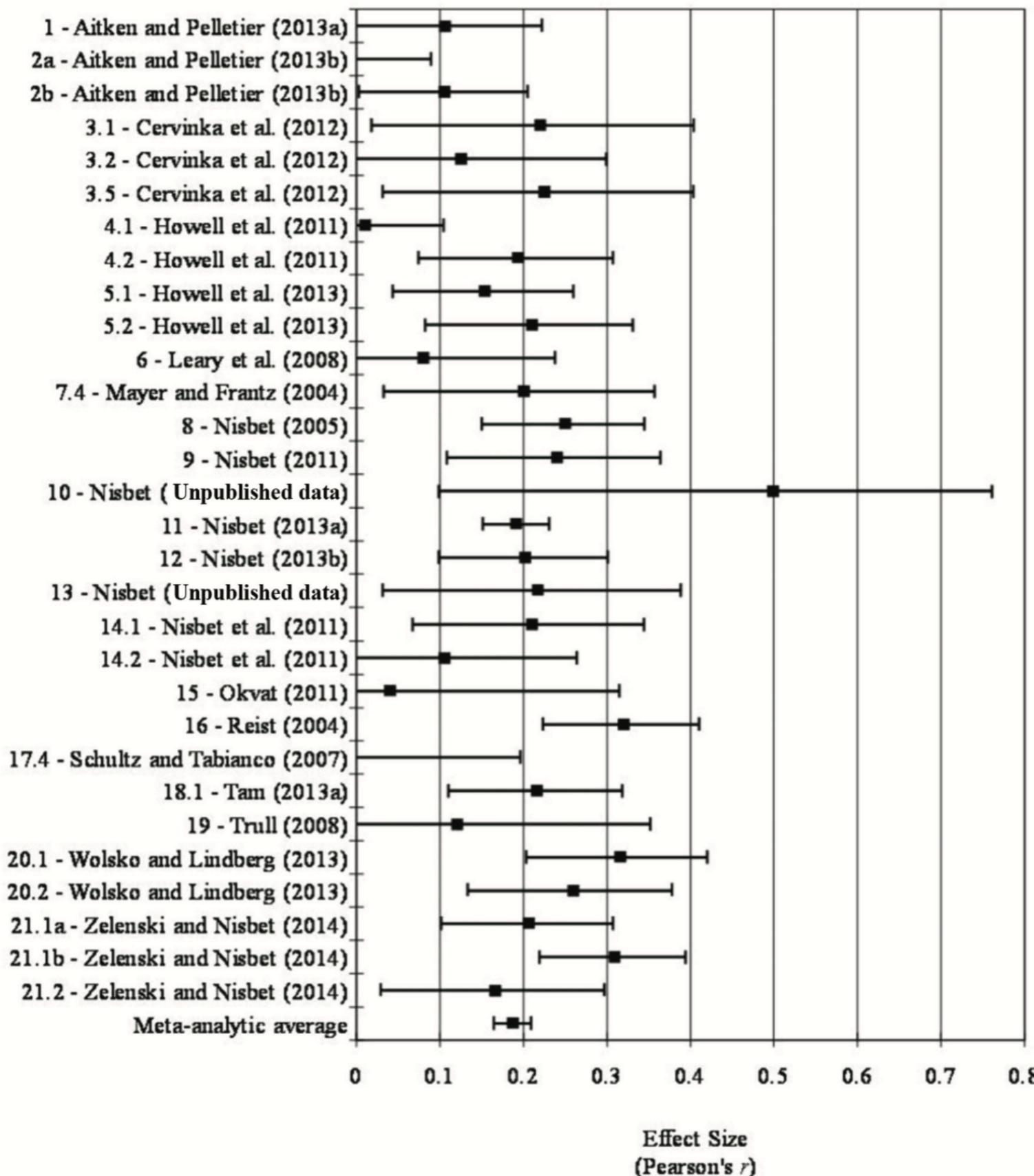
Outcome	N	k	r	95% CI for r (lower, upper)	T^2	I^2
Positive affect	2284	31	0.31	0.24, 0.37	0.02	56.95
Negative affect	1630	20	-0.12	-0.17, -0.07	0.00	13.08
Overall	2356	32				

Note: N = number of participants included in analysis; k = number of studies; r = effect size estimate; CI = confidence interval; T^2 = estimate of between-study variability; I^2 = estimate of total variability due to between-study variability.



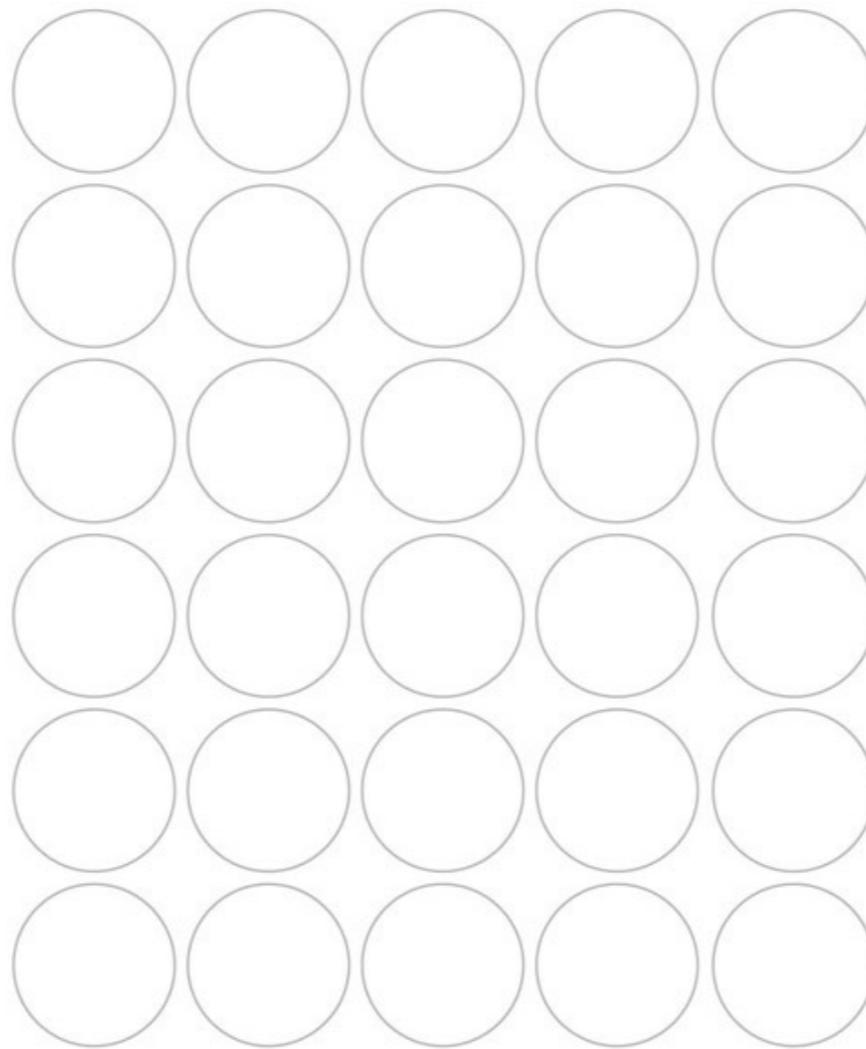
McMahan & Estes 2015

8523 people
happier with
nature



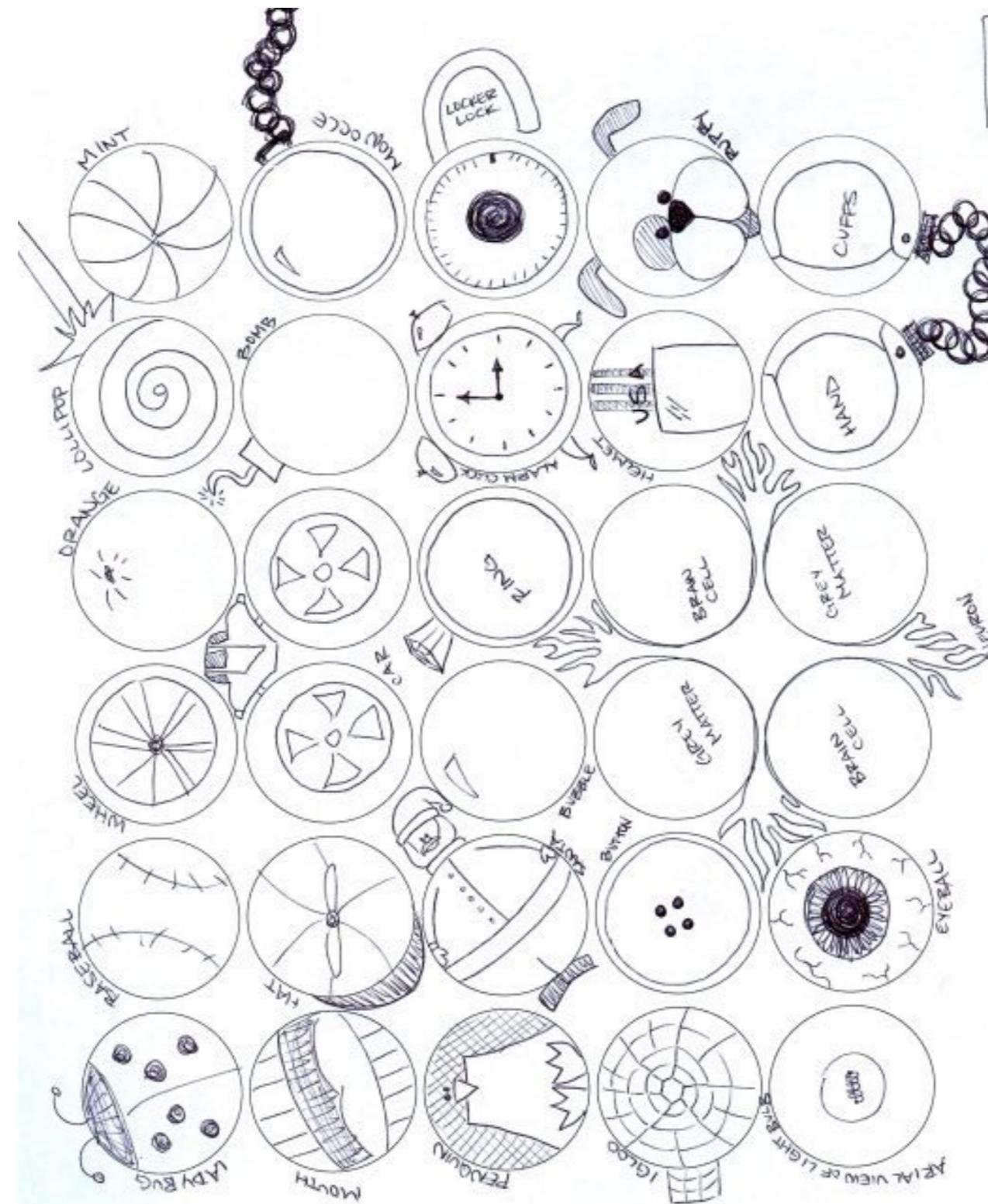
104 people tested for verbal & visual creativity
with & without natural views/plants

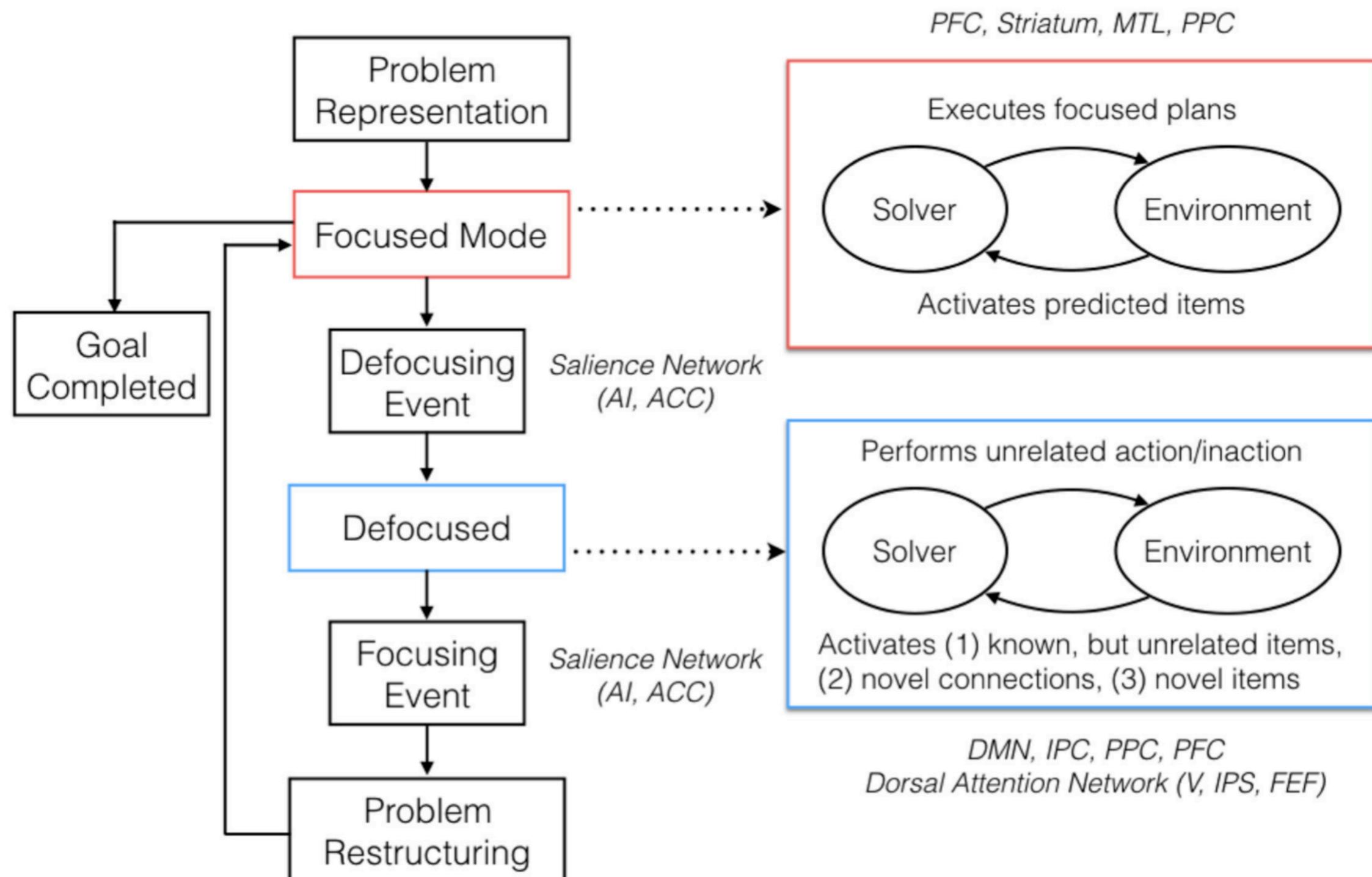
30 CIRCLES TEST



Studente et al. 2016

8.3.10





25,782 participants benefitted from risky outdoor play

Table 1. Definitions used to guide the systematic review (risky play behaviours).

Risky Play		
Thrilling and exciting forms of play that involve a risk of physical injury. The risk can be real or perceived [7,14]		
Risky Play Categories [5,6]	Definition	Examples
<i>Great heights</i>	Danger of injury from falling	Climbing/jumping from surfaces, balancing/playing on high objects (e.g., playground equipment), hanging/swinging at great heights
<i>High speed</i>	Uncontrolled speed and pace that can lead to collision with something (or someone)	Swinging at high speed
<i>Dangerous tools</i>	Can lead to injuries and wounds	Cutting tools (e.g., knives, saws, or axes), strangling tools (e.g., ropes)
<i>Dangerous elements</i>	Where children can fall into or from something	Cliffs, water, fire pits, trees
<i>Rough and Tumble Play</i>	Where children can be harmed	Wrestling or play fighting with other children or parents
<i>Disappear/get lost</i>	Where children can disappear from the supervision of adults or get lost alone	Exploring alone, playing alone in unfamiliar environments, general independent mobility, or unsupervised play

tools



get outside
develop an environmental identity
photos, windows, views
use active interactions with nature
explore whatever natural elements are immediately present
walk and walking meetings
change your 'learning' environment
challenge or **risk** or **play outside**



nature can
illuminate
connections