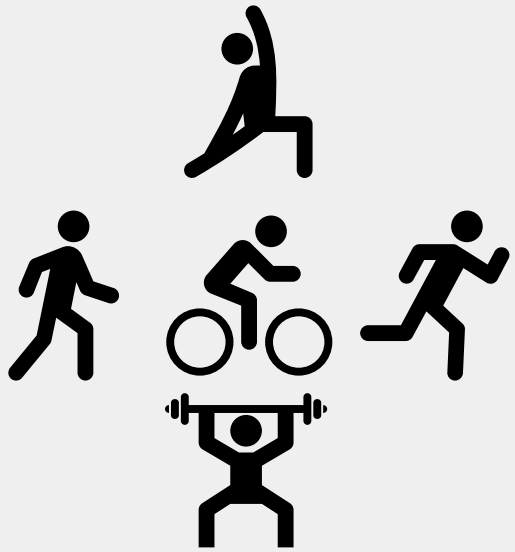
Mental Health and Exercise

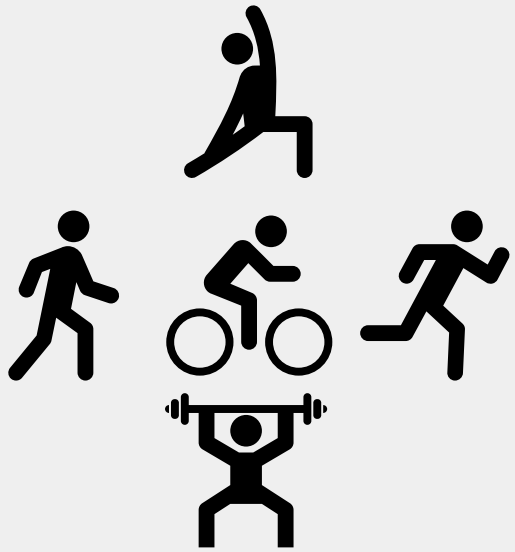
Keegan Knittle
Liikuntapsykologian apulaisprofessori

The role of psychology

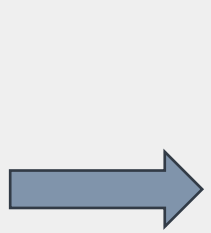


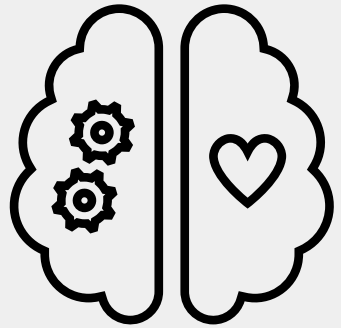
Physical activity

The role of psychology



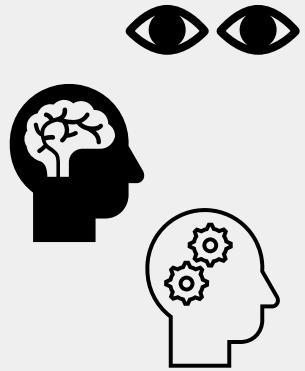
Physical activity



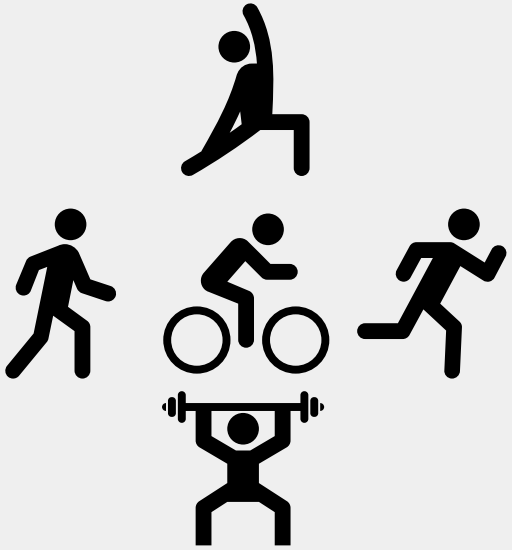


Mental health and well-being

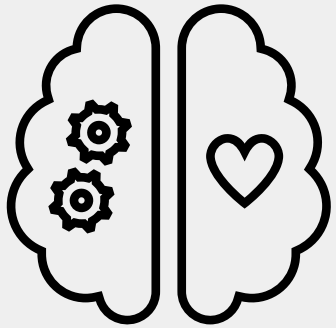
The role of psychology



“Behavioral determinants”
Includes biological, social, environmental and psychological factors

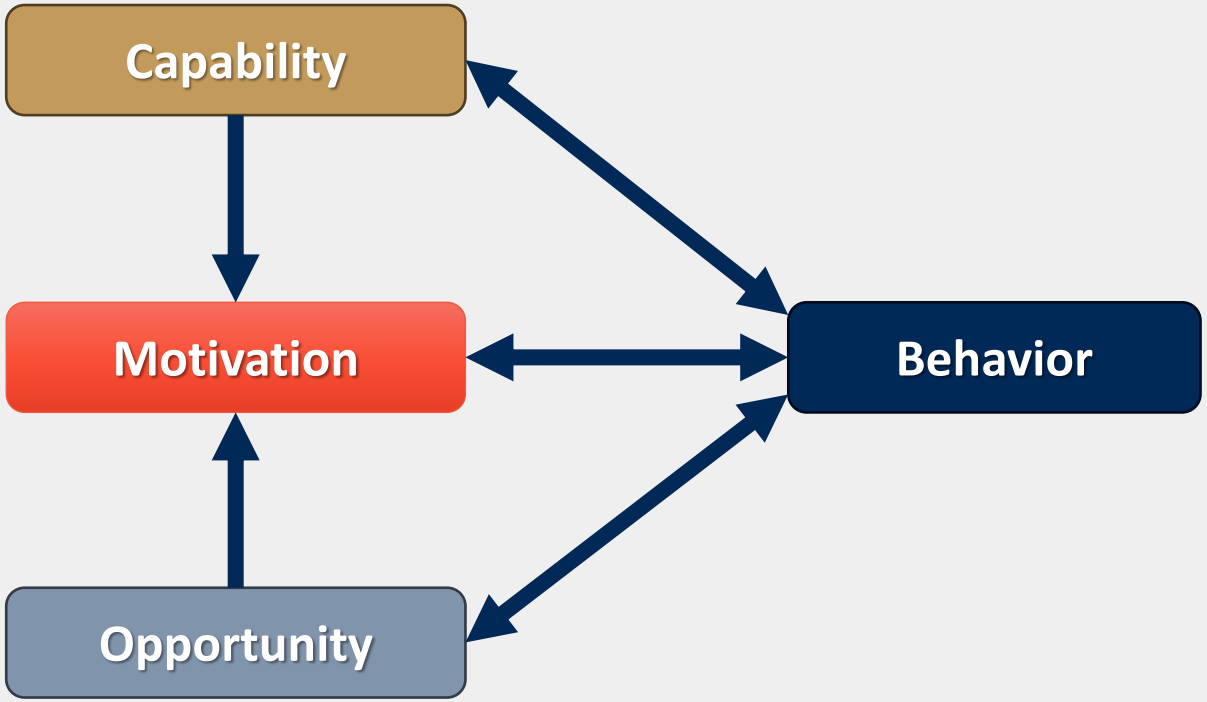


Physical activity



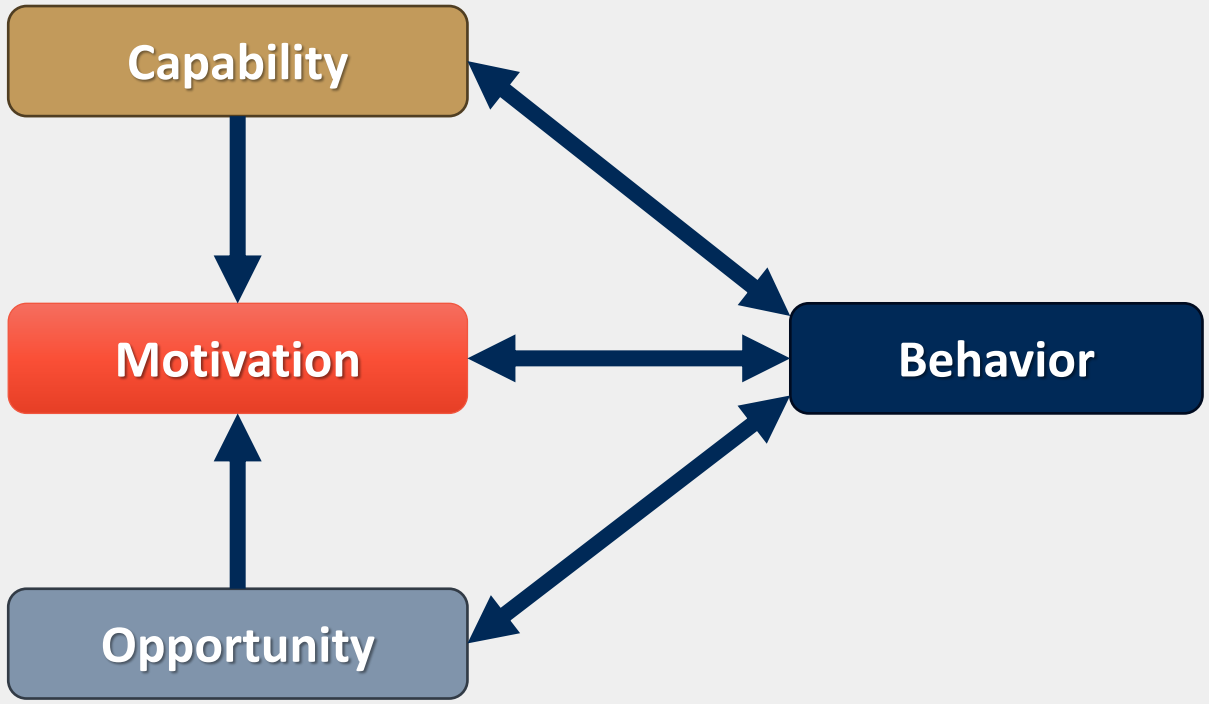
Mental health and well-being

COM-B Model



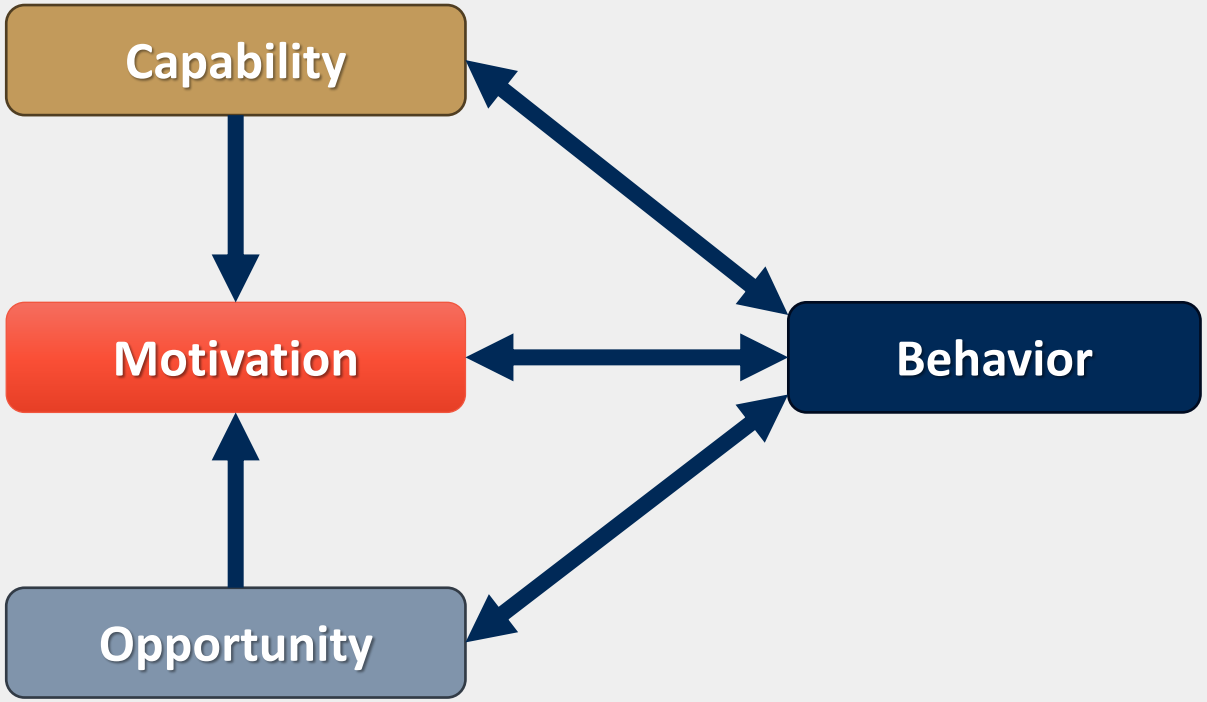
Michie et al (2011), in *Implementation Science*

COM-B Model



Michie et al (2011), in *Implementation Science*

COM-B Model

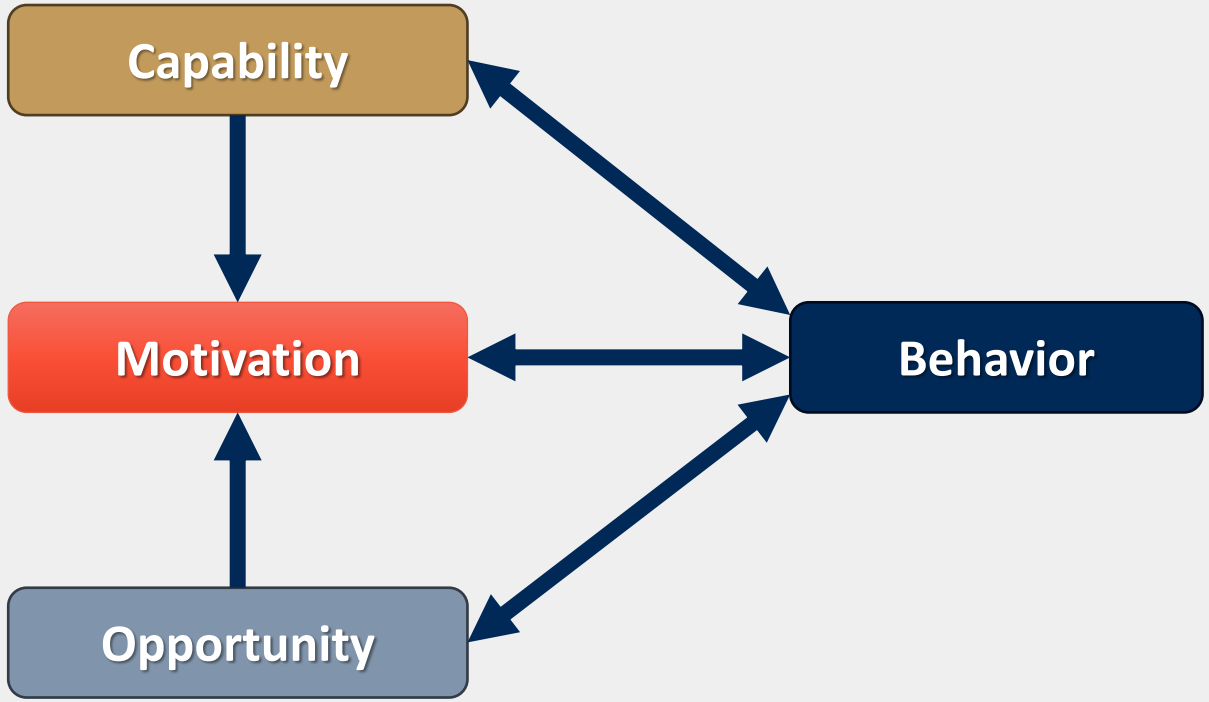


Michie et al (2011), in *Implementation Science*

COM-B Model

Psychological

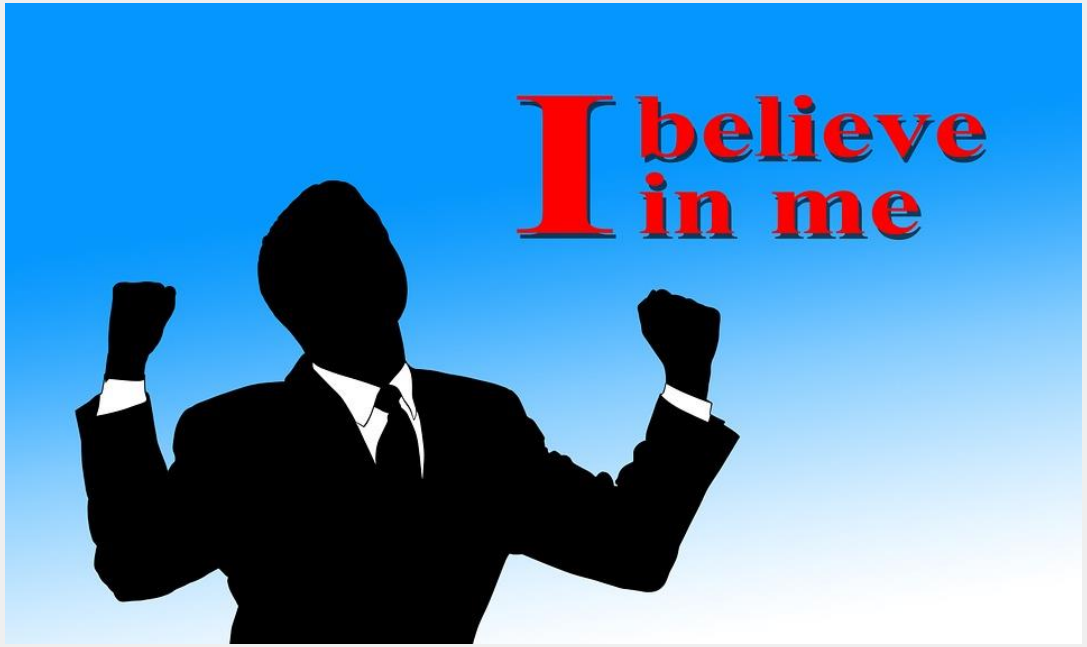
Physical



Michie et al (2011), in *Implementation Science*

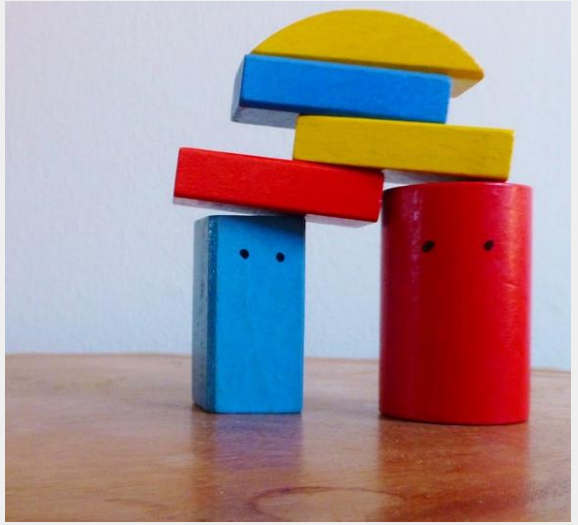
Psychological Capability

- Self-efficacy
  - Belief in own ability to undertake a behavior
- Perceived control
  - Belief in own control over whether behavior takes place



Building self-efficacy

- Positive (past) experiences
  - Small, achievable tasks with feedback
  - Practice or rehearsal
- Observing positive experiences of similar others
  - Identifying role models
- Persuasion
  - Or self-persuasion?



Ashford, Edmunds & French, 2010; Bandura, 1982

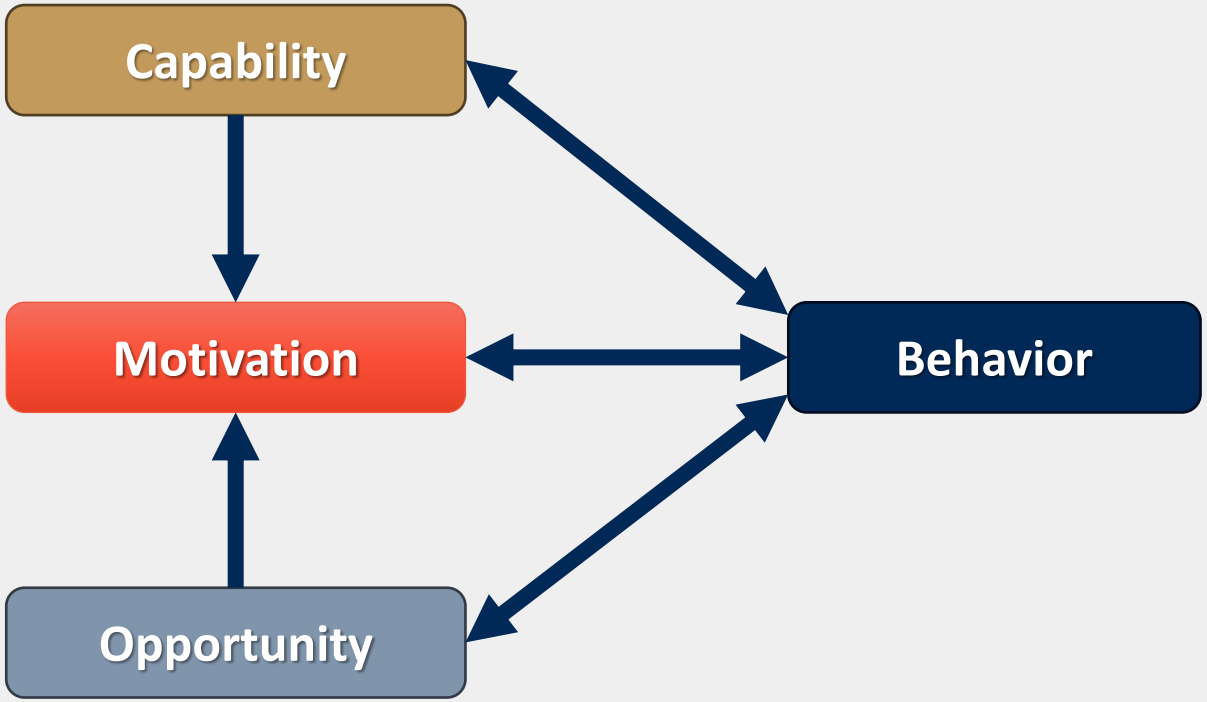
Physical Capability

- People have limitations and preferences
- Important to find match with ability, preferences, and desired outcomes
- This requires clinical knowledge, creativity, effort and an open mind!
  - Guess and test

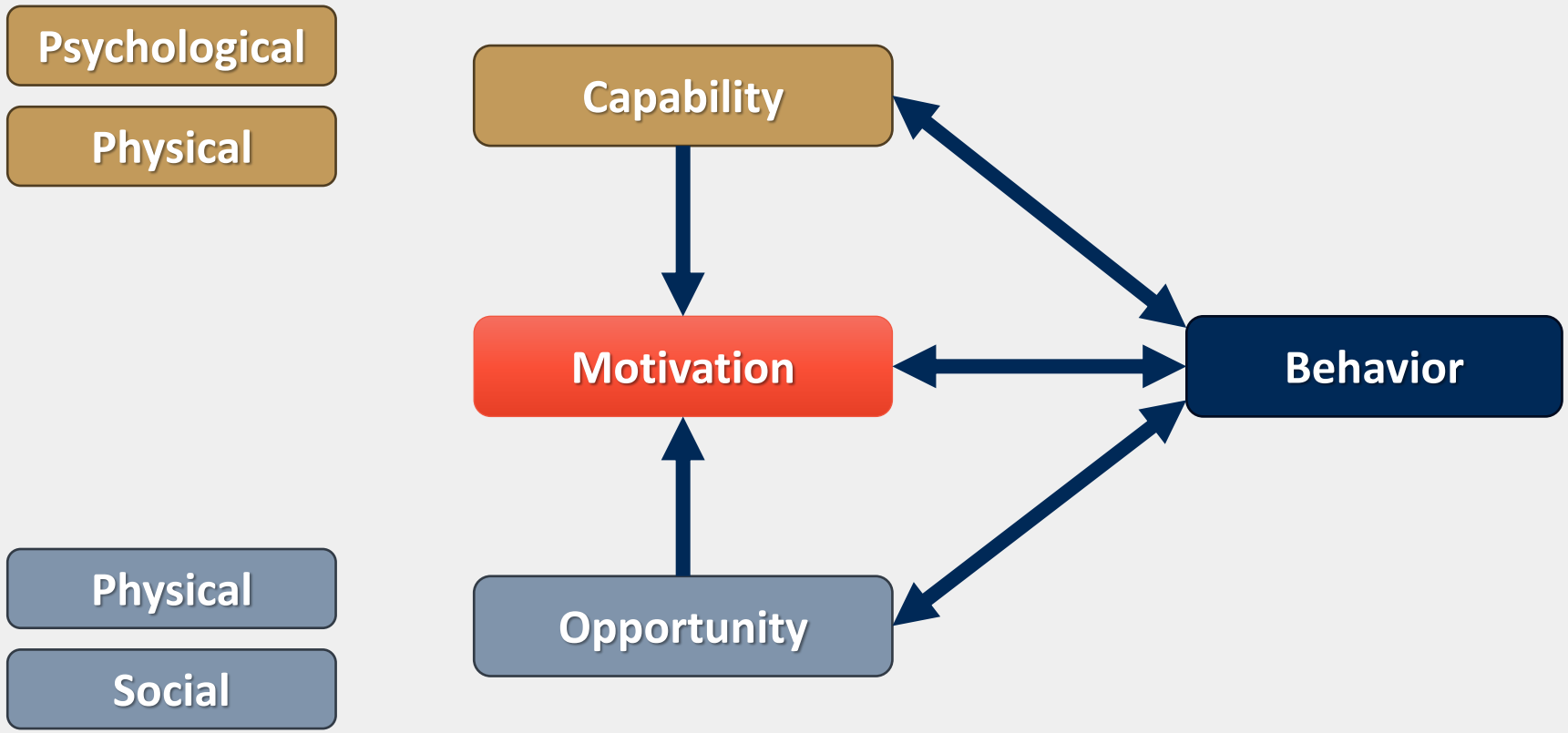
COM-B Model

Psychological

Physical



COM-B Model


Psychological
Physical
Capability
Motivation
Behavior
Physical
Social
Opportunity

Physical Opportunity

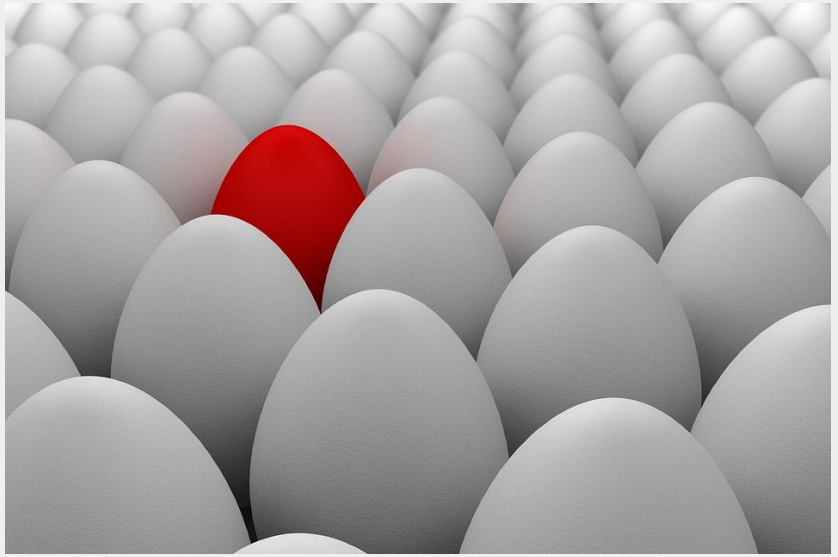
Inequality in the Built Environment Underlies Key Health Disparities in Physical Activity and Obesity

Penny Gordon-Larsen, PhD[a], Melissa C. Nelson, PhD, RD[b], Phil Page, MA[c], Barry M. Popkin, PhD[a]

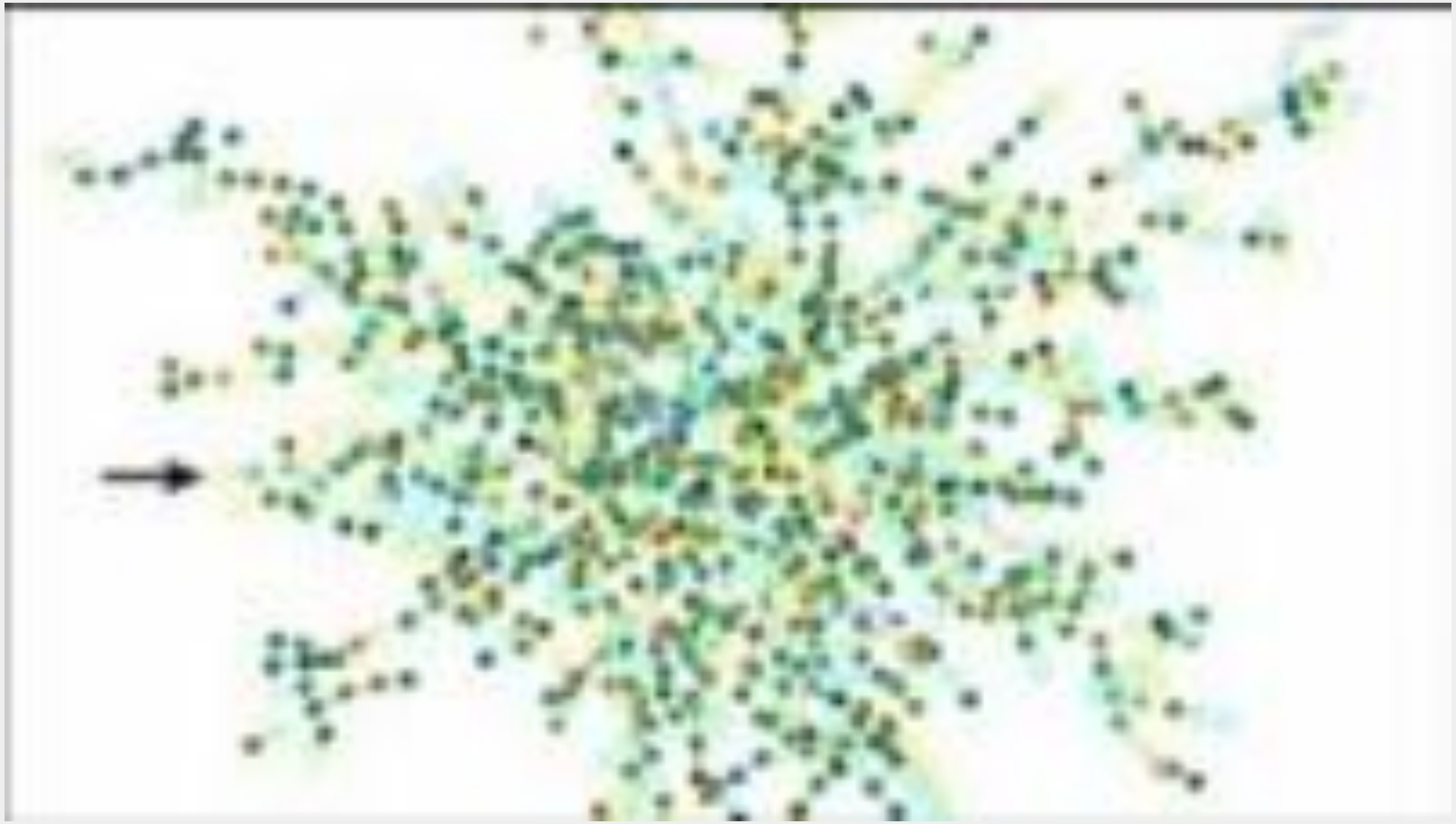
- Parks, sports clubs, nature areas, exercise equipment, etc.
- Helping people to locate opportunities and obtain access is important.

Social Opportunity

- New behavior must be seen as ‘normal’
- Social (un)acceptance very important determinant of behavior

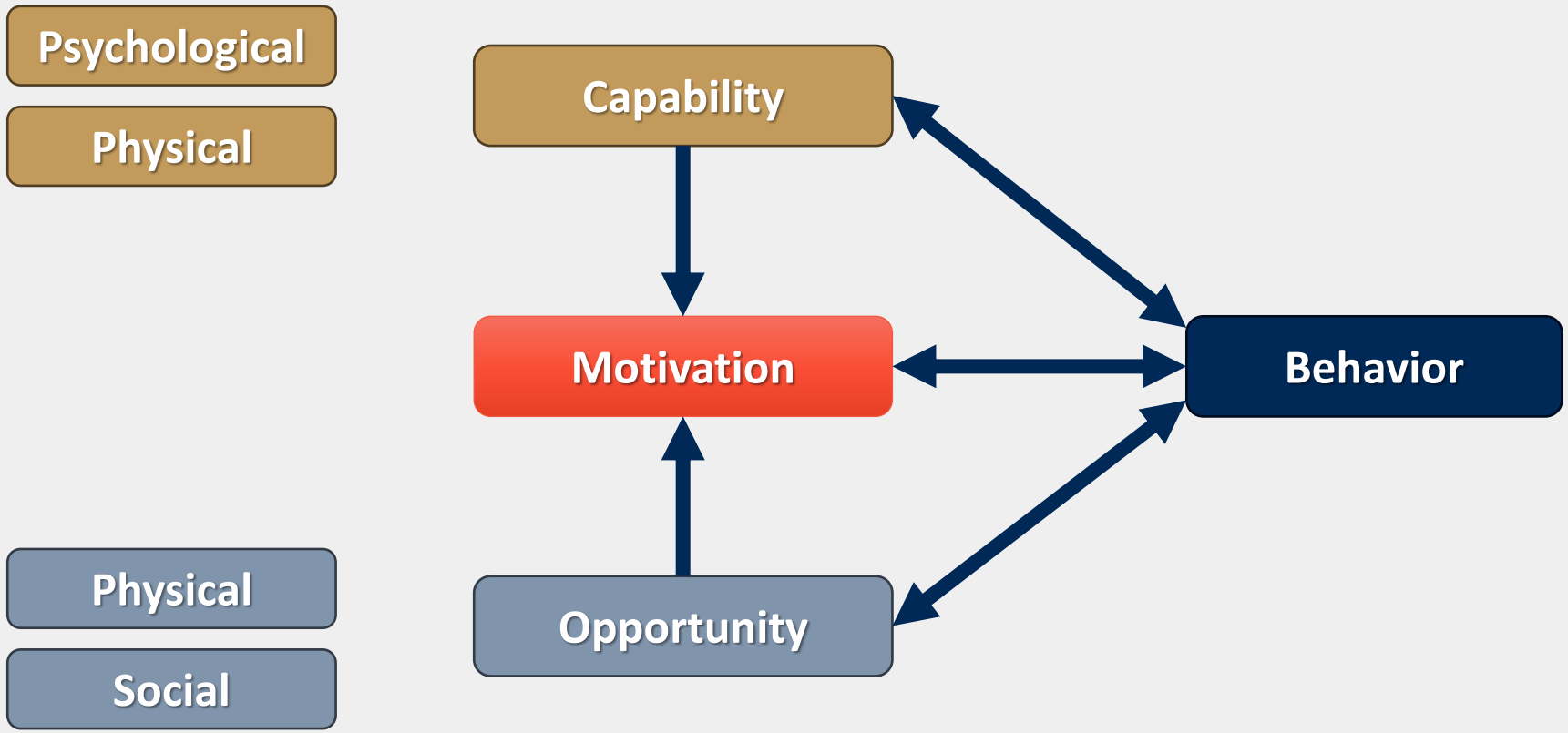


Social opportunity

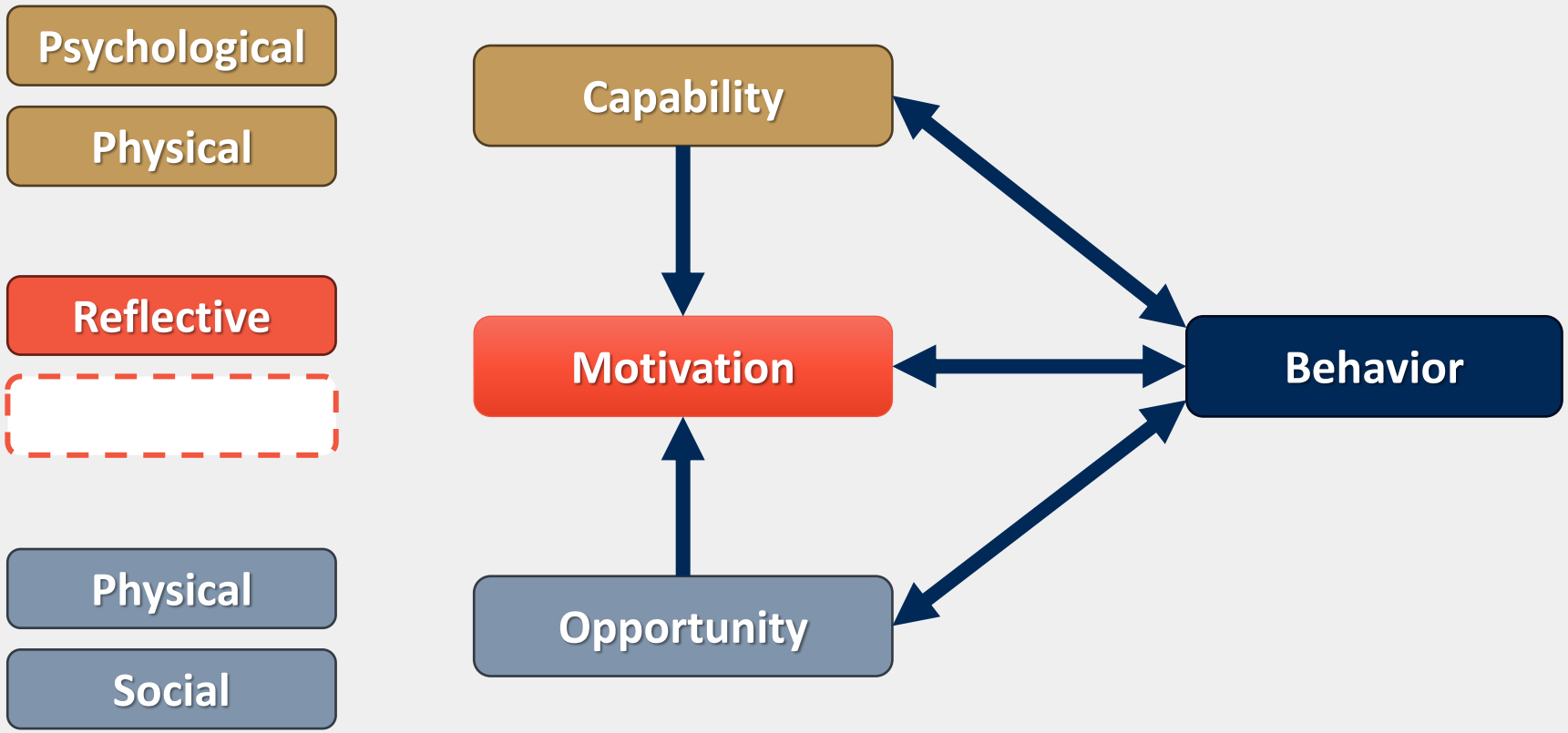


Christakis & Fowler, "The Collective Dynamics of Smoking in a Large Social Network," New England Journal of Medicine, 358(21): 2249-2258 (May 2008) https://youtu.be/PV-PQa0p2FM

COM-B


Psychological
Physical
Capability
Motivation
Behavior
Physical
Social
Opportunity

COM-B


Psychological
Physical
Reflective
Physical
Social
Capability
Motivation
Opportunity
Behavior

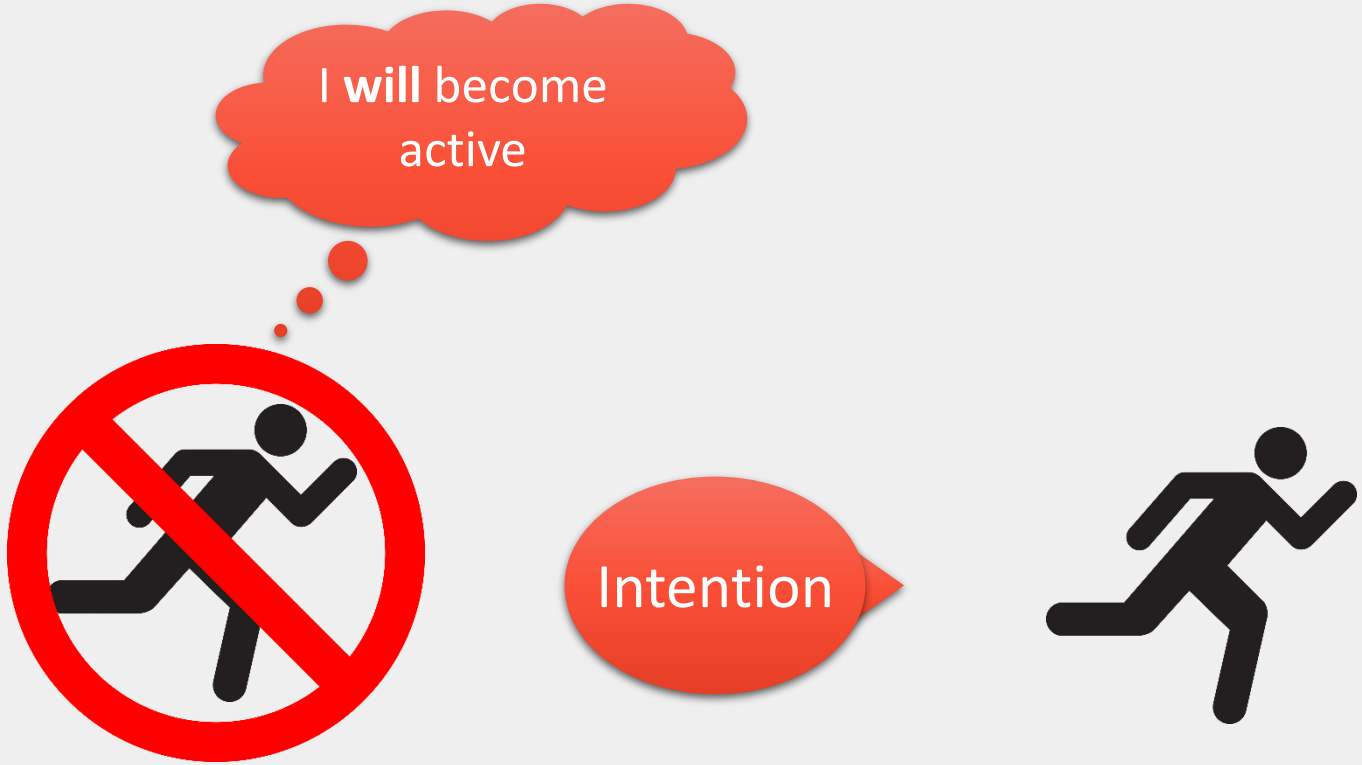
What do behavioral theories say about motivation?

A lot…

Motivation - From A to B...

Motivation - From A to B…

Motivation - From A to B…



Intention strength

Do you want to be physically active?

NO!NONo no meh yesYesYESYES!

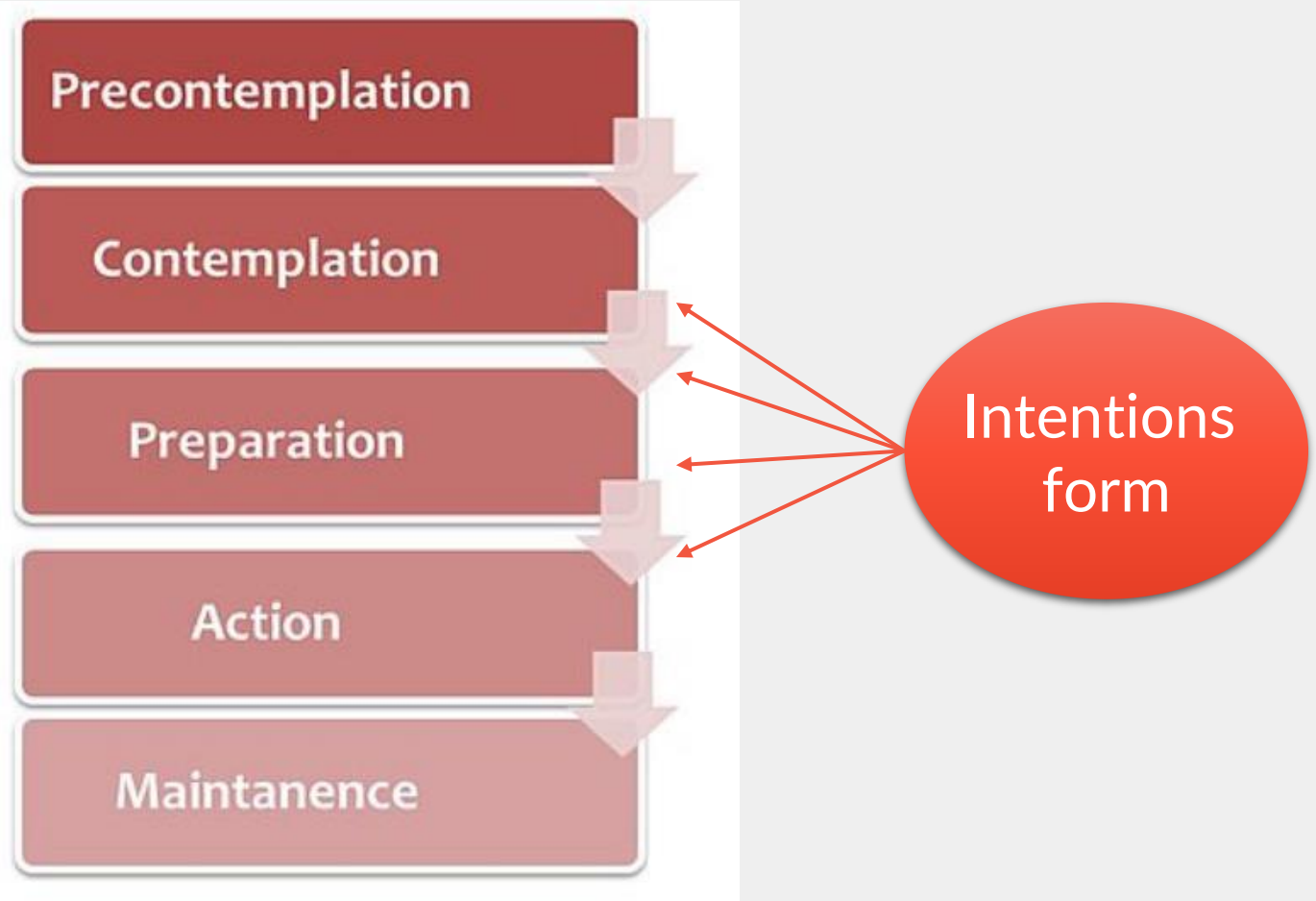
Less Motivation

More Motivation

Stages of change

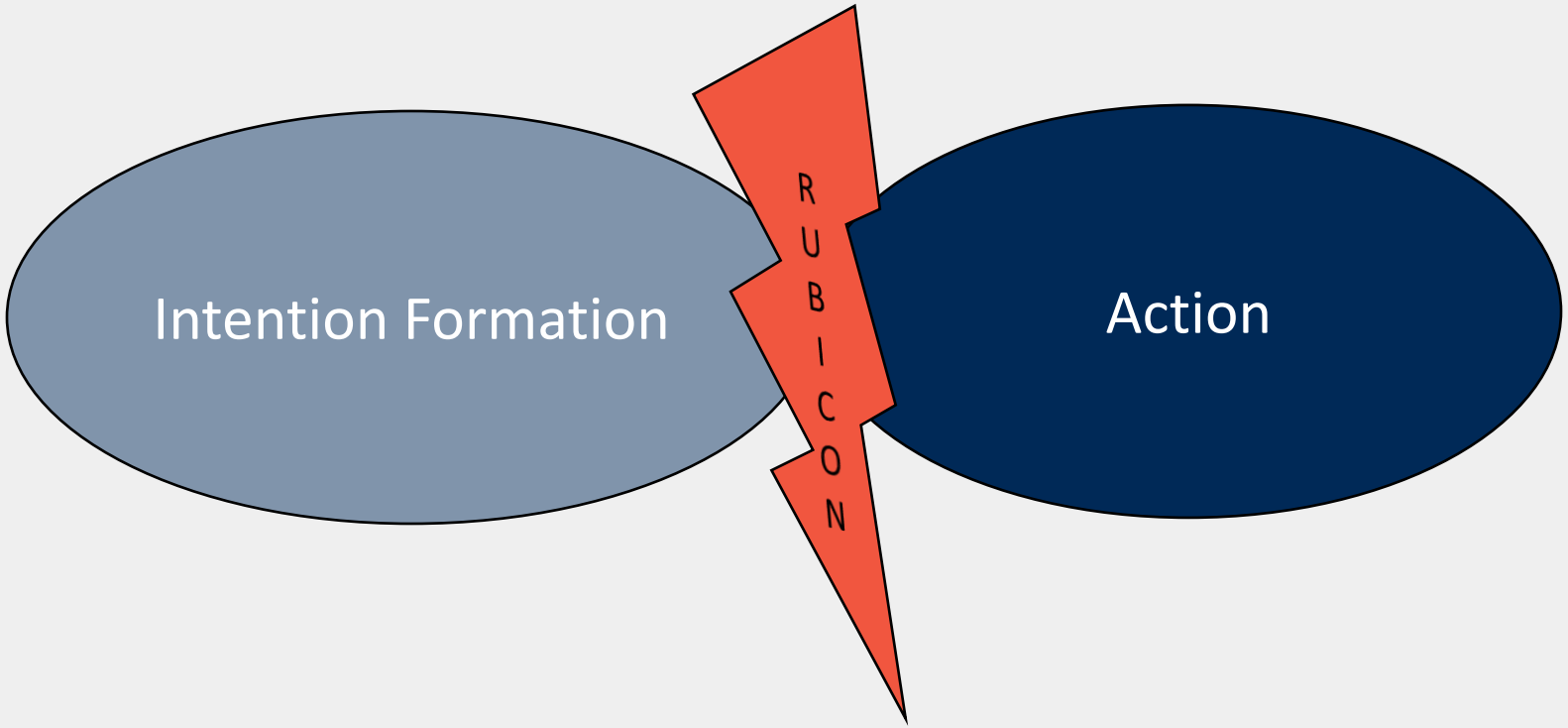
Transtheoretical Model: Prochaska & DiClemente, 1983

Stages of change



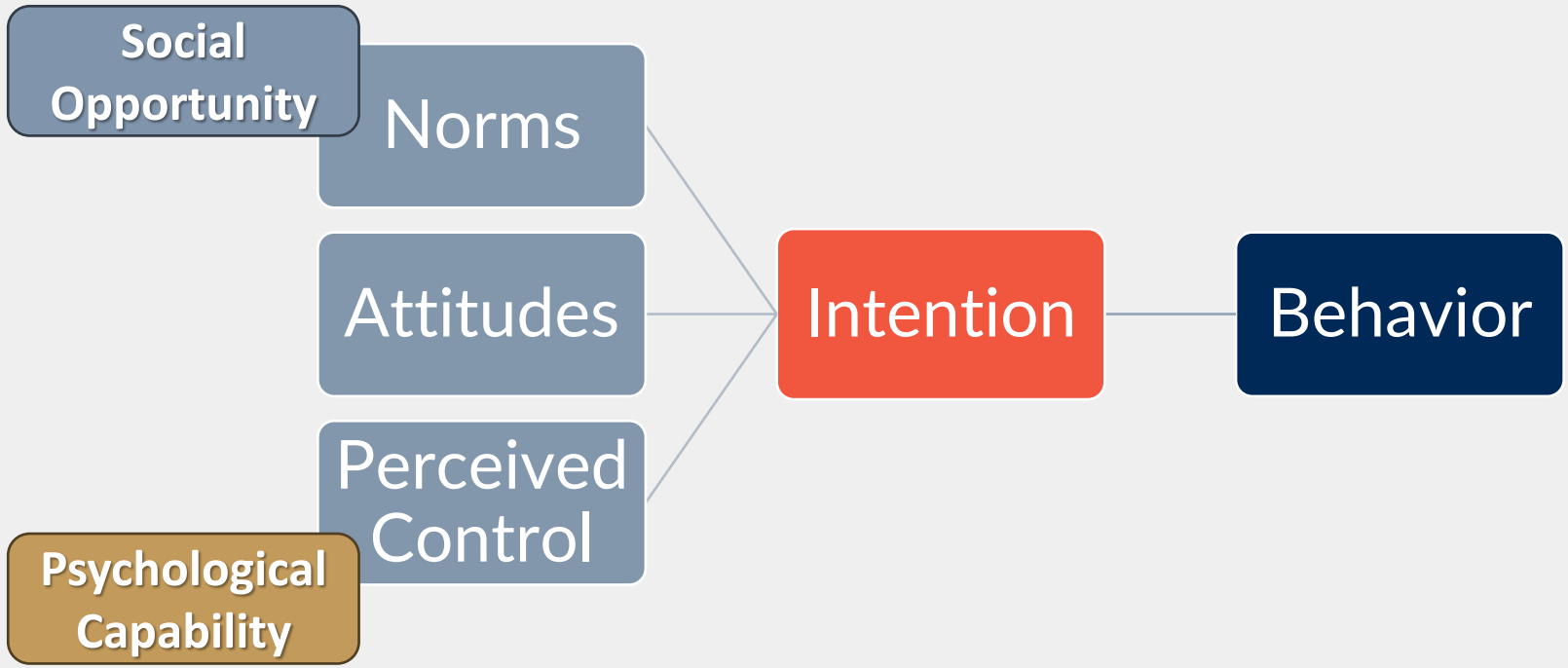
Transtheoretical Model: Prochaska & DiClemente, 1983

Rubicon Model

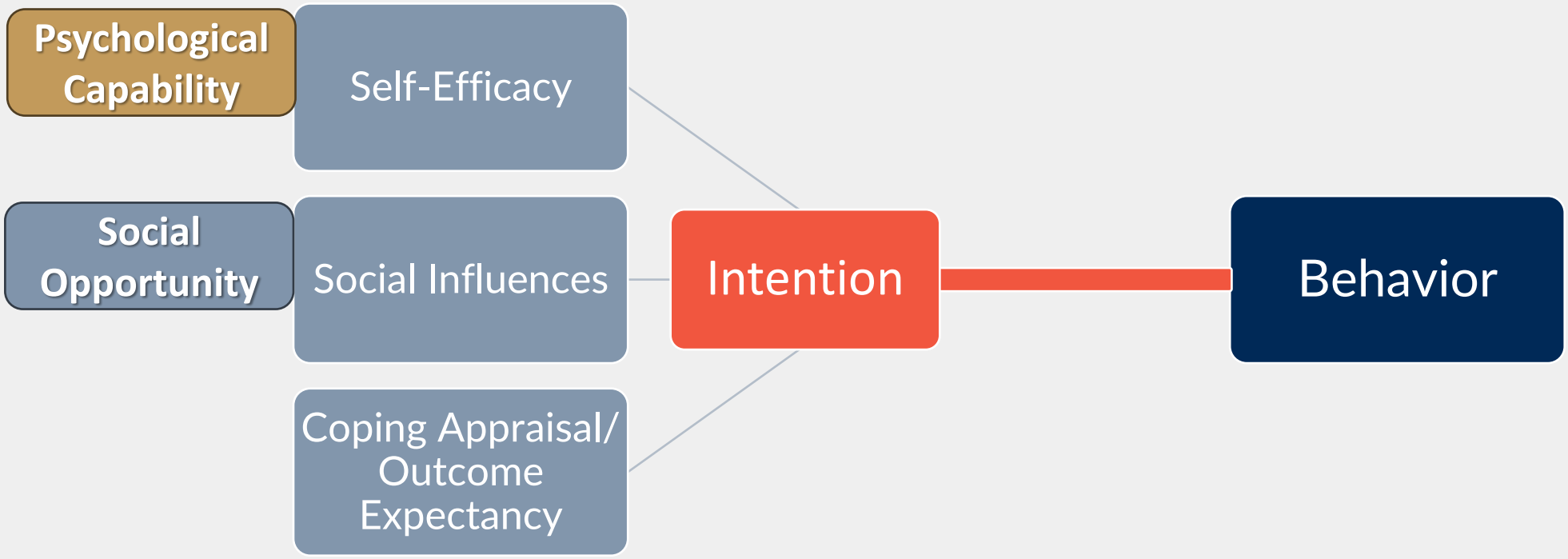


Heckhausen & Gollwitzer, 1987

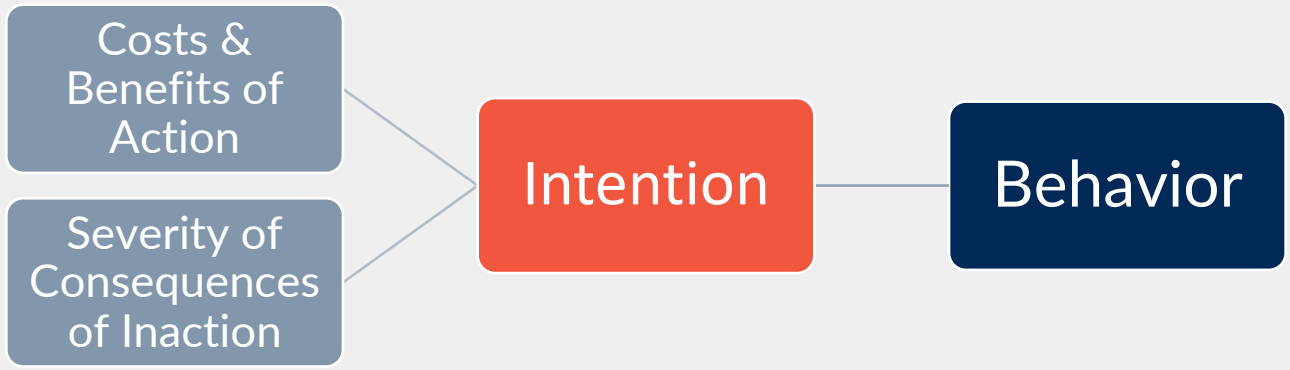
Theory of Planned Behavior



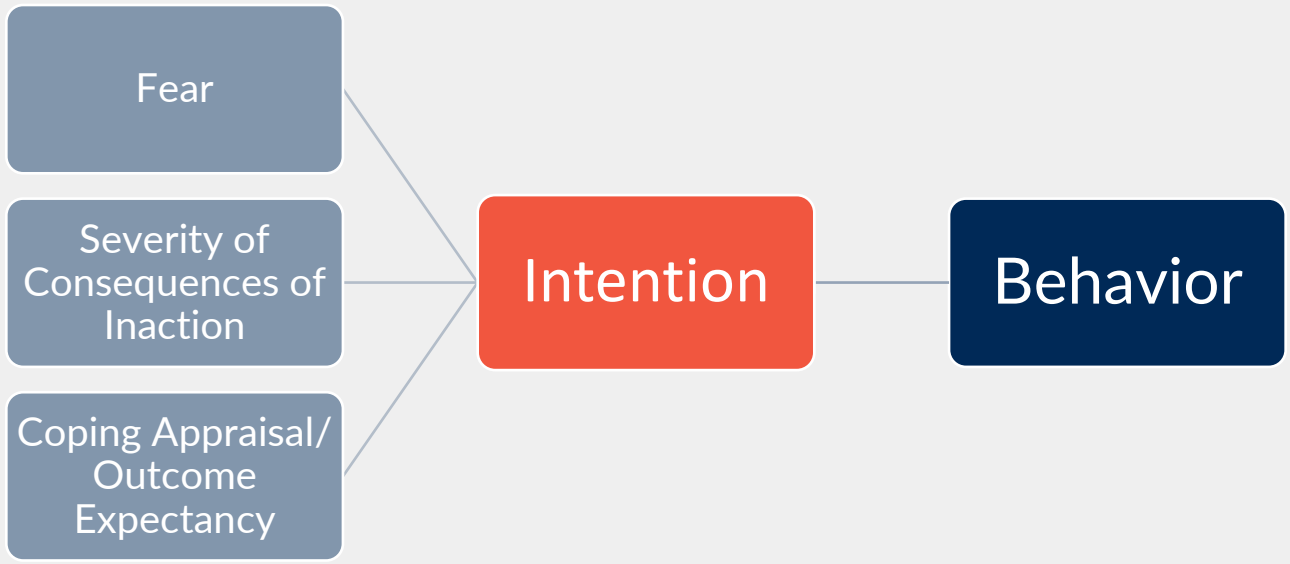
Social Learning Theory



Health Belief Model



Protection Motivation Theory

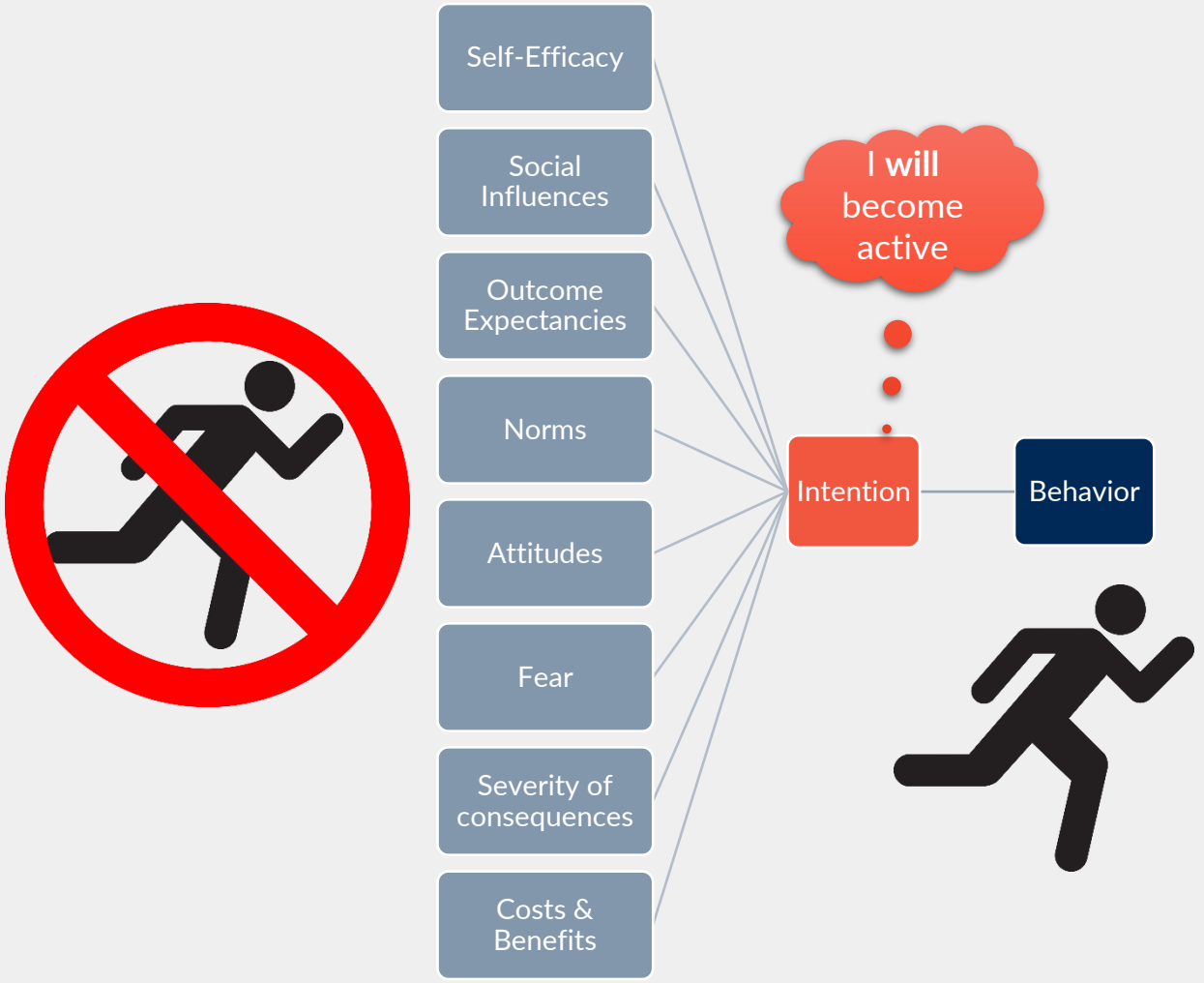


Intention ≠ Behavior

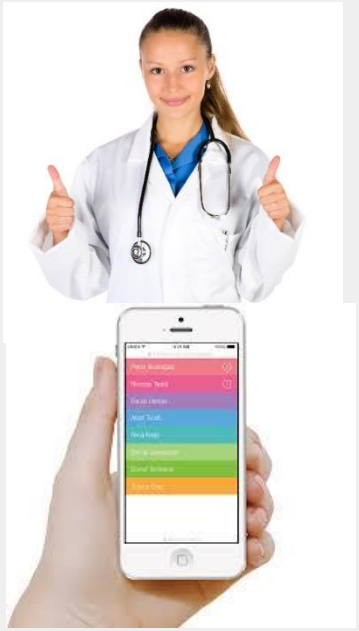
- Intention-centric theories explain about 40% of variance in behavior

- This brings up two questions:
  - What explains the remaining 60% of variance in behavior?
  - How can we bridge the intention-behavior gap?

Behavior change interventions



Behavior change interventions



Behavior change interventions

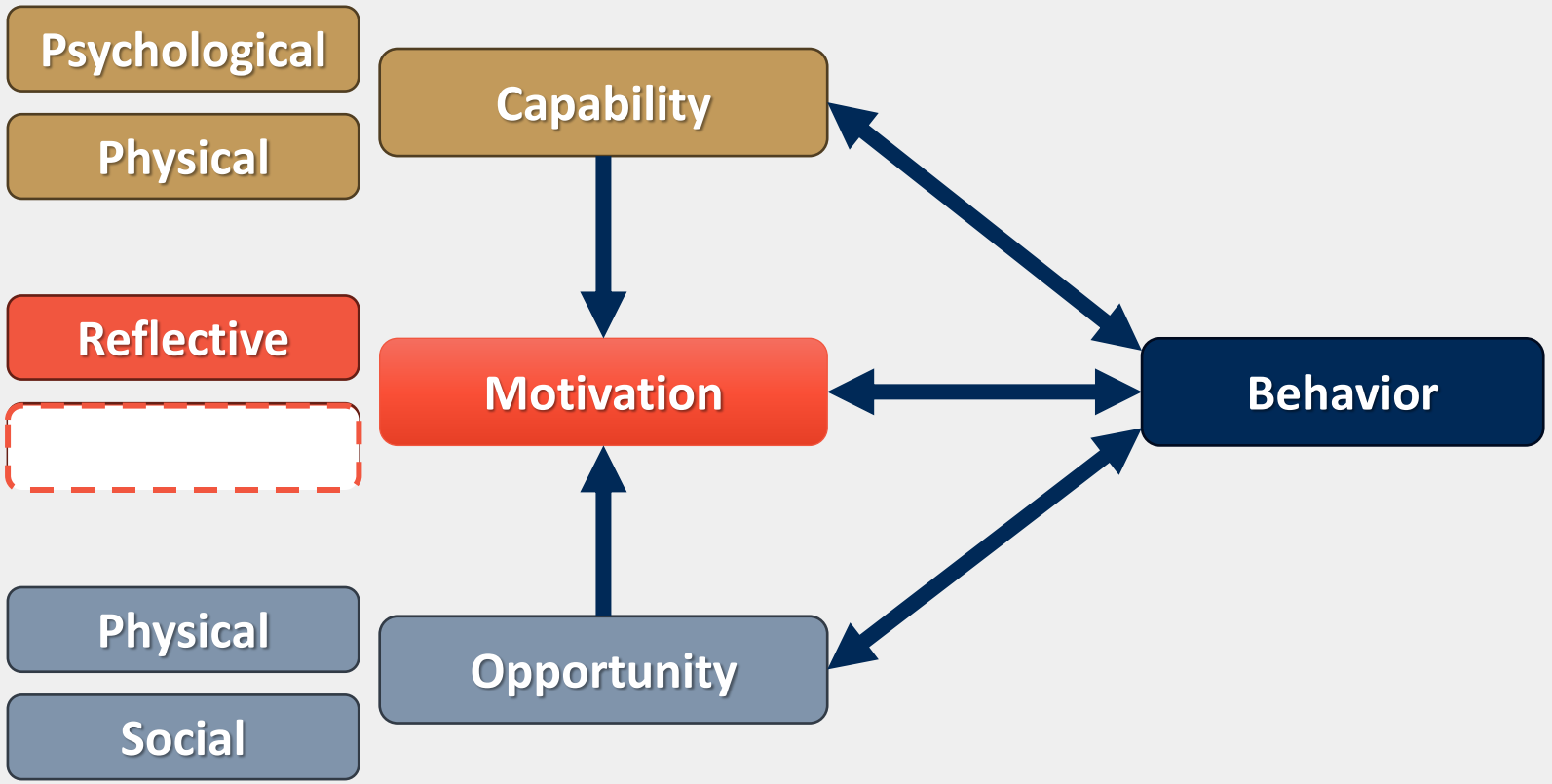
Behavior Change Techniques

- Self-Efficacy
- Social Influences
- Outcome Expectancies
- Norms
- Attitudes
- Fear
- Severity of consequences
- Costs & Benefits

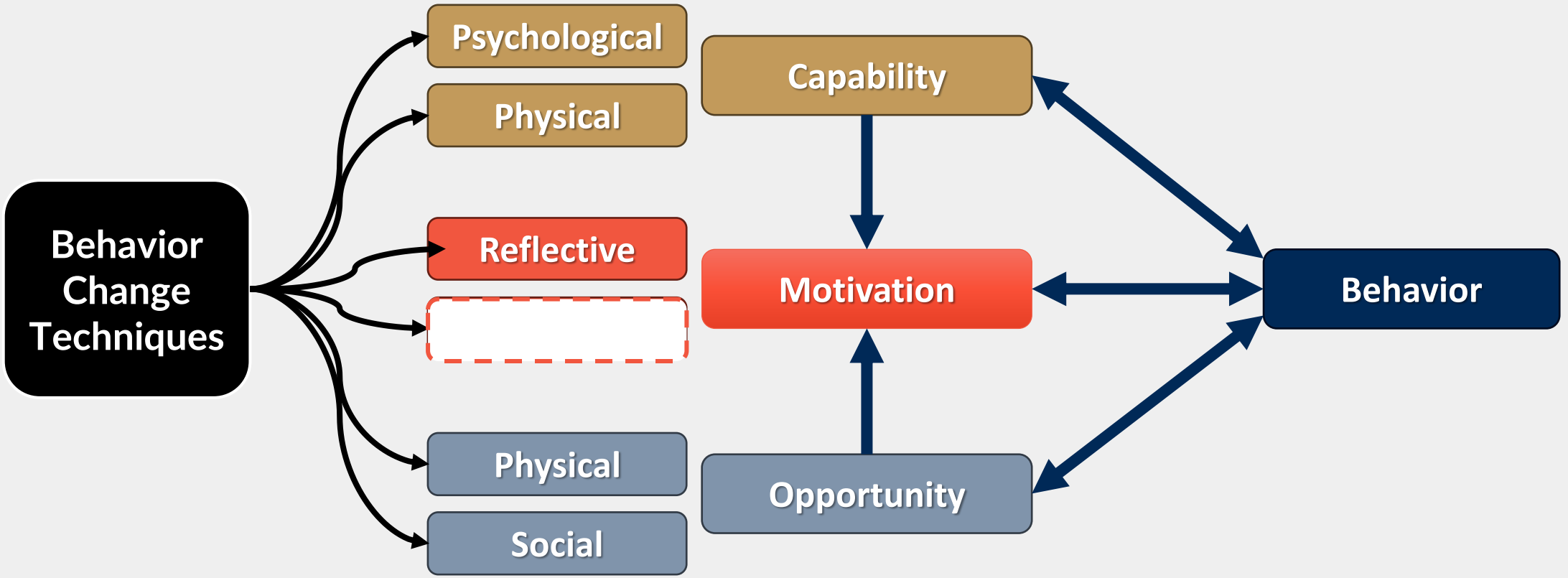
I **will** become active

Intention → Behavior

Behavior Change Interventions

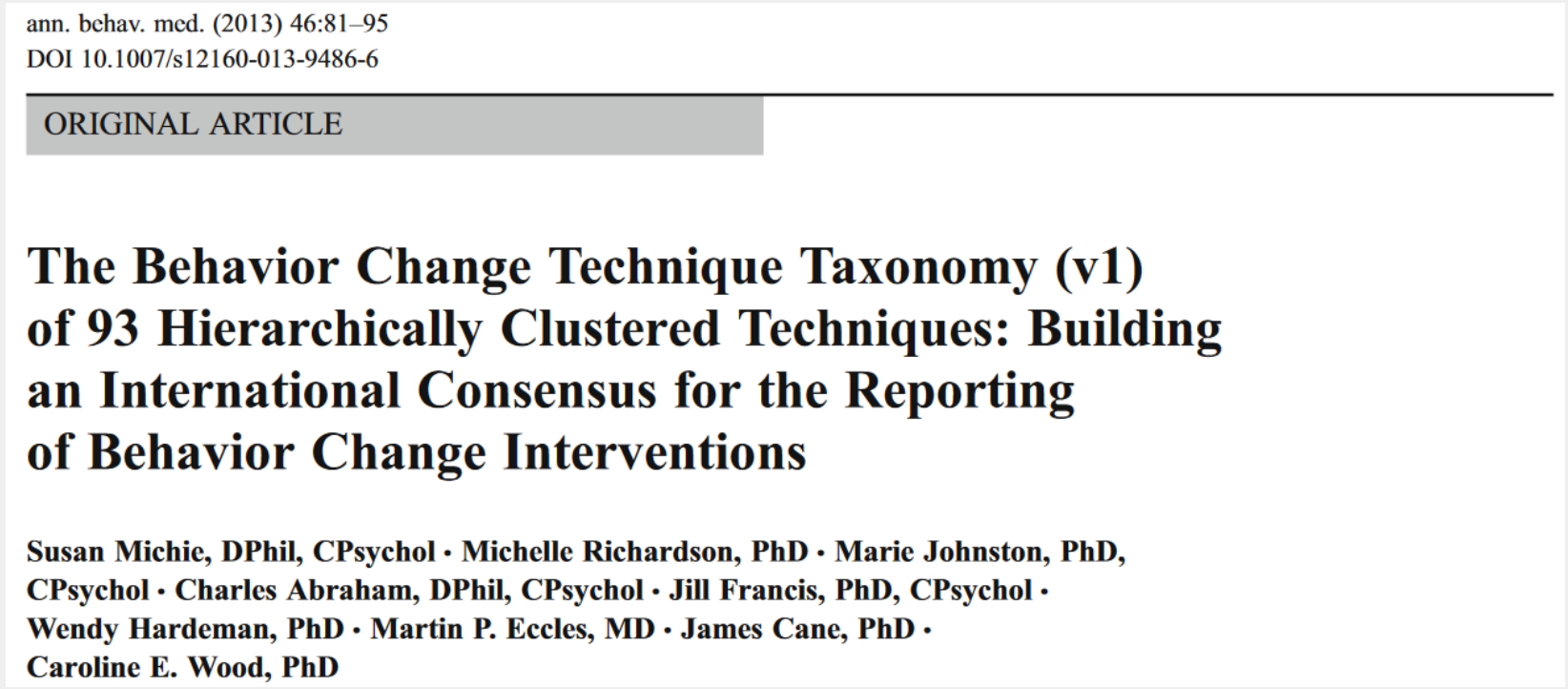


Behavior Change Interventions



Behavior change techniques

- The building blocks or ‘active ingredients’ of behavior change interventions



ann. behav. med. (2013) 46:81–95
DOI 10.1007/s12160-013-9486-6

ORIGINAL ARTICLE

The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

Susan Michie, DPhil, CPsychol · Michelle Richardson, PhD · Marie Johnston, PhD, CPsychol · Charles Abraham, DPhil, CPsychol · Jill Francis, PhD, CPsychol · Wendy Hardeman, PhD · Martin P. Eccles, MD · James Cane, PhD · Caroline E. Wood, PhD

- *www.bct-taxonomy.com*

What BCTs can increase motivation for PA?

HEALTH PSYCHOLOGY REVIEW, 2018
https://doi.org/10.1080/17437199.2018.1435299

Routledge
Taylor & Francis Group

Check for updates

How can interventions increase motivation for physical activity? A systematic review and meta-analysis

Keegan Knittle [a], Johanna Nurmi [a,b], Rik Crutzen [c], Nelli Hankonen [a,d], Marguerite Beattie [a] and Stephan U Dombrowski [e]

[a]Department of Social Research – Social Psychology, University of Helsinki, Helsinki, Finland; [b]Behavioural Science Group, Institute of Public Health, University of Cambridge, Cambridge, UK; [c]Department of Health Promotion, Maastricht University/CAPHRI, Maastricht, Netherlands; [d]Faculty of Social Sciences, University of Tampere/Linna, Tampere, Finland; [e]Faculty of Natural Sciences, Division of Psychology, University of Stirling, Stirling, UK

OSF: https://osf.io/2fqr3/

Results – Descriptives

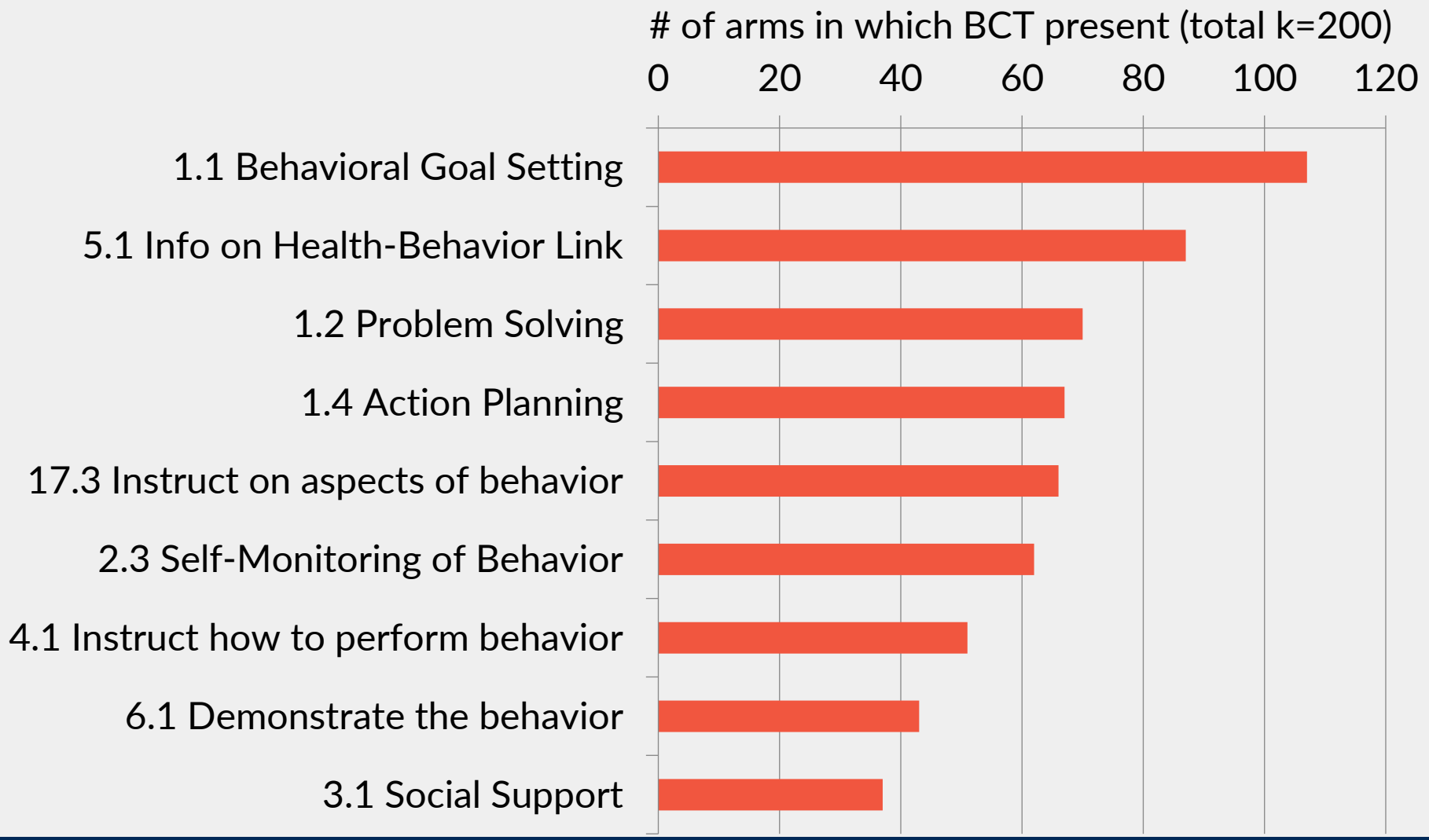
- 89 studies, 200 treatment arms
  - 77 arms data on intention to be PA
  - 96 arms data on stage of change for PA
  - 34 arms data on autonomous motivation for PA

Results – Descriptives

- 89 studies, 200 treatment arms
  - 77 arms data on intention to be PA
  - 96 arms data on stage of change for PA
  - 34 arms data on autonomous motivation for PA

- Modes of Delivery (of active arms)
  - 65% had a face to face component
  - 61% had paper based component
  - 33% had group setting
  - 28% had Internet/Mobile component

Most frequently used BCTs



Results

- Associated with 2 motivational outcomes:

1.1 Behavioral Goal Setting

1.2 Problem Solving

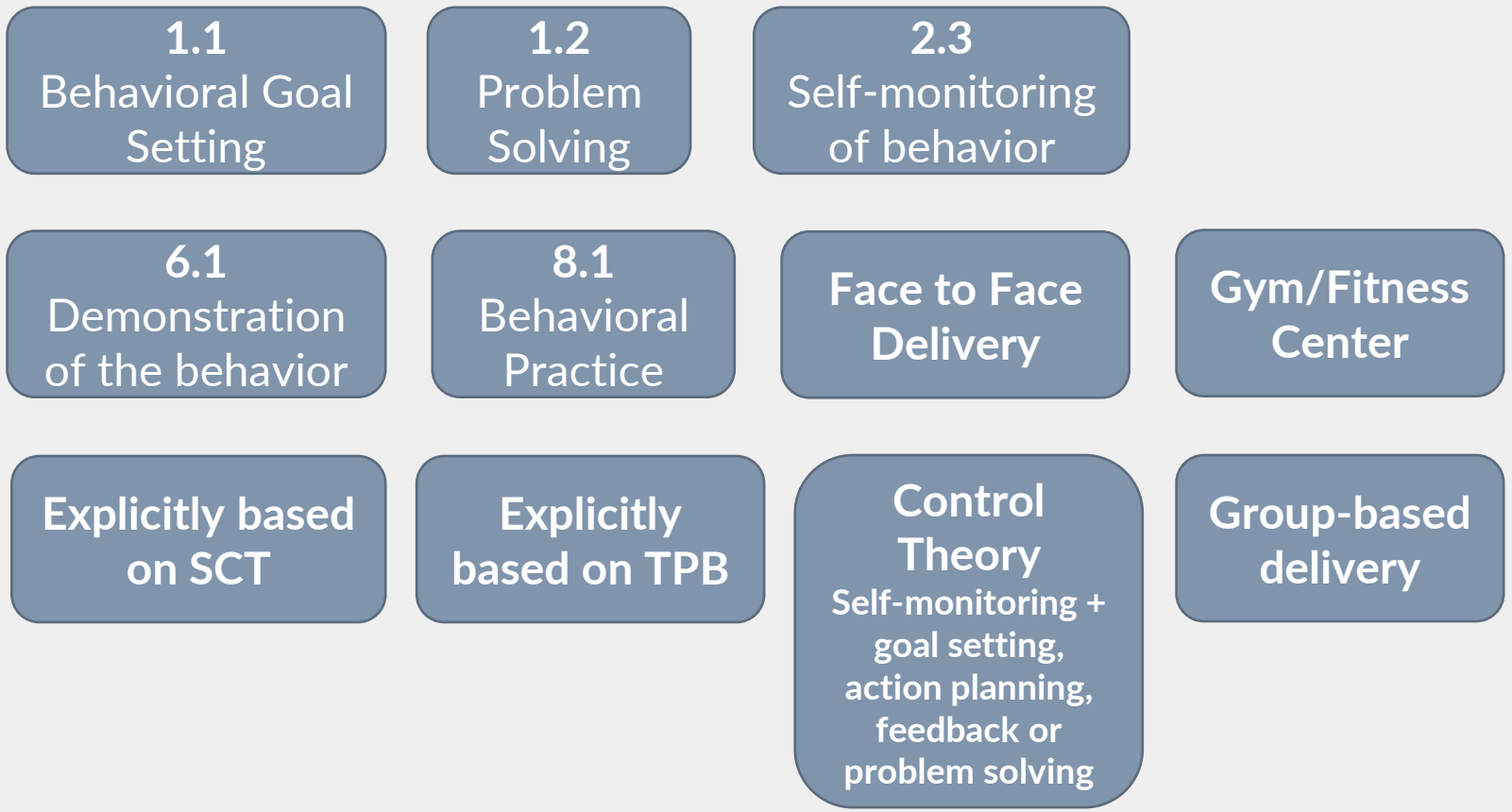
2.3 Self-monitoring of behavior

Results

- Associated with 2 motivational outcomes:

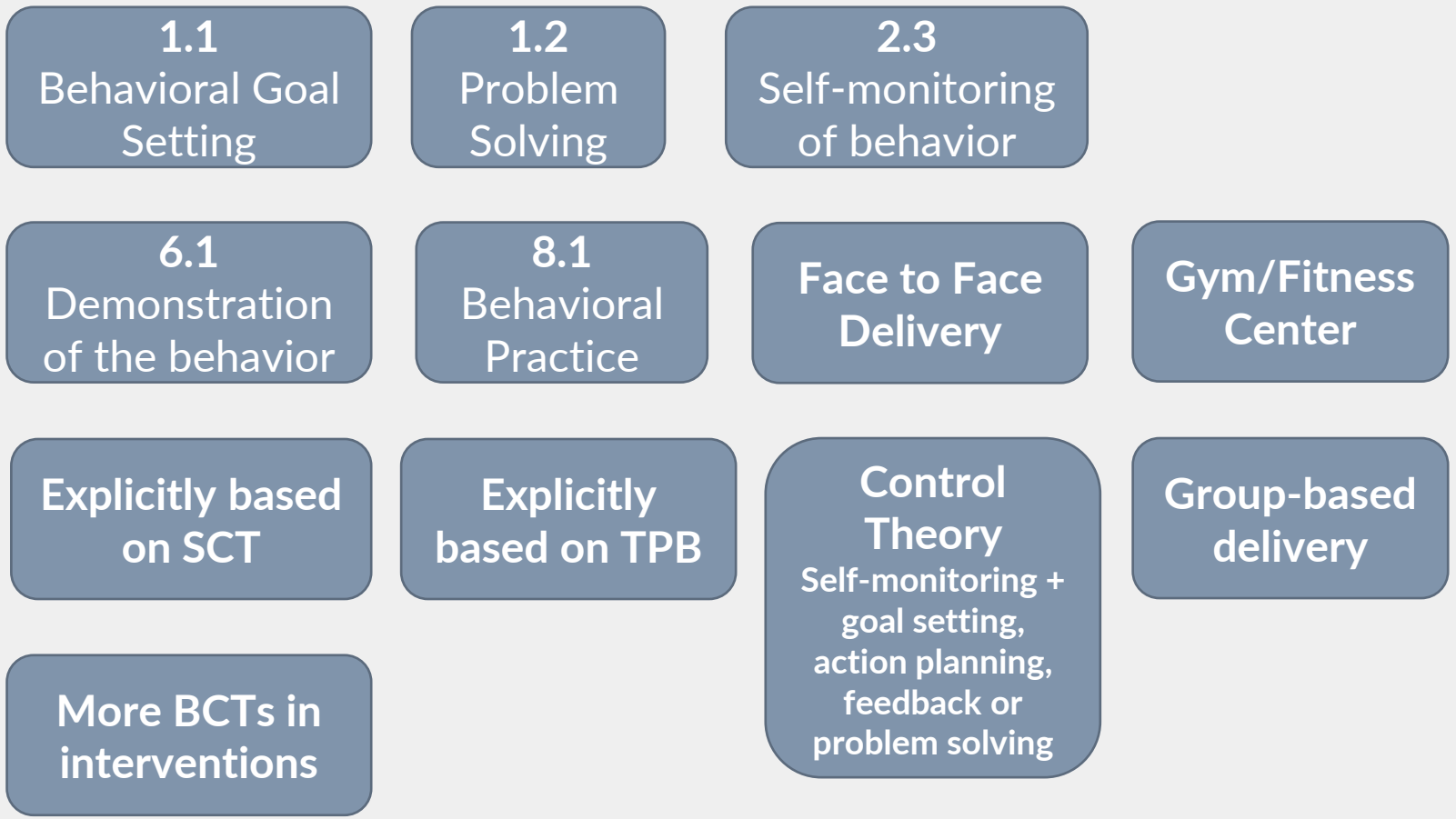
Results

- Associated with 2 motivational outcomes:



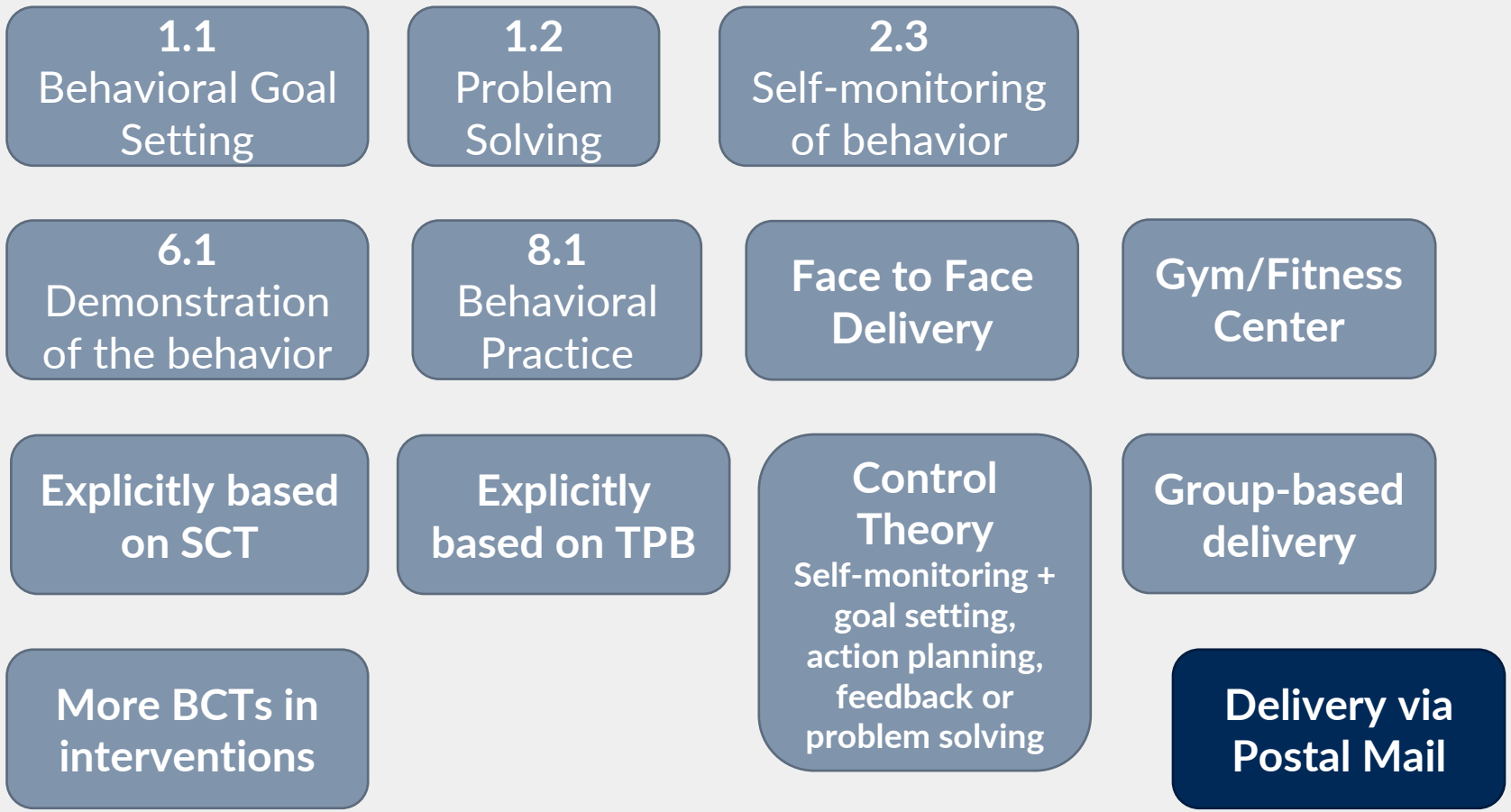
Results

- Associated with 2 motivational outcomes:



Results

- Associated with 2 motivational outcomes:



Intention ≠ Behavior

- Intention-centric theories explain about 40% of variance in behavior

- This brings up two questions:
  - What explains the remaining 60% of variance in behavior?
  - How can we bridge the intention-behavior gap?

JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

How can we bridge the intention – behavior gap?

Control Theory
aka Self-Regulation Theory

Carver & Scheier
(1982, 2001, 2012)

Self-monitoring

- Track what one is actually doing

2.3	***Self-monitoring of behavior***	Establish a method for the person to monitor and record their behavior(s) as part of a behavior change strategy *Note: if monitoring is part of a data collection procedure rather than a strategy aimed at changing behavior, do not code; if monitoring of outcome of behavior, code* ***2.4, Self-monitoring of outcome(s) of behavior****; if monitoring is by someone else (without feedback), code* ***2.1, Monitoring of behavior by others without feedback***	Ask the person to record daily, in a diary, whether they have brushed their teeth for at least two minutes before going to bed Give patient a pedometer and a form for recording daily total number of steps

Goal setting

- Set a behavioral goal to close the gap
  - Base on reality

1.1	***Goal setting (behavior)***	Set or agree on a goal defined in terms of the behavior to be achieved *Note: only code goal-setting if there is sufficient evidence that goal set as part of intervention; if goal unspecified or a behavioral outcome, code **1.3, Goal setting (outcome)**; if the goal defines a specific context, frequency, duration or intensity for the behavior, <u>also</u> code **1.4, Action planning***	Agree on a daily walking goal (e.g. 3 miles) with the person and reach agreement about the goal Set the goal of eating 5 pieces of fruit per day as specified in public health guidelines

SMART Goals


S
M
A
R
T
Specific
Measurable
Attainable
Relevant
Time Based

Action planning

- Specifying when, where and how to act

1.4	***Action planning***	Prompt detailed planning of performance of the behavior (must include at least one of context, frequency, duration and intensity). Context may be environmental (physical or social) or internal (physical, emotional or cognitive) (includes '**Implementation Intentions**') *Note: evidence of action planning does not necessarily imply goal setting, only code latter if sufficient evidence*	Encourage a plan to carry condoms when going out socially at weekends Prompt planning the performance of a particular physical activity (e.g. running) at a particular time (e.g. before work) on certain days of the week

Problem solving

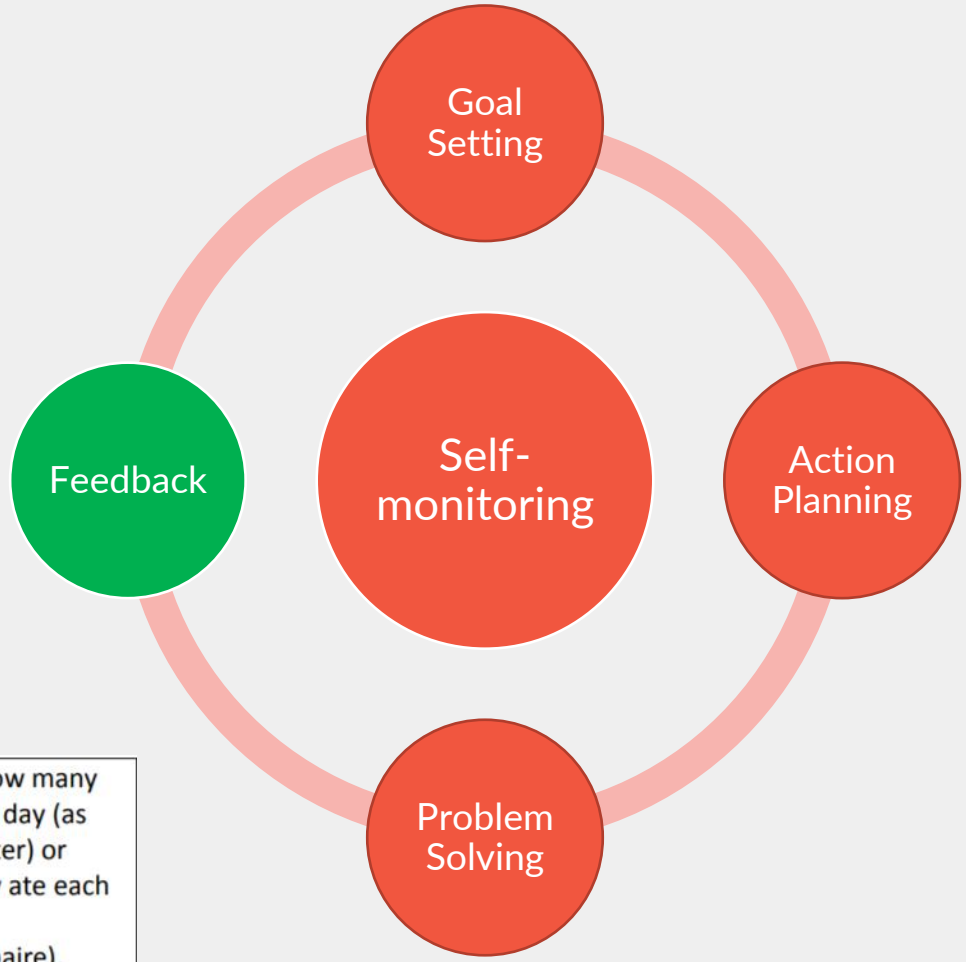
- Identifying barriers to goal achievement and ways to overcome them.

If …, Then ….

1.2	***Problem solving***	Analyse , or prompt the person to analyse, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators (includes '**Relapse Prevention**' *and* '**Coping Planning**') *Note: barrier identification without solutions is not sufficient. If the BCT does not include analysing the behavioral problem, consider* ***12.3, Avoidance/changing exposure to cues for the behavior, 12.1, Restructuring the physical environment, 12.2, Restructuring the social environment,*** *or* ***11.2, Reduce negative emotions***	Identify specific triggers (e.g. being in a pub, feeling anxious) that generate the urge/want/need to drink and develop strategies for avoiding environmental triggers or for managing negative emotions, such as anxiety, that motivate drinking Prompt the patient to identify barriers preventing them from starting a new exercise regime e.g., lack of motivation, and discuss ways in which they could help overcome them e.g., going to the gym with a buddy

Feedback

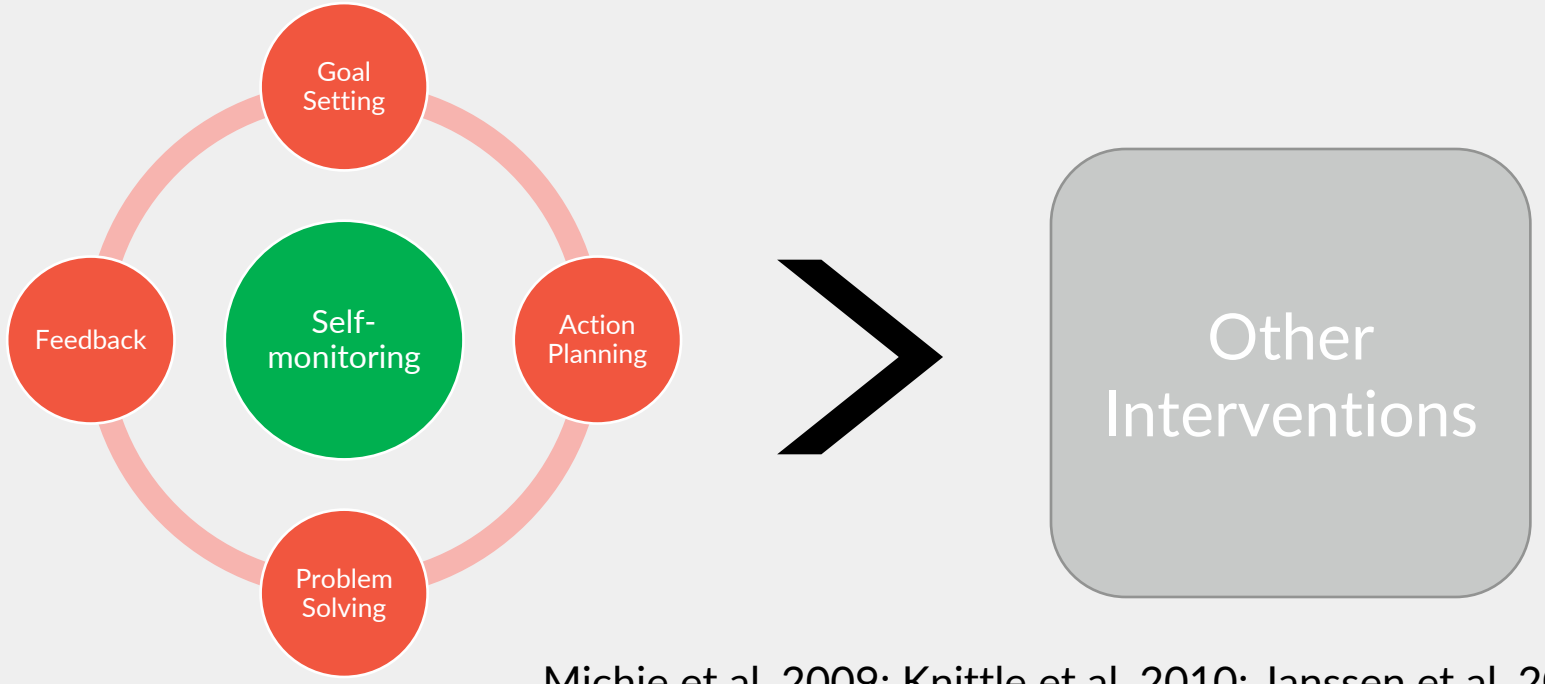
- Compare behavior with goal or some other standard.



2.2	***Feedback on behavior***	Monitor and provide informative or evaluative feedback on performance of the behavior *(e.g. form, frequency, duration, intensity)* *Note: if Biofeedback, code only* ***2.6, Biofeedback*** *and* <u>*not*</u> ***2.2, Feedback on behavior****; if feedback is on* ***outcome(s)*** *of behavior, code* ***2.7, Feedback on outcome(s) of behavior****; if there is no clear evidence that feedback was given, code* ***2.1, Monitoring of behavior by others without feedback****; if feedback on behaviour is evaluative e.g. praise, also code* ***10.4, Social reward***	Inform the person of how many steps they walked each day (as recorded on a pedometer) or how many calories they ate each day (based on a food consumption questionnaire).

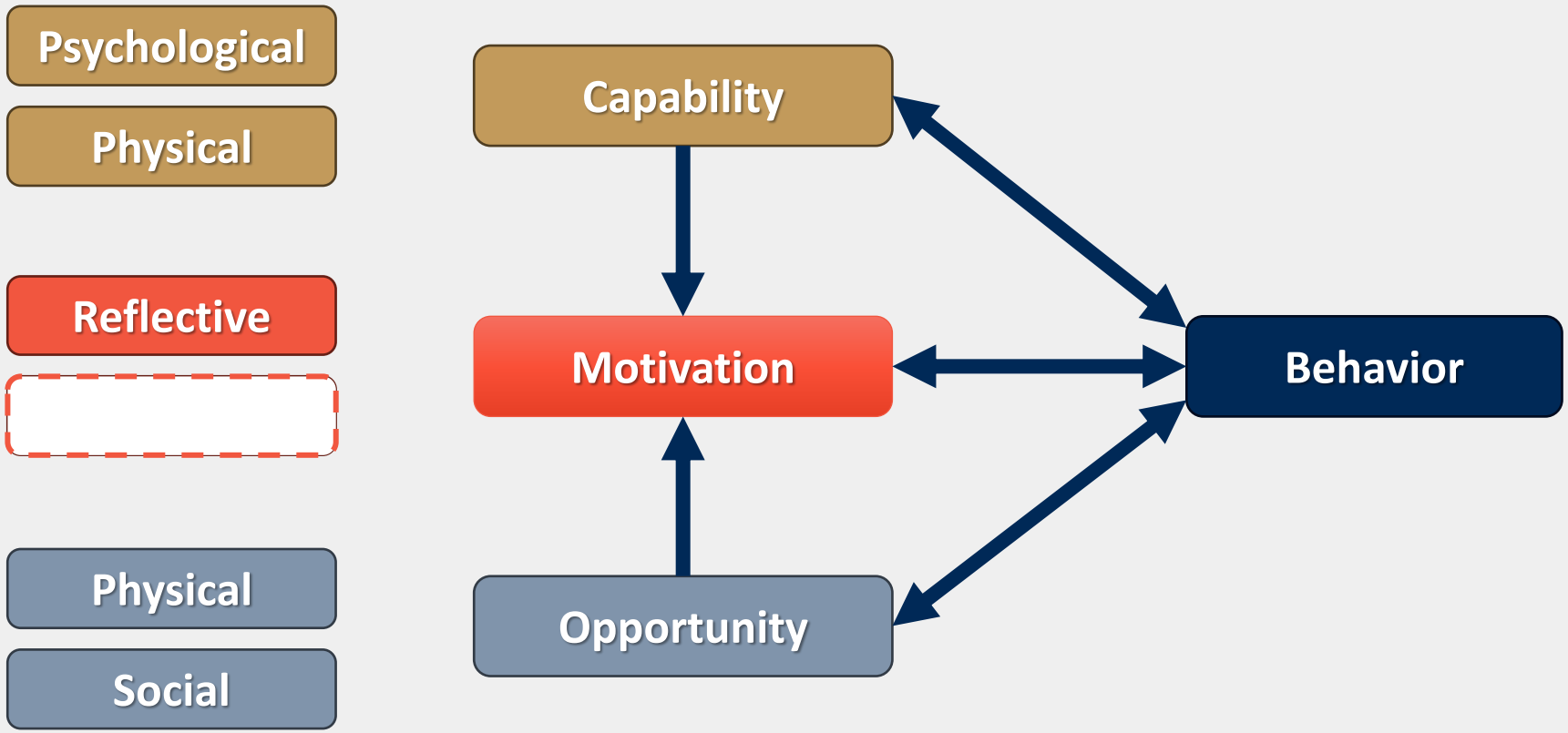
Control Theory Techniques

- From meta-analyses: Strongly associated with changes in behavior
  - Diet, Physical Activity, Anxiety, Depression, Self-efficacy
- Also strongly associated with increases in motivation!



Michie et al, 2009; Knittle et al, 2010; Janssen et al, 2012; Dombrowski et al, 2012; Olander et al, 2013; Knittle et al 2018

COM-B


Psychological
Physical
Reflective
Physical
Social
Capability
Motivation
Opportunity
Behavior

COM-B

Psychological

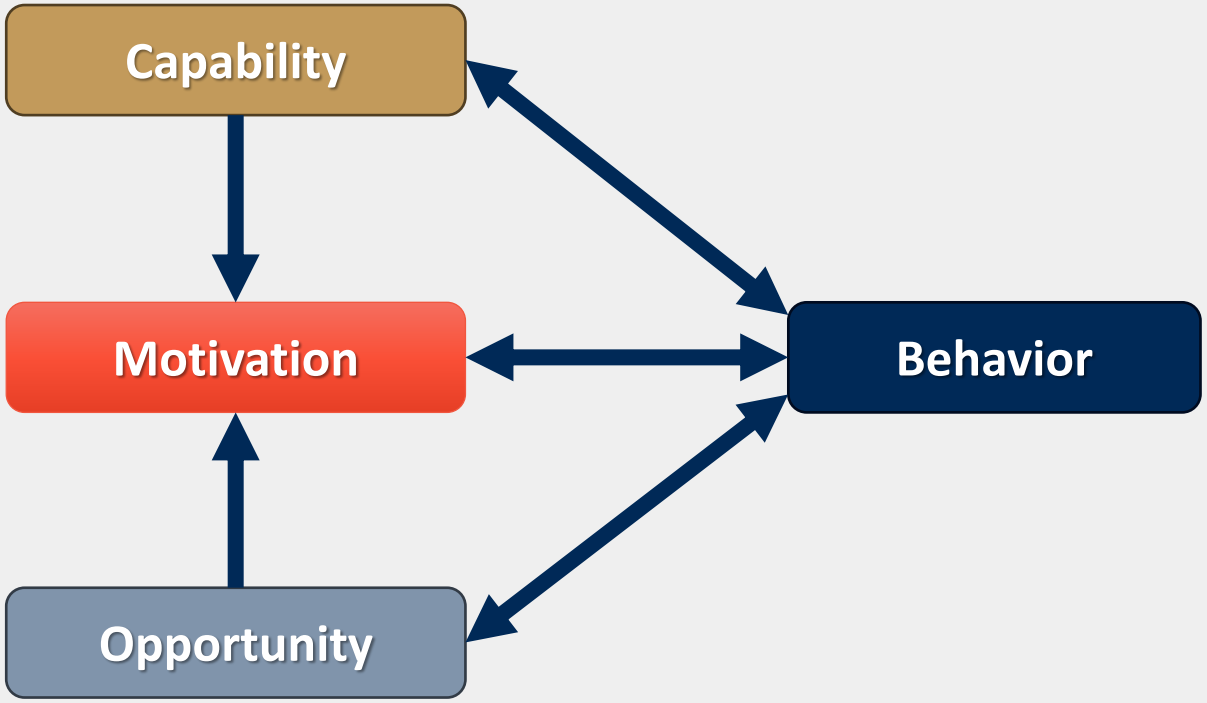
Physical

Reflective

Automatic

Physical

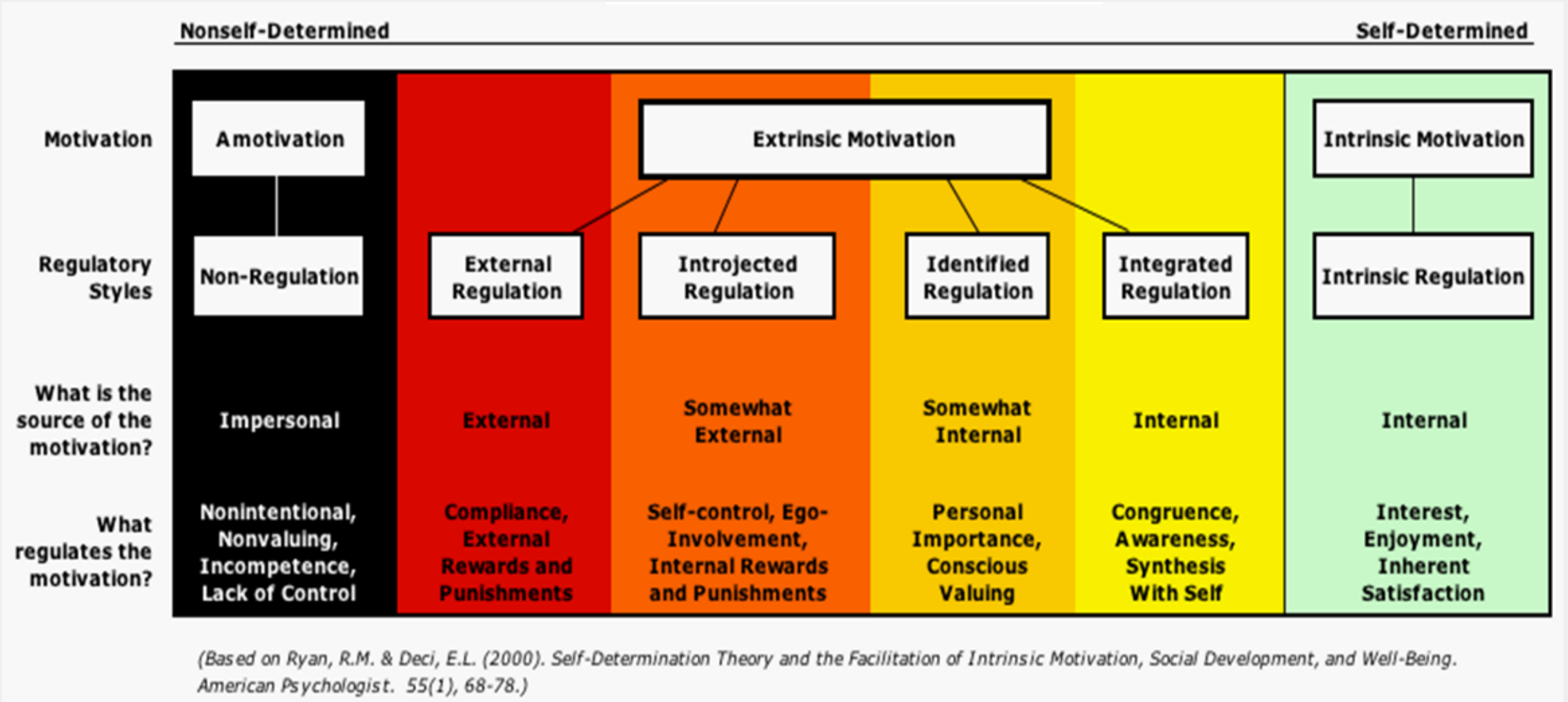
Social



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

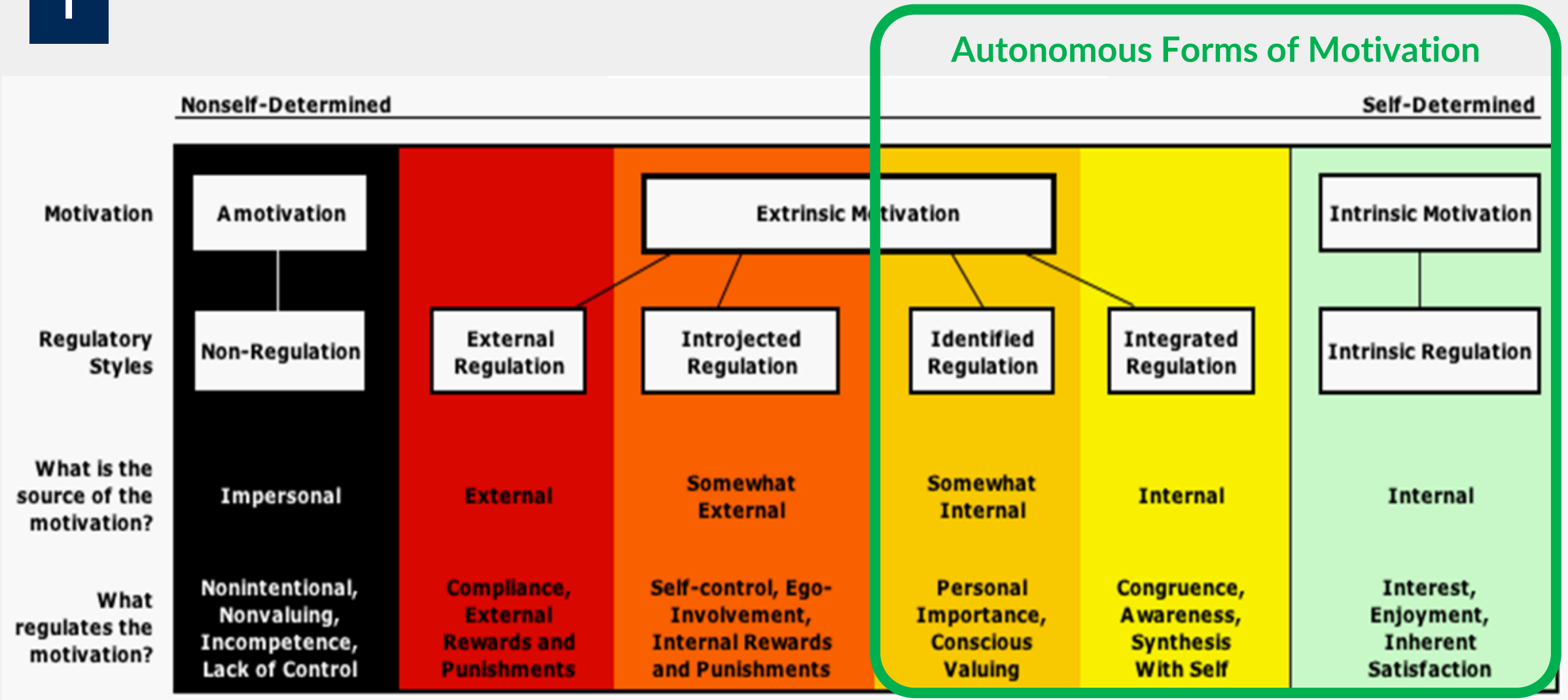
What explains the remaining 60% of variance in behavior?

Self-determination theory



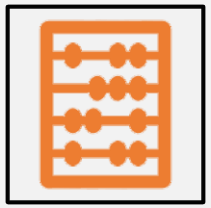
(Based on Ryan, R.M. & Deci, E.L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. American Psychologist. 55(1), 68-78.)

Self-determination theory



(Based on Ryan, R.M. & Deci, E.L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. American Psychologist. 55(1), 68-78.)

Autonomous Motivation = Good!

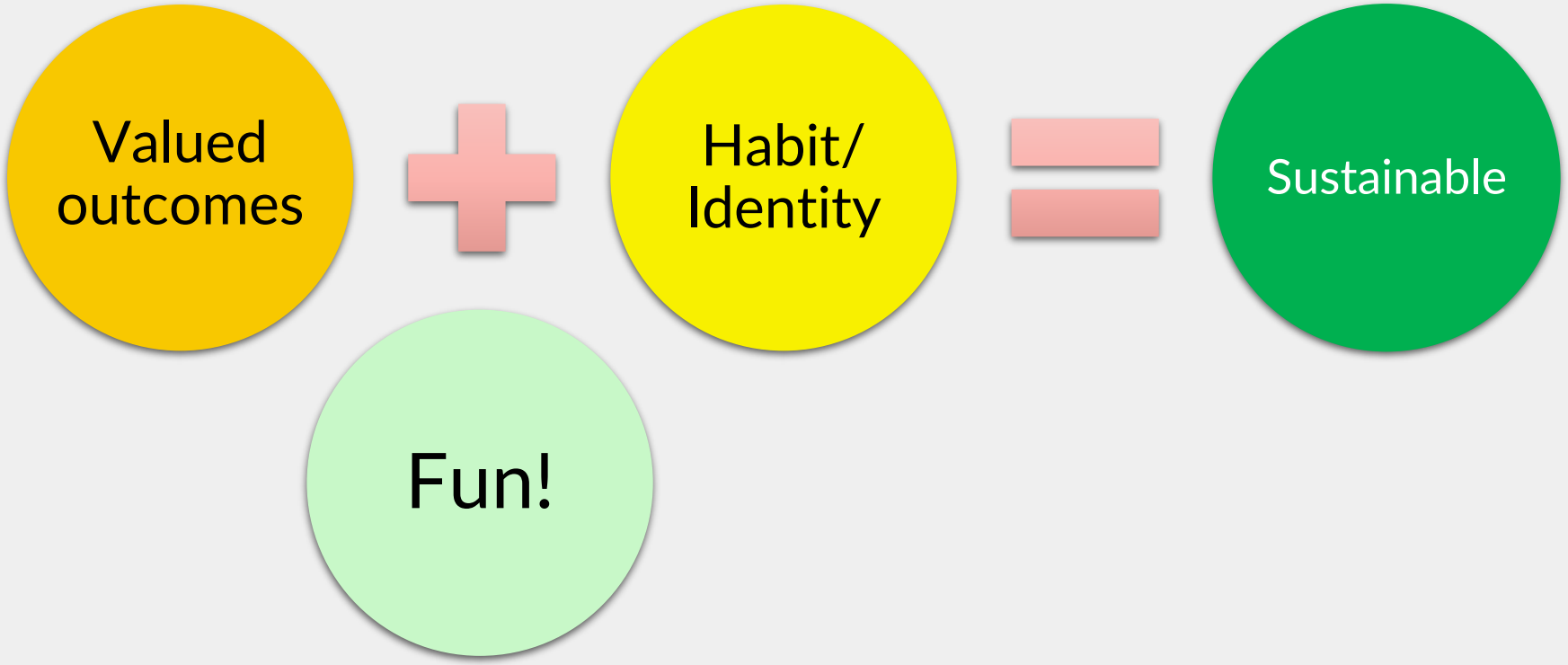


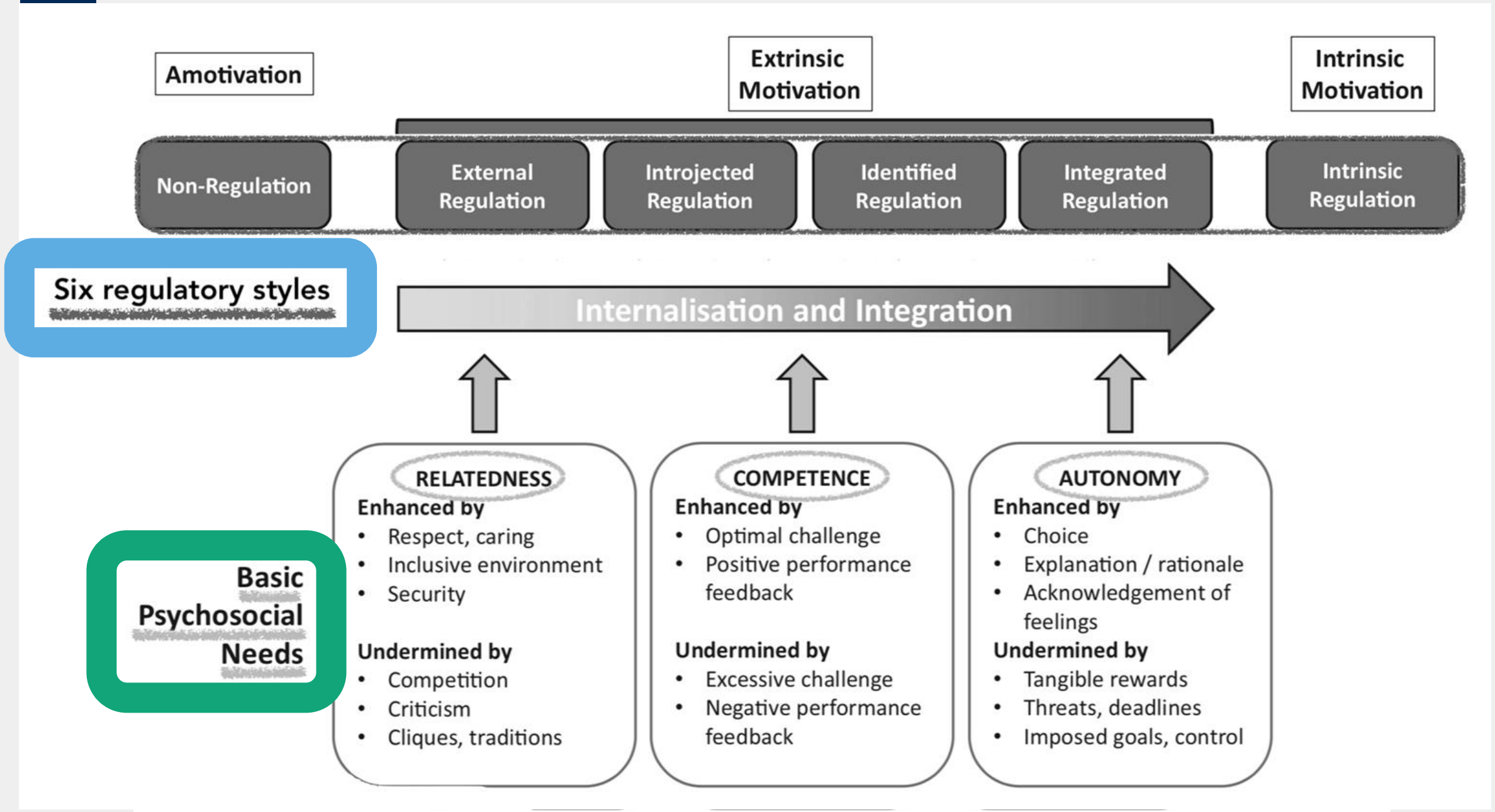
Predicts behavioral maintenance, task persistence

Predicts performance

Predicts well-being

Keeping behavior going





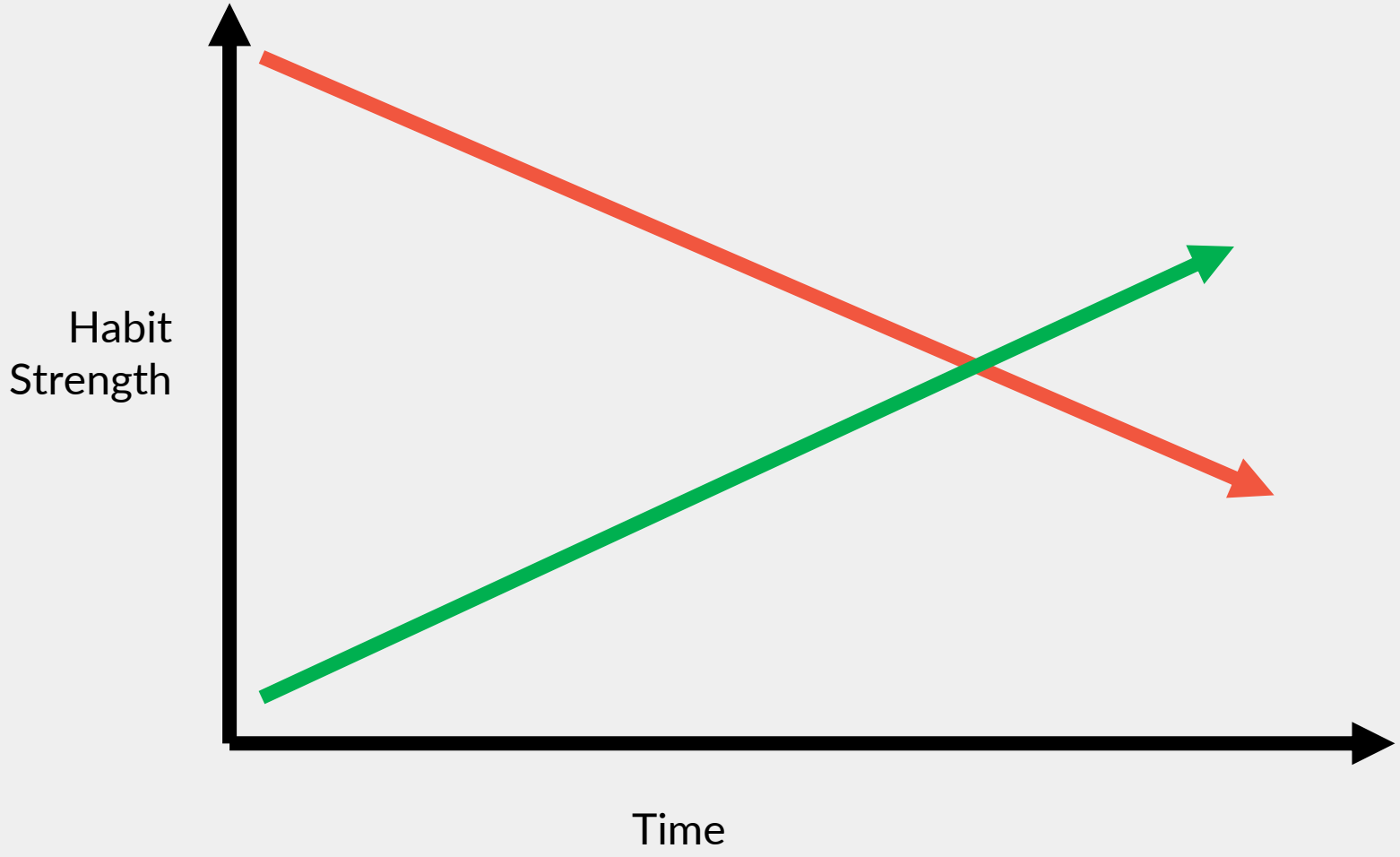
(Deci & Ryan, 2017)

Habit

- An established ongoing behavioral pattern
  - Cue/situation → Response
- Example: To snooze? Or not to snooze?
- Habit strength = a measure of how deeply embedded a behavioral pattern is
- Lack of PA is a strong habit for many

Habit Growth & Extinction

- To strengthen new habits, old ones need to fade away
- PA takes time to embed itself, as new habit strengthens



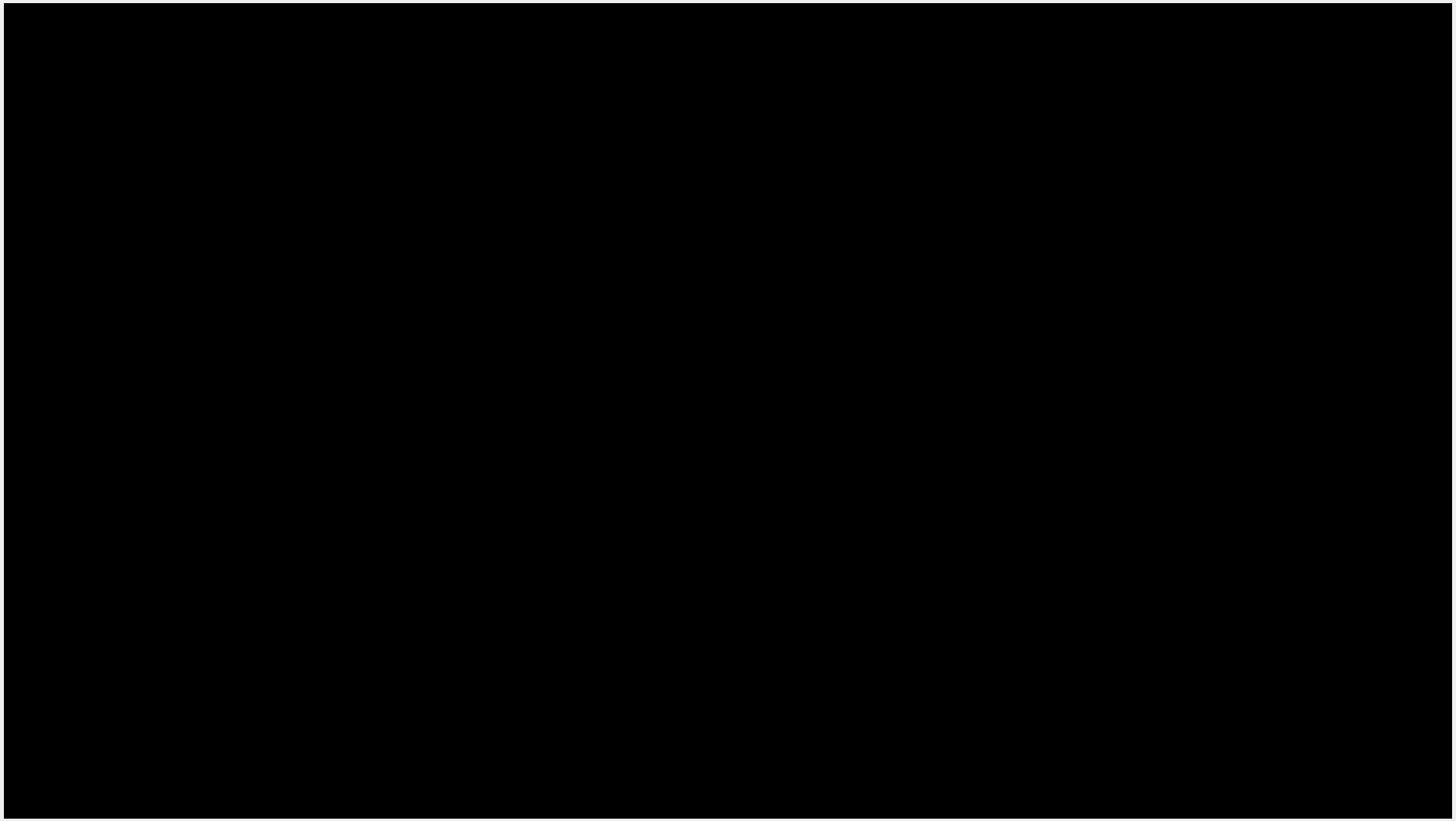
Habit is an Automatic Process

- Habit predicts behavior beyond motivation or intention

- Habit is an example of an automatic process
  - I.e. effortless.
  - See cue --> Do action

- Automatic routes to behavior change can be very powerful

What would you do?



https://www.youtube.com/watch?v=2lXh2n0aPyw

Summary

- Capability, Opportunity and Motivation precede Behavior (COM-B)
  - But motivation alone is not enough
- Self-regulation helps turn motivation into action
  - And increases motivation for physical activity!
- Physical activity most likely to be maintained if it is:
  - Fun, a part of one's Identity, a Habit, and leads to Valued Outcomes