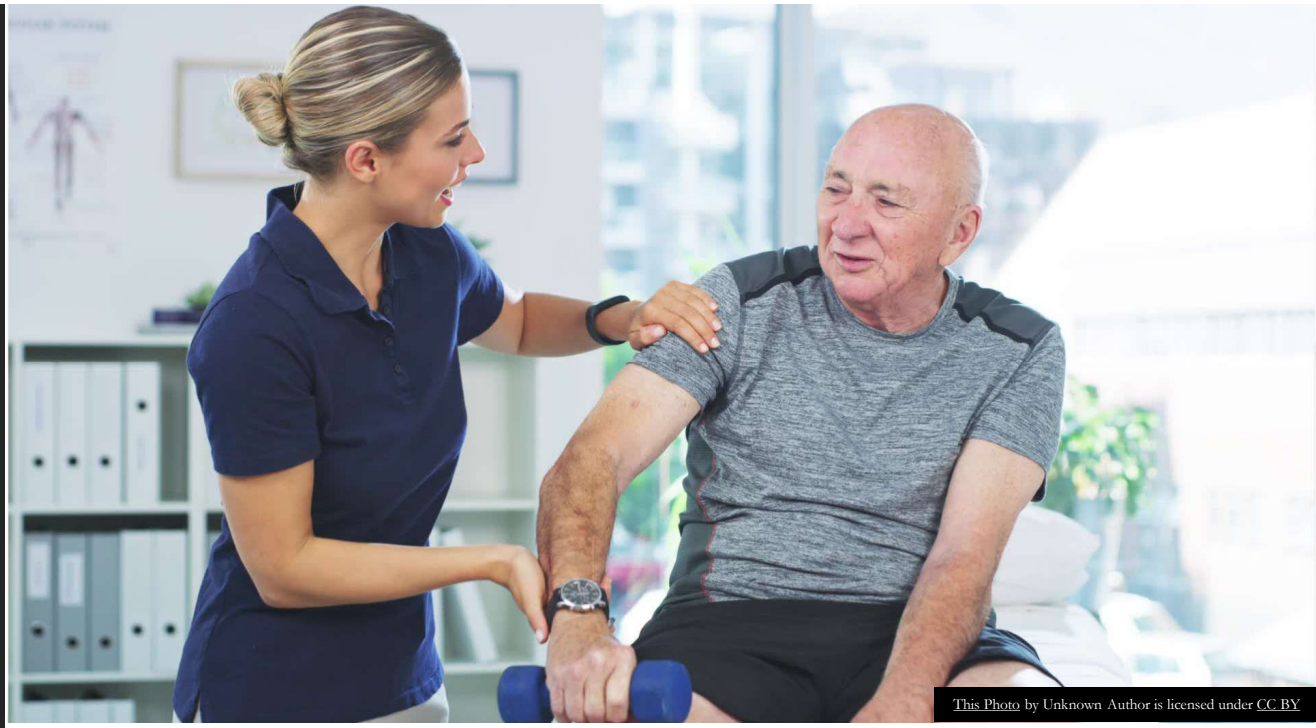
How to promote or restrict physical activity?

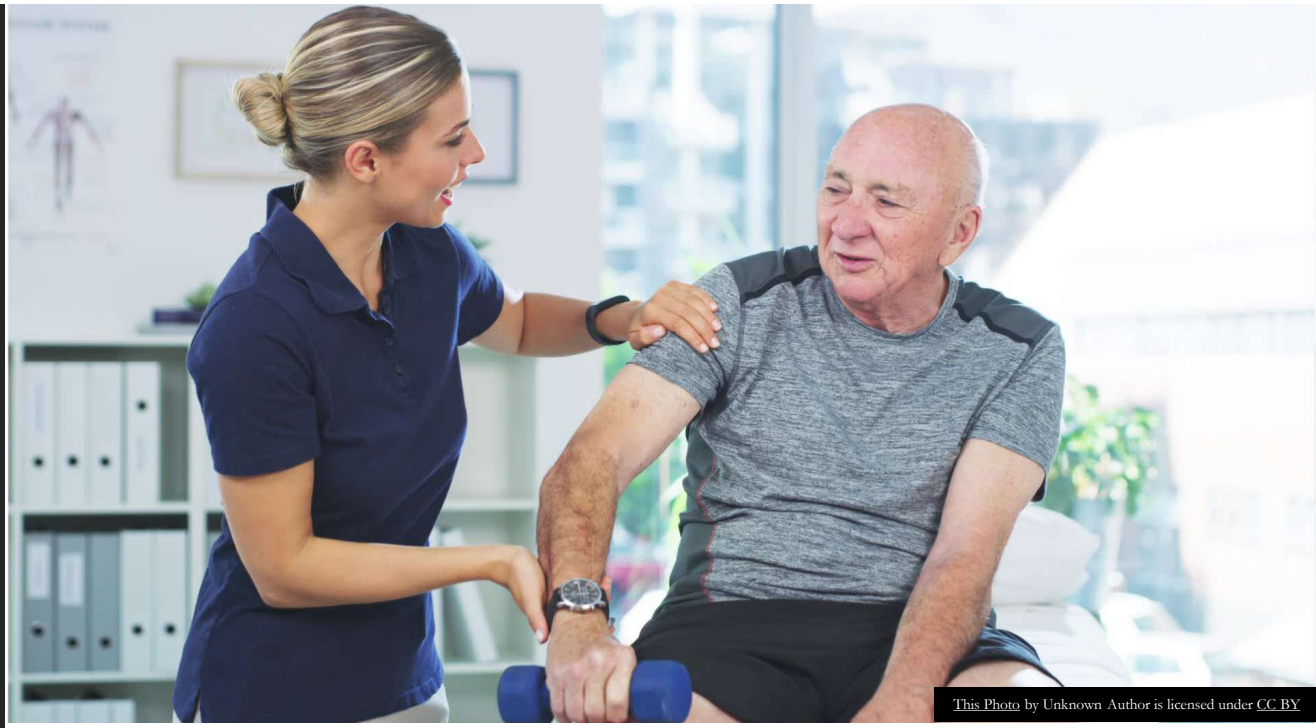
KEEGAN KNITTLE



Jyväskylän yliopisto

Physical activity behavior change

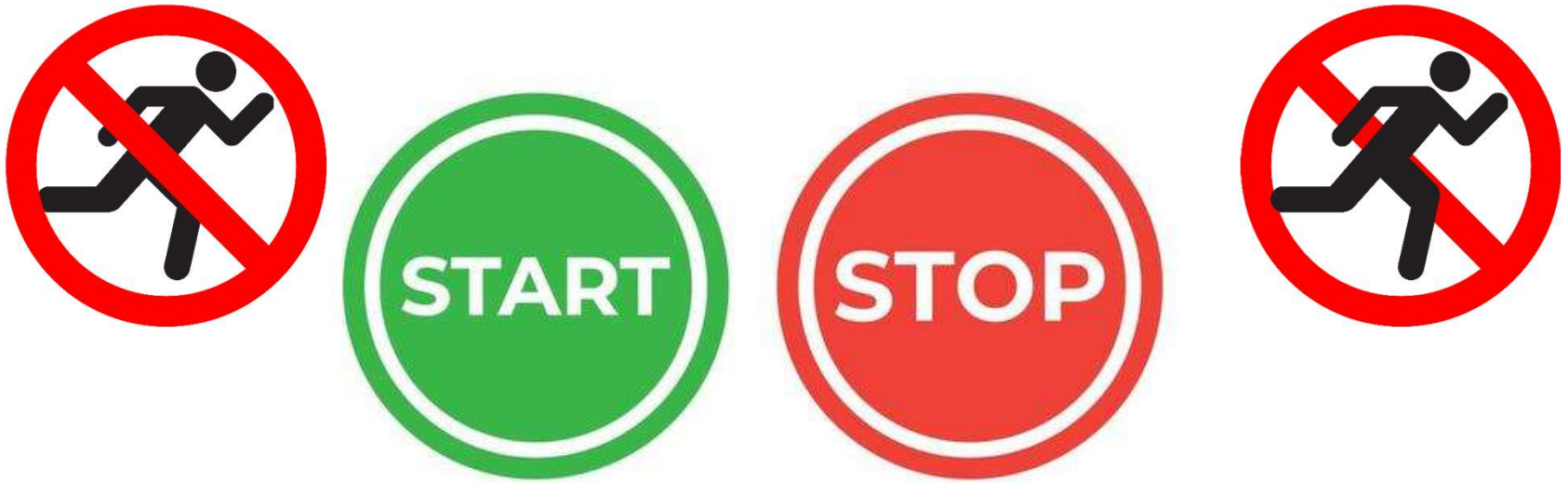
KEEGAN KNITTLE



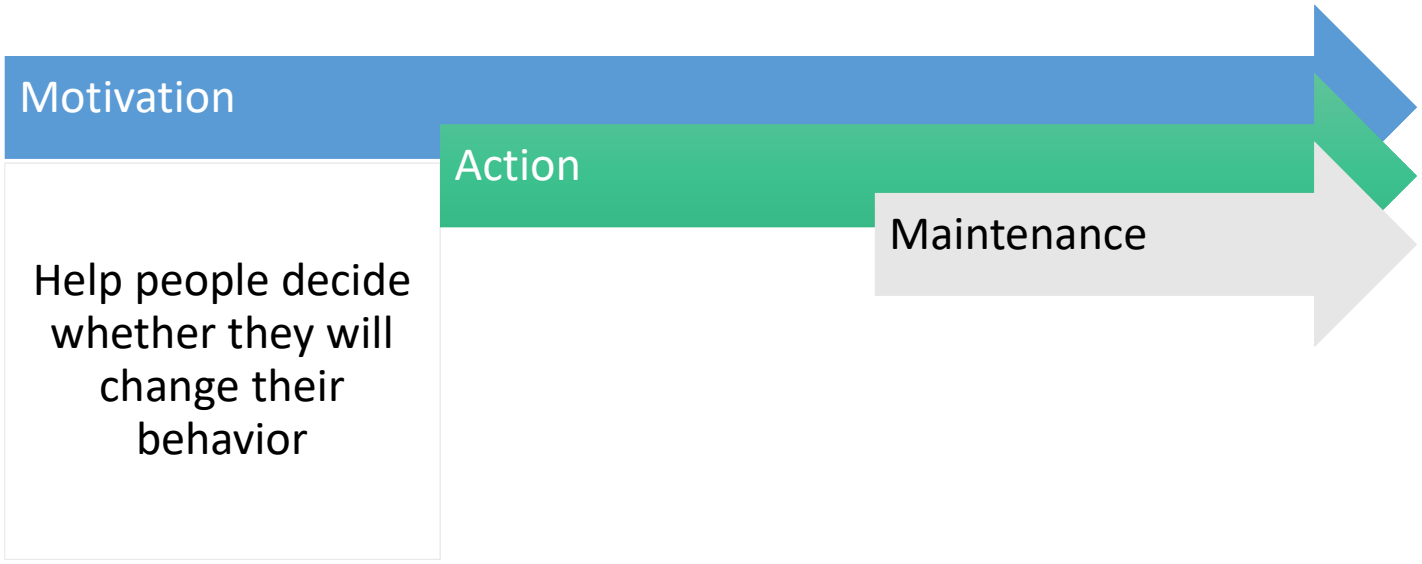
Jyväskylän yliopisto

Physical Activity and Health

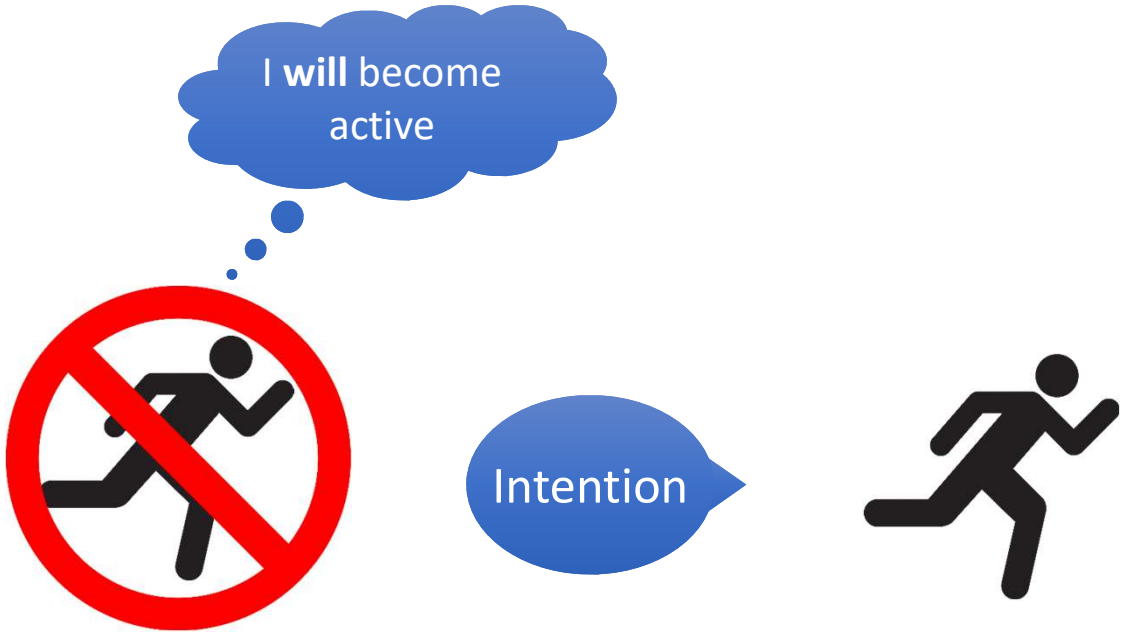
Sometimes necessary to restrict PA too



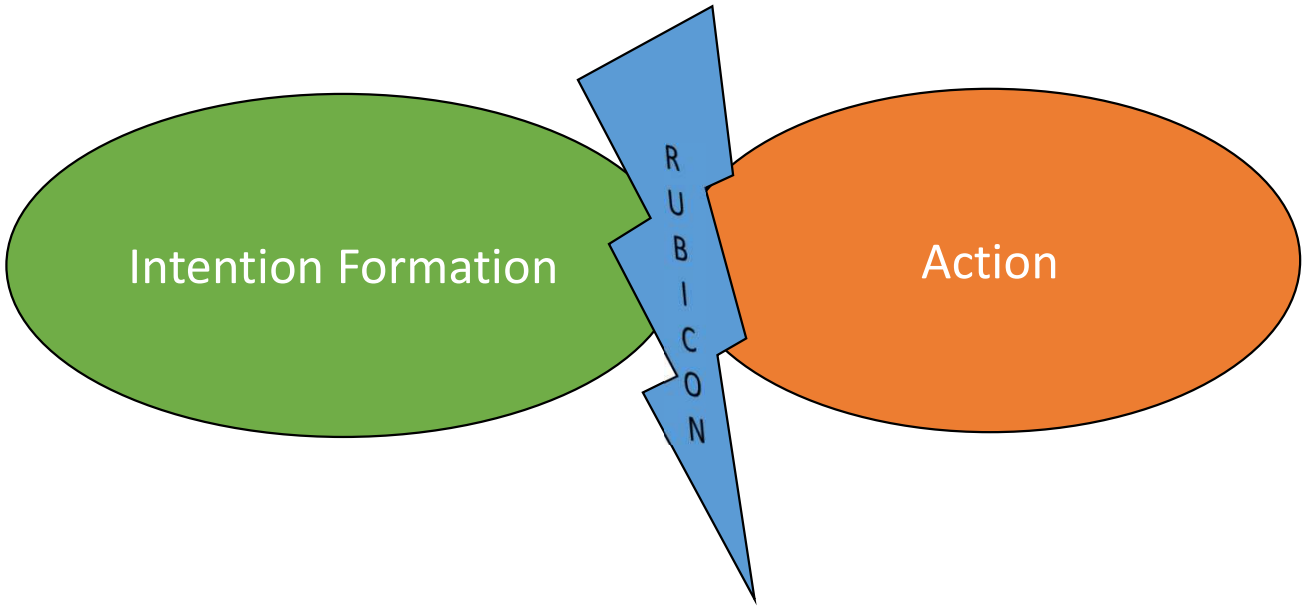
Behavior change is a process



Motivation - From A to B…

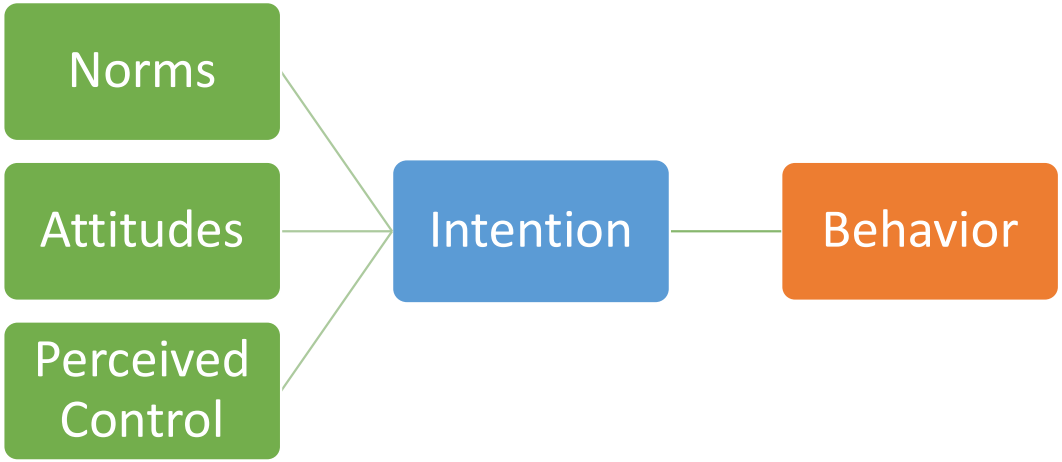


Rubicon Model

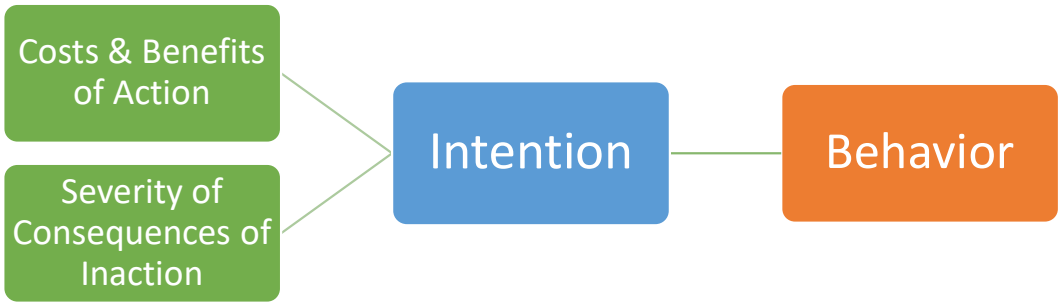


Heckhausen & Gollwitzer, 1987

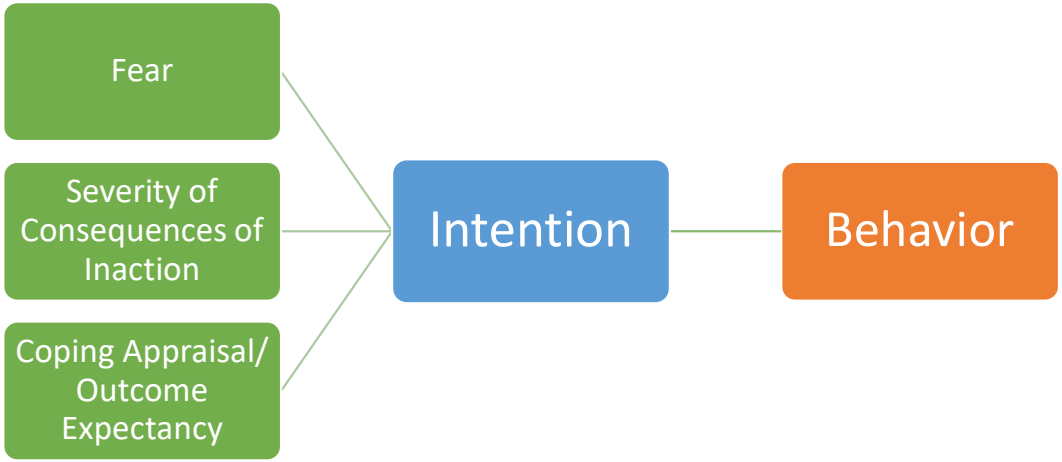
Theory of Planned Behavior



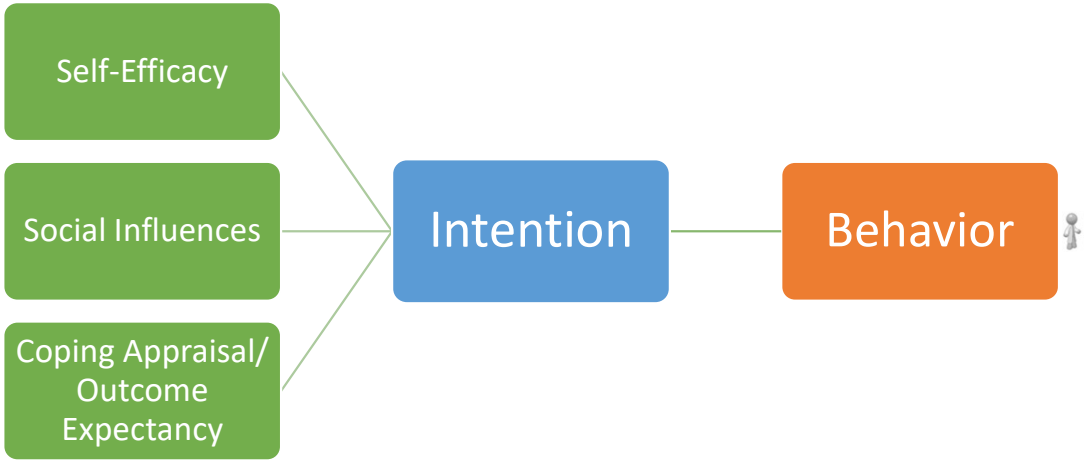
Health Belief Model



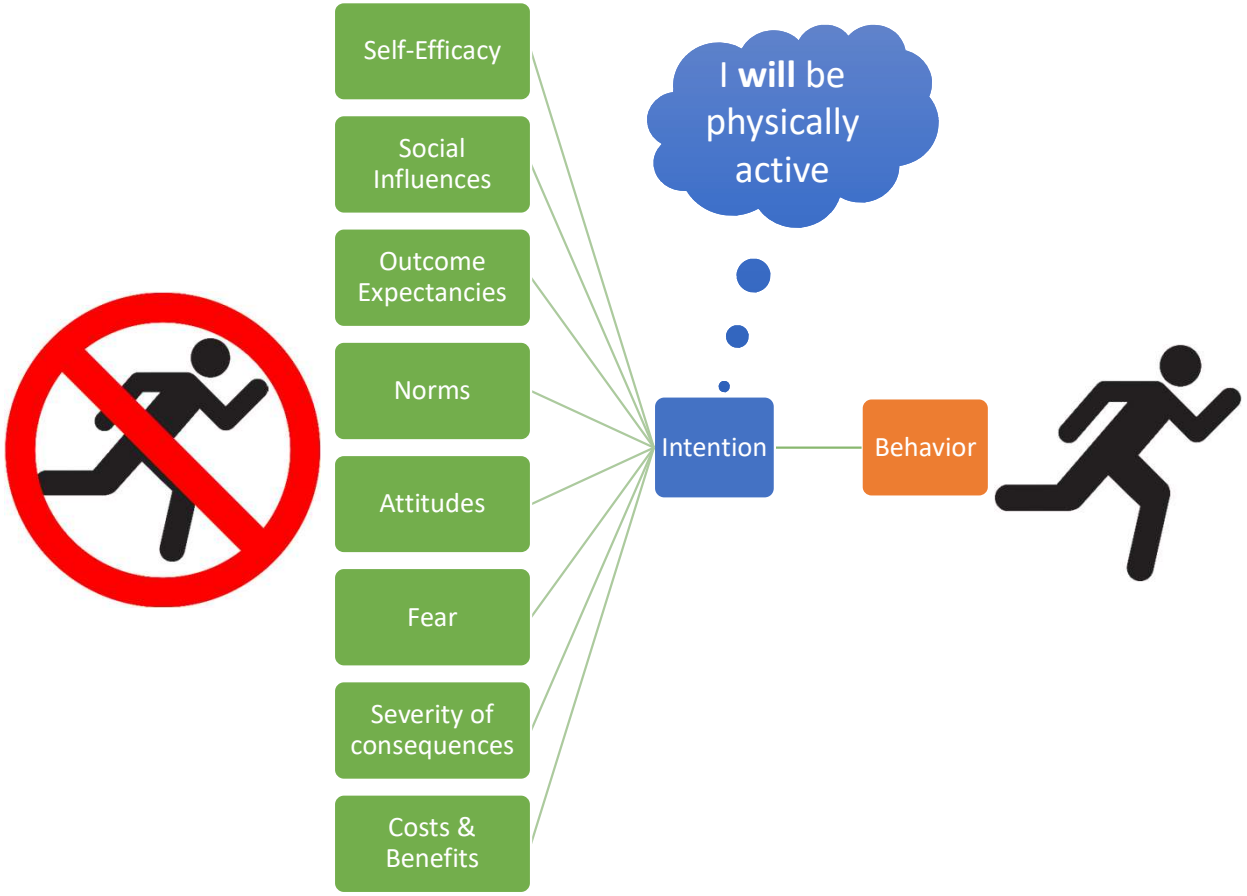
Protection Motivation Theory



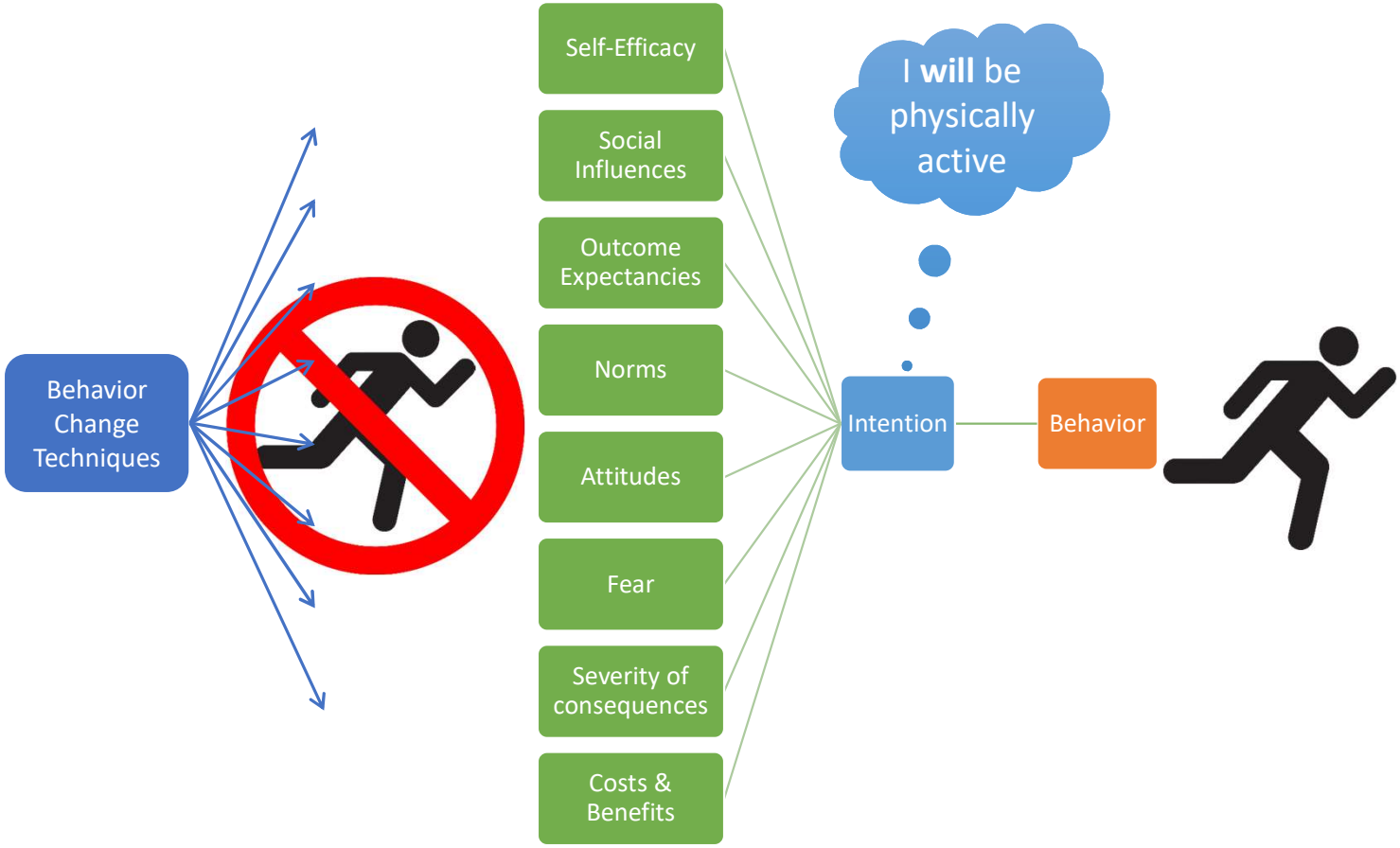
Social Cognitive / Social Learning Theory



Behavior Change Theories



Behavior Change Interventions



Let’s head to the clinic…

Typical in practice…

You should exercise more

It would benefit your health

You would enjoy it

It would be easy for you to start

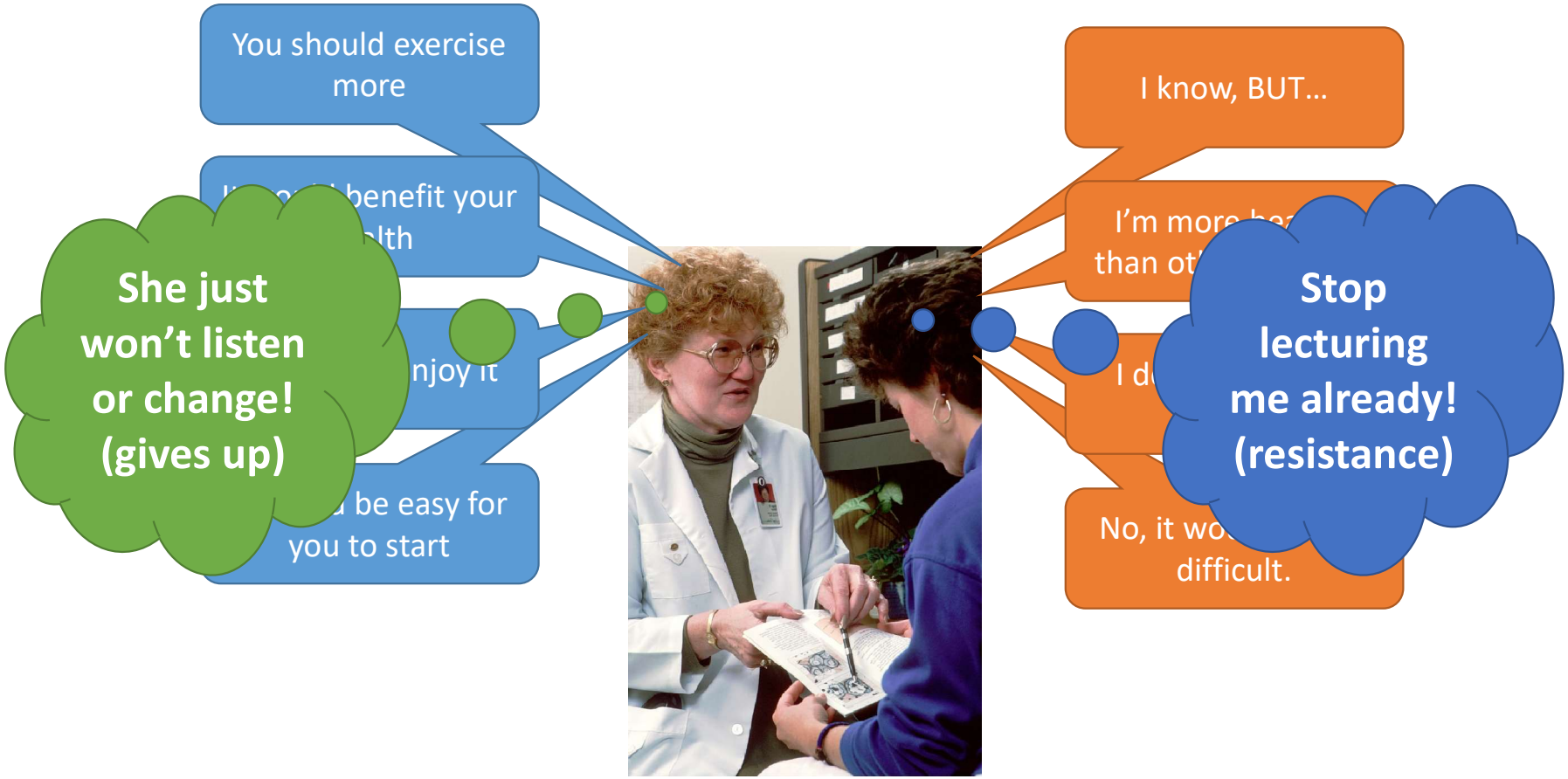
I know, BUT…

I'm more healthy than others my age.

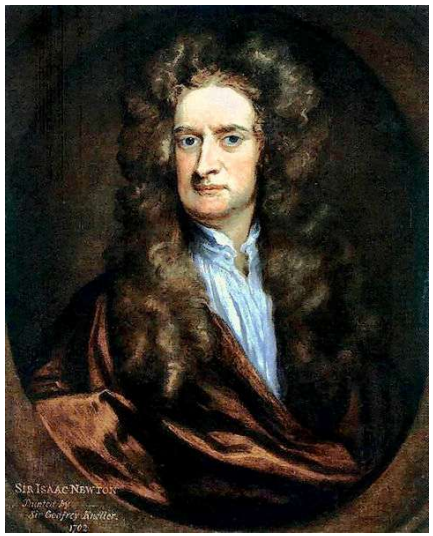
I don't like to get sweaty

No, it would be too difficult.

Typical in practice…



Newton's 3rd Law of Motion



"For every action there is an equal and opposite reaction."

Typical in practice…

You should exercise more

It would benefit your health

You would enjoy it

It would be easy for you to start

I know, BUT…

I'm more healthy than others my age.

I don't like to get sweaty

No, it would be too difficult.

Ambivalence

- Having mixed feelings about something
  - Recognizing both the 'pros' and 'cons'
- Very common when individuals are considering change
  - Must be worked through
- People add the 'other side' of an argument.

Self-perception Theory

People tend to act in accordance with the things they witness themselves do/say

Daryl Bem
Social Psychologist

Problematic responses…

I know, BUT…

I'm more healthy than others my age.

I don't like to get sweaty

No, it would be too difficult.

Brought about by impersonal approach

You should exercise more

It would benefit your health

You would enjoy it

It would be easy for you to start

Talk about change…

Apodaca & Longabaugh, 2009

How might this work?

Tell me about your physical activity…

Why might you want to make a change?

How might you benefit from making a change?

If you wanted to change, what could you do?

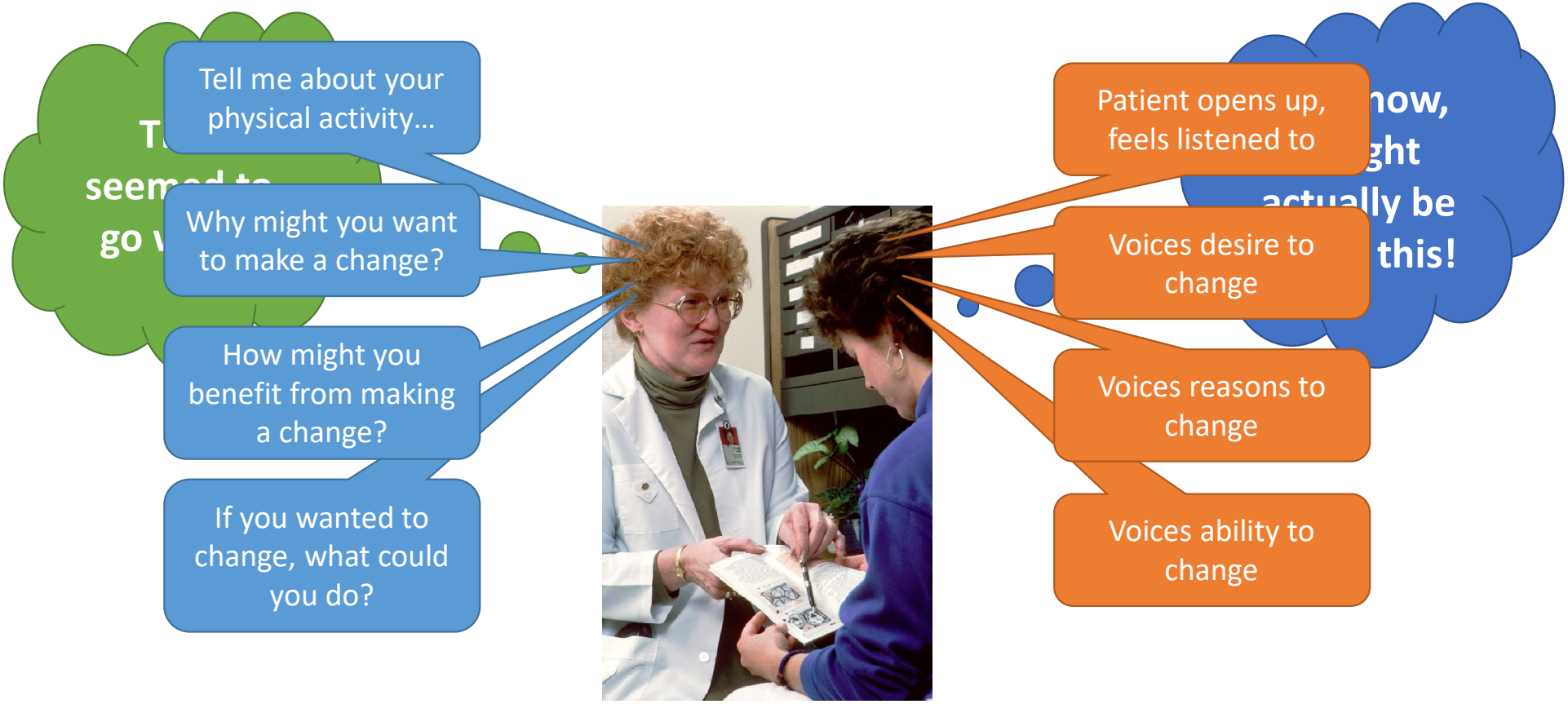
Patient opens up, feels listened to

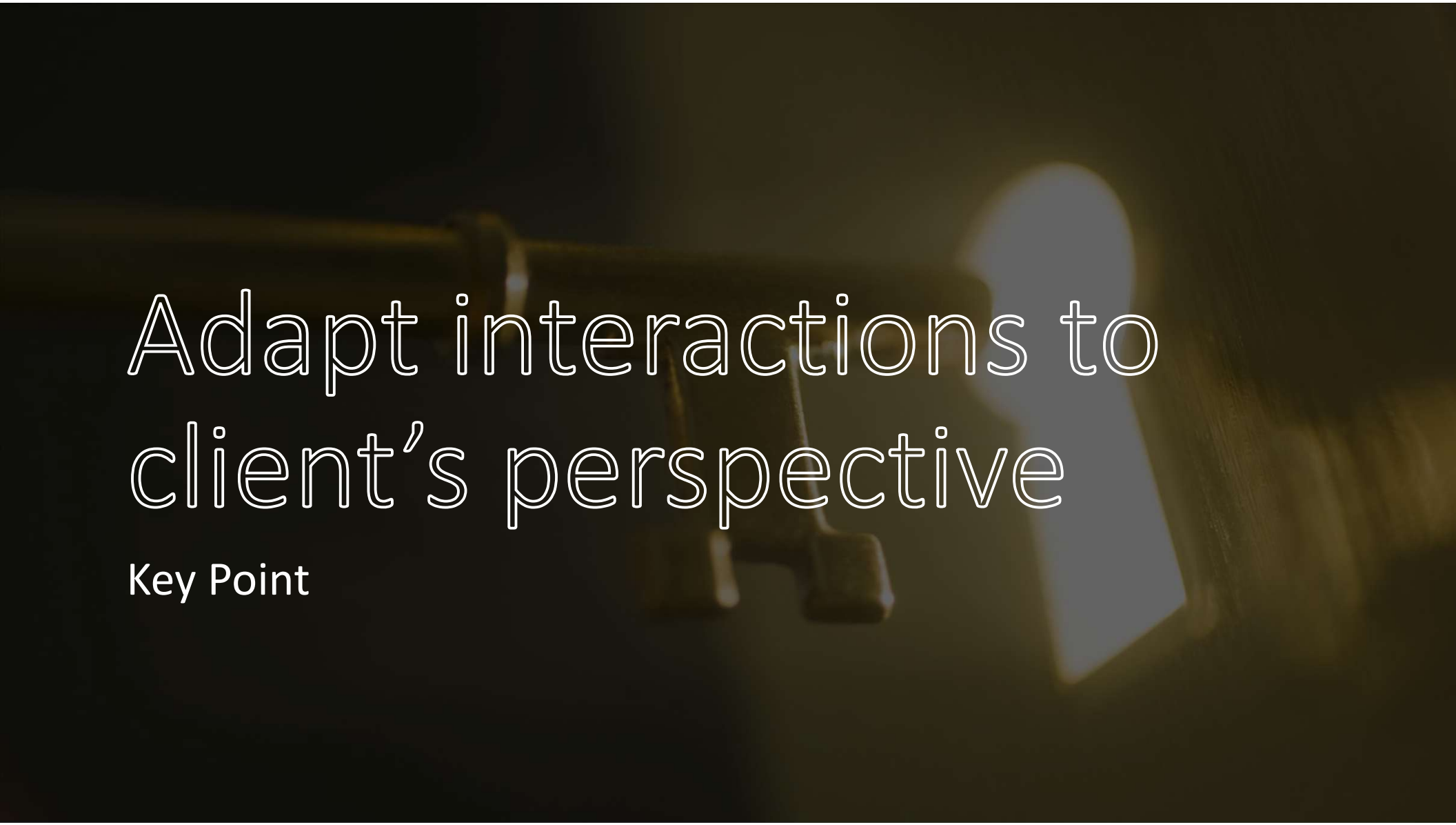
Voices desire to change

Voices reasons to change

Voices ability to change

How might this work?

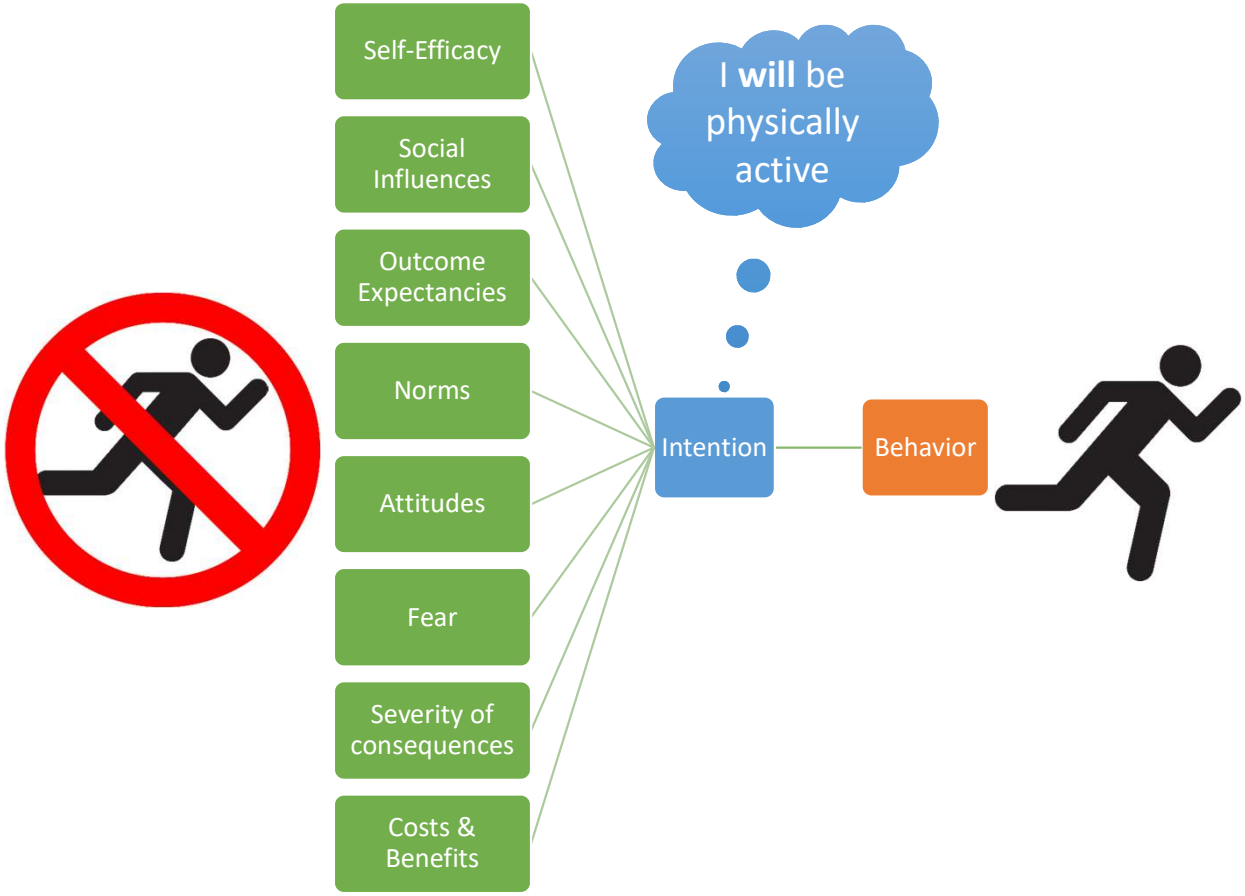




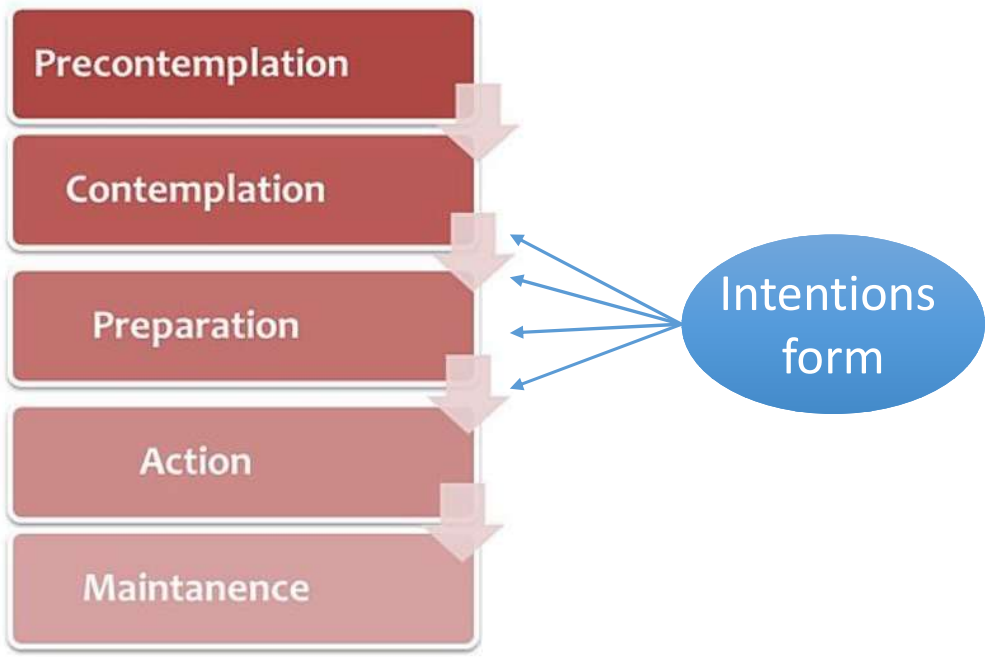
Adapt interactions to client's perspective

Key Point

Behavior Change Theories



Stage of change

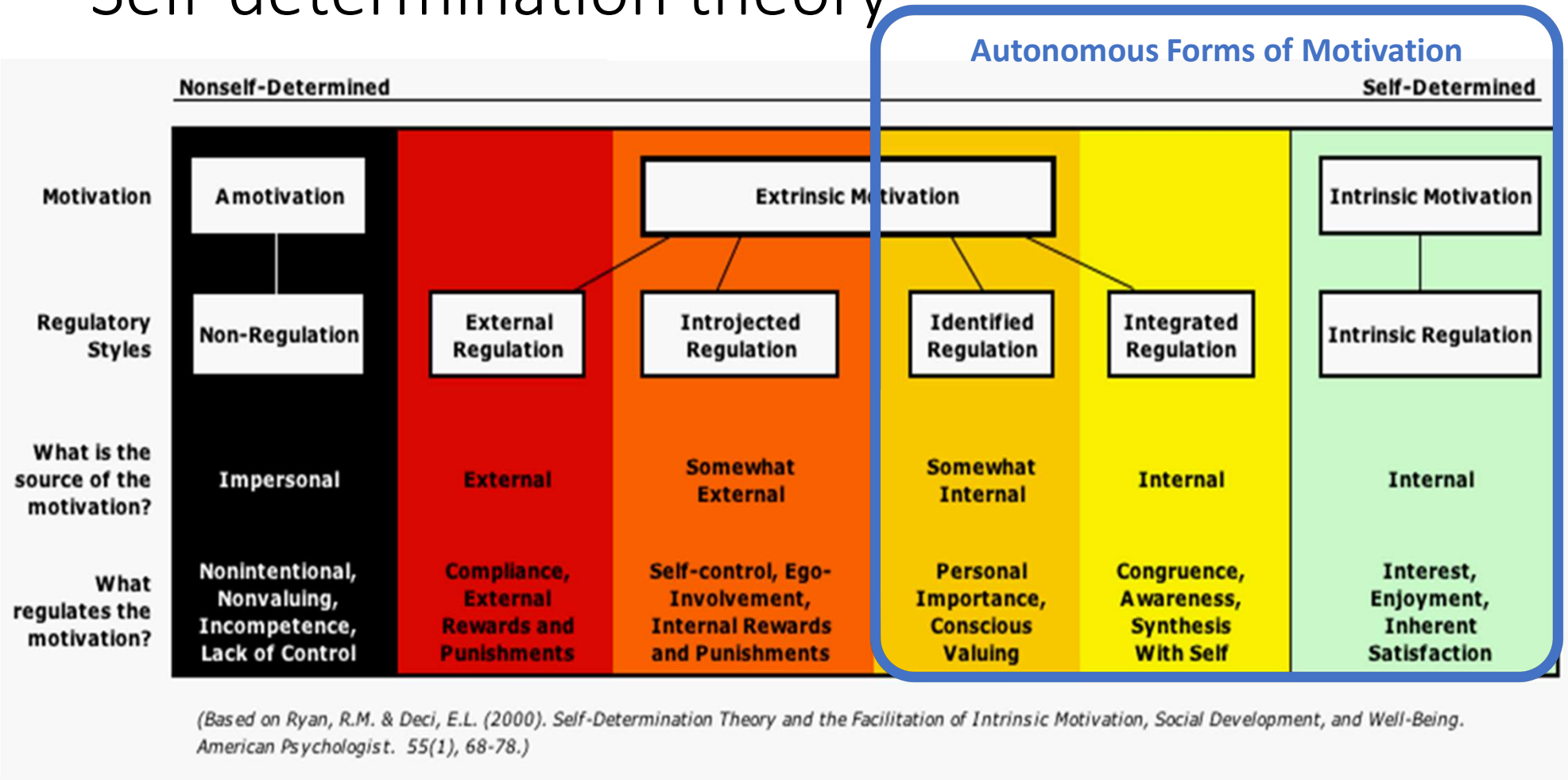


Transtheoretical Model; Prochaska & DiClemente, 1983

Intention strength

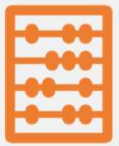
NO! NO No no meh yes Yes YES YES!

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

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

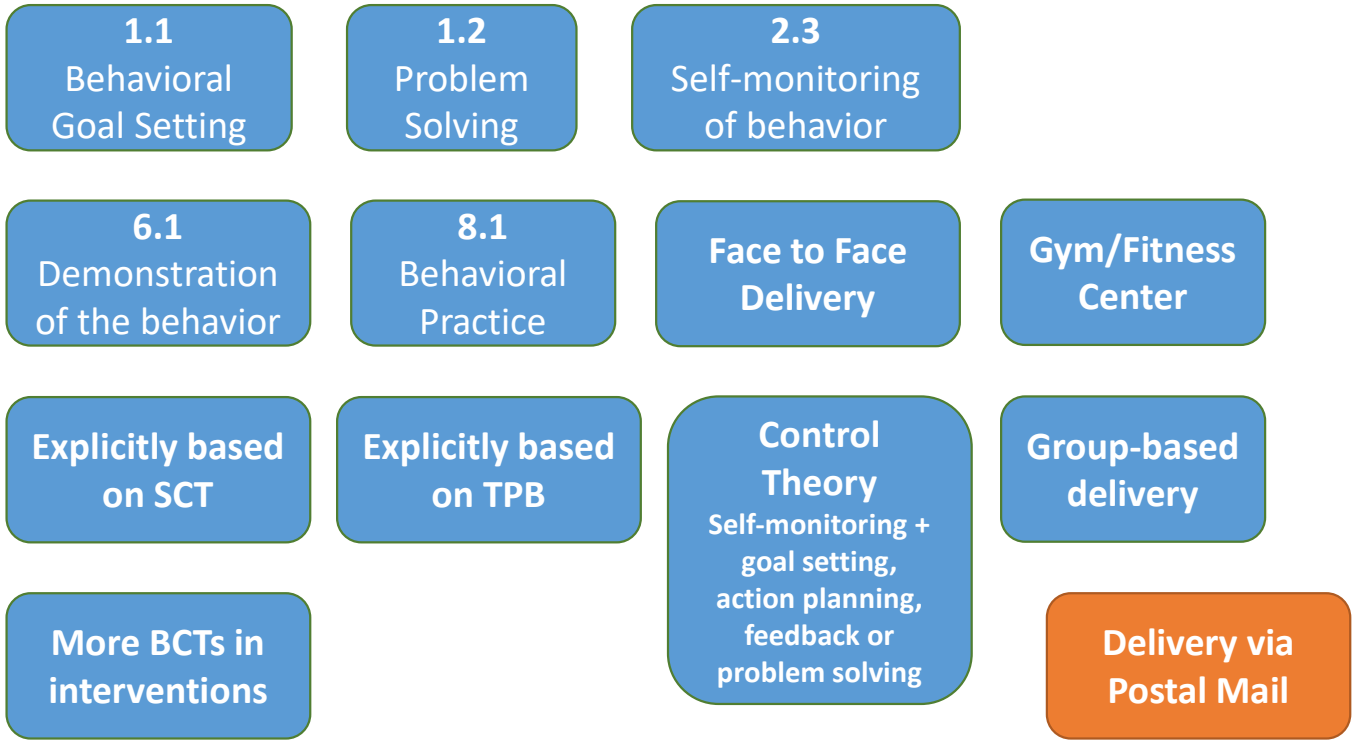
Routledge
Taylor & Francis Group

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

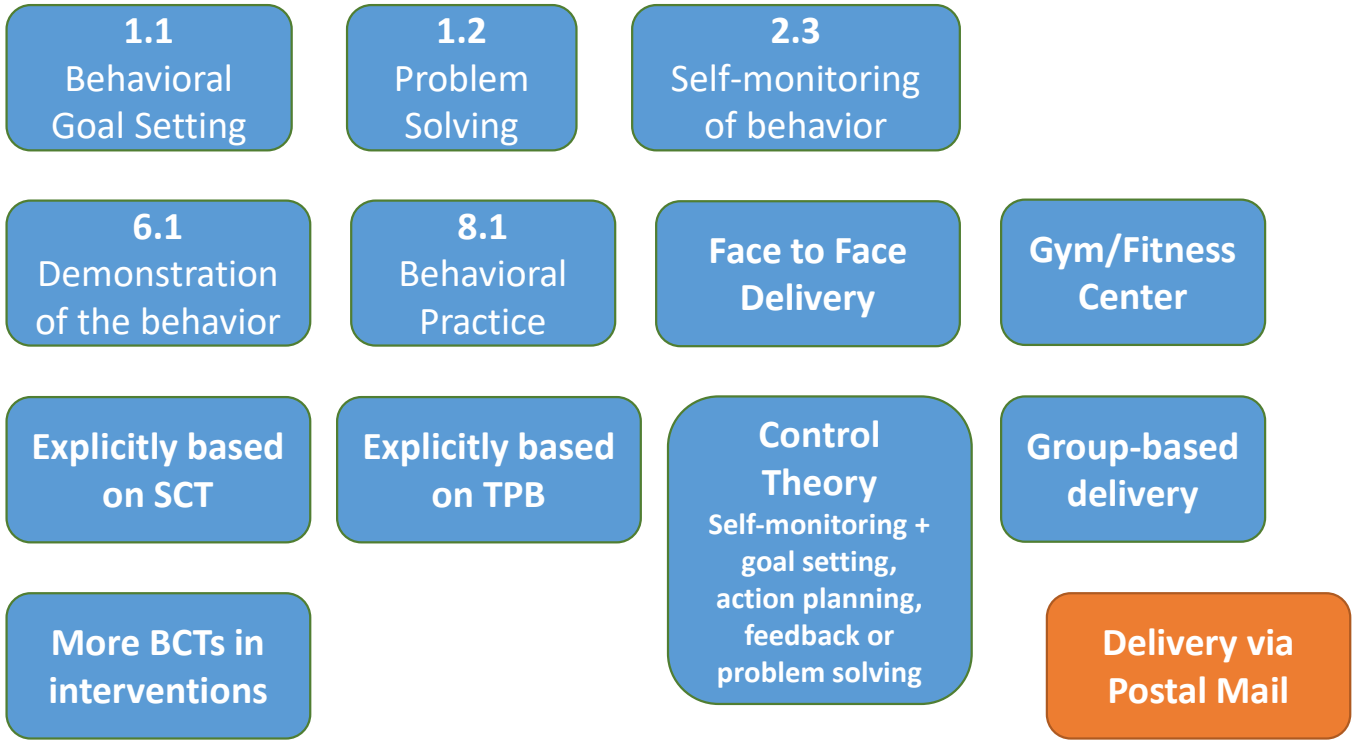
Keegan Knittle [a], Johanna Nurmi [a,b], Rik Crutzen [c], Nelli Hankonen [a,d], Marguerite Beattie [a] and Stephan U Dombrowski [e]

- Which BCTs and modes of delivery are associated with changes in
  - Intention?
  - Stage of change?
  - Autonomous motivation?

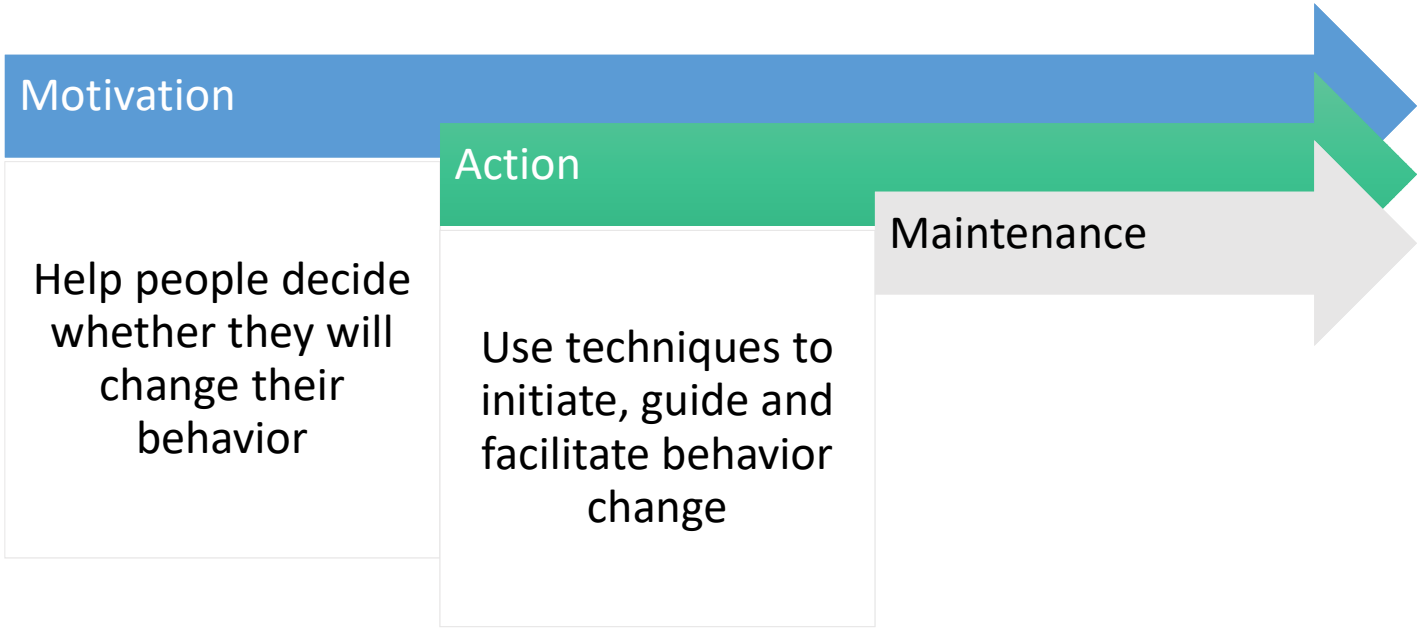
BCTs associated with changes in motivation



BCTs associated with changes in motivation



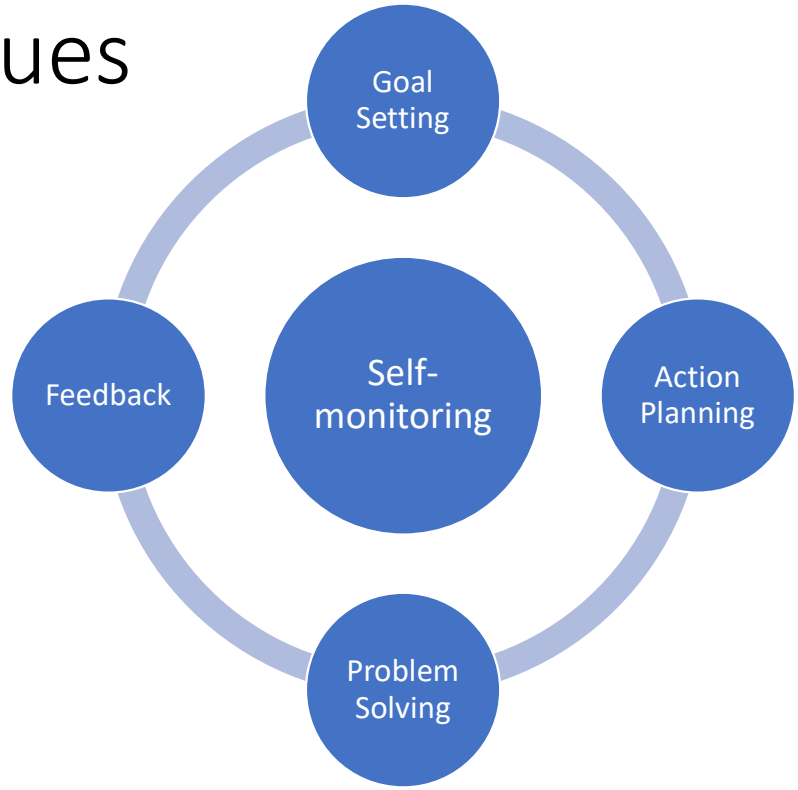
Behavior change is a process



Intention ≠ Behavior

- Intention explains around 40% of behavior at best
- Bridging the intention-behavior gap requires self-regulatory effort

Control Theory
Self-Regulation Techniques



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

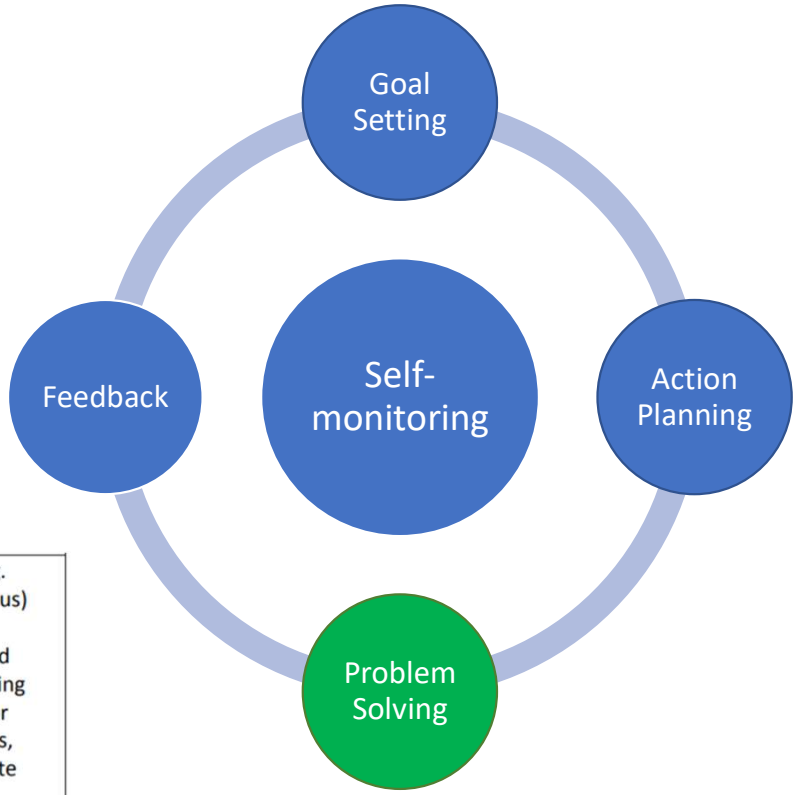
Action planning

- 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

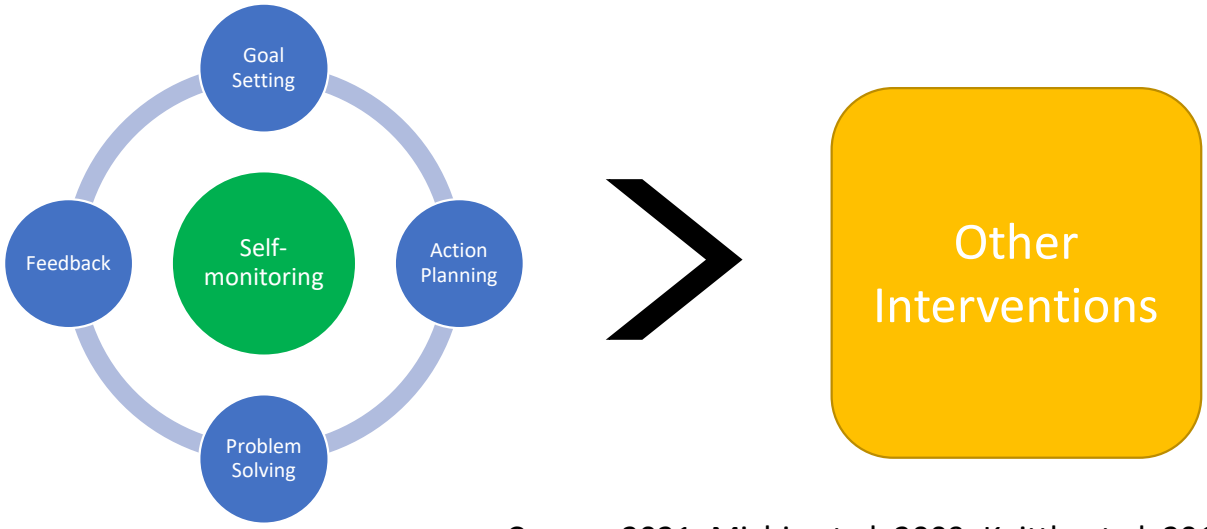
Feedback

- Compare that with what one thinks should be done 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

- Very effective
  - Physical Activity, Diet, Anxiety, Depression, Self-efficacy
  - *Also increase motivation!



Carraca 2021; Michie et al, 2009; Knittle et al, 2010; Janssen et al, 2012; Dombrowski et al, 2012; Olander et al, 2013; Knittle et al 2018

BCT Enactment

It’s more difficult than taking a pill.

Journal of the American Dietetic Association
Volume 111, Issue 1, January 2011, Pages 92-102

Research
Review

Self-Monitoring in Weight Loss: A Systematic Review of the Literature

Lora E. Burke PhD, MPH, Jing Wang PhD, MPH, RN, Mary Ann Sevick ScD, RN

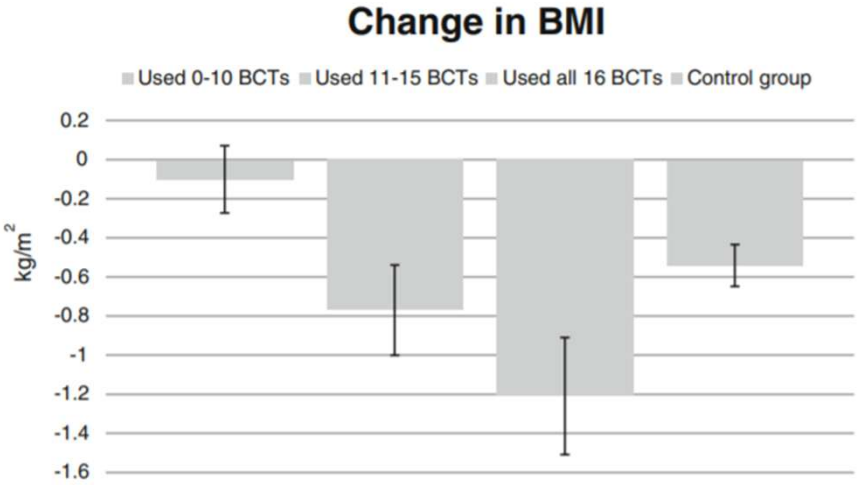
- Rates of self-monitoring for diet, exercise and self-weighing are only around 50%
- More self-monitoring associated with more weight loss
- Missing self-monitoring disrupts self-regulation:
  - Setting too difficult or too easy goals when not based on data/realistic
  - Feedback can't be given if no data collected
  - Problems can't be solved if they aren't identified

Which Behavior Change Techniques are Associated with Changes in Physical Activity, Diet and Body Mass Index in People with Recently Diagnosed Diabetes?

ann. behav. med. (2015) 49:7–17
DOI 10.1007/s12160-014-9624-9

Nelli Hankonen, Ph.D. · Stephen Sutton, Ph.D. · A. Toby Prevost, Ph.D. · Rebecca K. Simmons, Ph.D. · Simon J. Griffin, D.M. · Ann Louise Kinmonth, M.D. · Wendy Hardeman, Ph.D

- ~40% of patients used all BCTs
- Using **more** BCTs associated with greater weight loss
- Use of these BCTs associated with changes in diet:
  - Goal setting
  - Goal review
  - Problem solving
  - Coping planning



Explaining Physical Activity Maintenance After a Theory-Based Intervention Among Patients With Rheumatoid Arthritis: Process Evaluation of a Randomized Controlled Trial

KEEGAN KNITTLE,[1] VÉRONIQUE DE GUCHT,[2] EMALIE HURKMANS,[3] THEA VLIET VLIELAND,[4] AND STAN MAES[2]

Arthritis Care & Research
Vol. 68, No. 2, February 2016, pp 203–210
DOI 10.1002/acr.22647

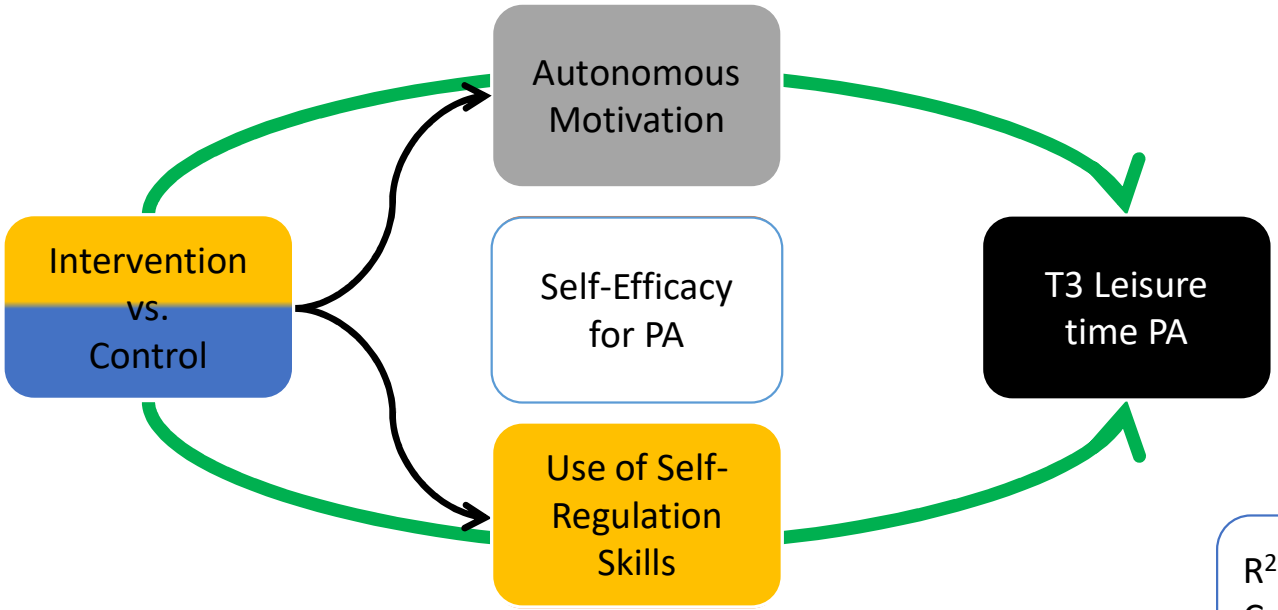
- Action Planning
- Self-monitoring
- Problem solving
- Obtaining feedback
- Attention control
- Optimism
- Self-reward

Table 2. Between-group comparisons of patients' PA-related cognitions, use of self-regulation skills, and leisure-time PA at baseline (T1), 6 weeks (T2), and 32 weeks (T3)*

Variable	Intervention group, mean ± SD (n = 38)	Control group, mean ± SD (n = 40)	*P*
Autonomous motivation for PA			
T1	5.92 ± 0.85	5.41 ± 1.19	0.006†
T2	5.98 ± 0.82	5.18 ± 1.37	0.002†
Self-efficacy for PA			
T1	78.19 ± 44.27	84.51 ± 36.27	0.492
T2	93.84 ± 37.13	79.80 ± 40.44	0.115
Total use of self-regulation skills			
T2	26.77 ± 2.34	22.92 ± 2.21	< 0.001†
T3	26.71 ± 2.84	22.67 ± 3.05	< 0.001†
Leisure-time PA			
T1	215.8 ± 175.1	208.5 ± 210.7	0.871
T2	293.8 ± 198.7	223.5 ± 243.5	0.175
T3	315.5 ± 287.2	221.0 ± 285.1	0.157

* PA = physical activity.
† *P* < Holm's sequentially adjusted significance threshold.

PA maintenance 6 months after an intervention in RA



$R^2 = 0.333$; $p < 0.0003$
Controlled for:
Age, Gender, T2 Leisure-time PA

Many BCTs require active enactment to be effective

Key Point

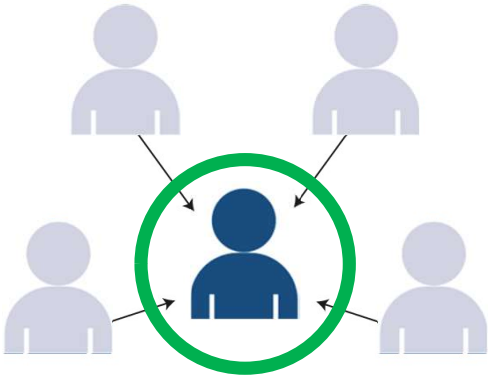
nature human behaviour

RESOURCE

https://doi.org/10.1038/s41562-019-0798-9

The compendium of self-enactable techniques to change and self-manage motivation and behaviour v.1.0

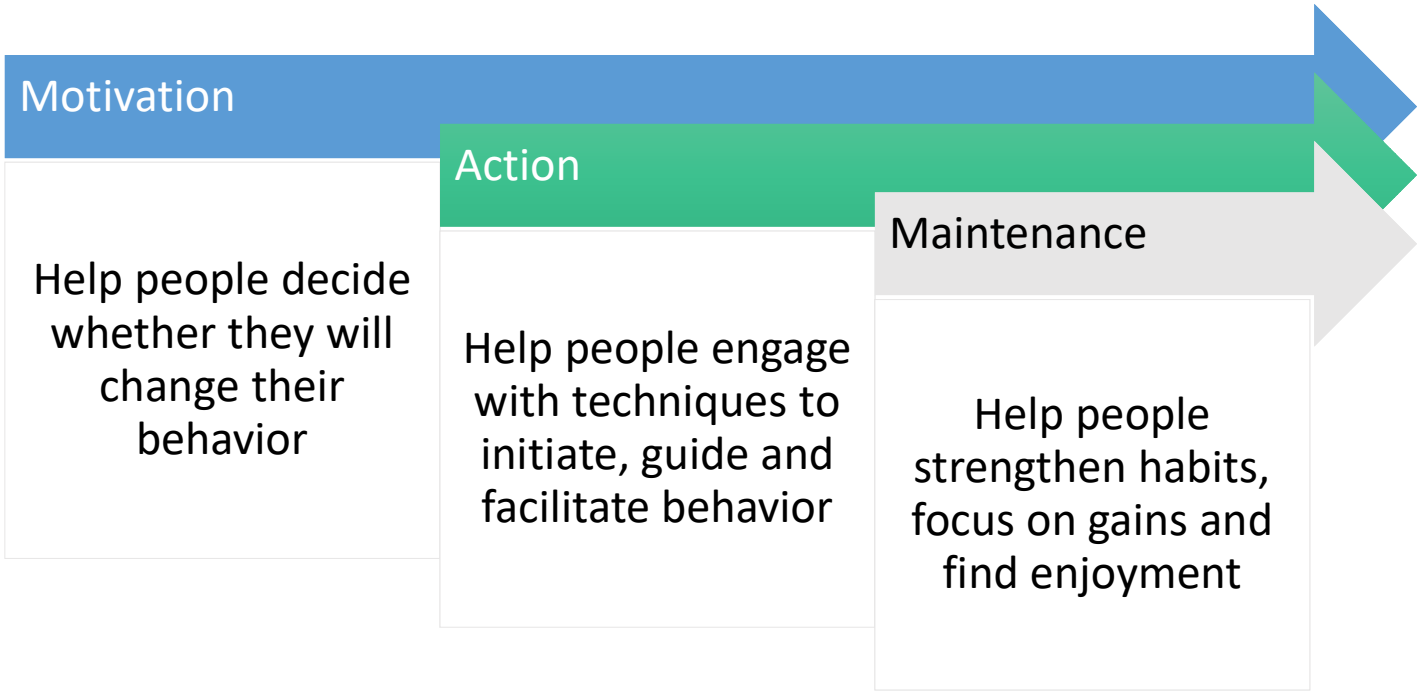
Keegan Knittle[1], Matti Heino[1], Marta M. Marques[2], Minna Stenius[3,4], Marguerite Beattie[1], Franziska Ehbrecht[5], Martin S. Hagger[6,7], Wendy Hardeman[8] and Nelli Hankonen[1*]



Available from:

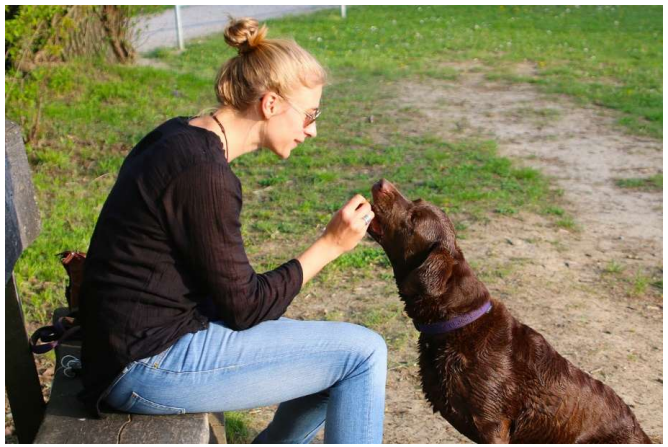
https://osf.io/mwtrb/

Behavior change is a process

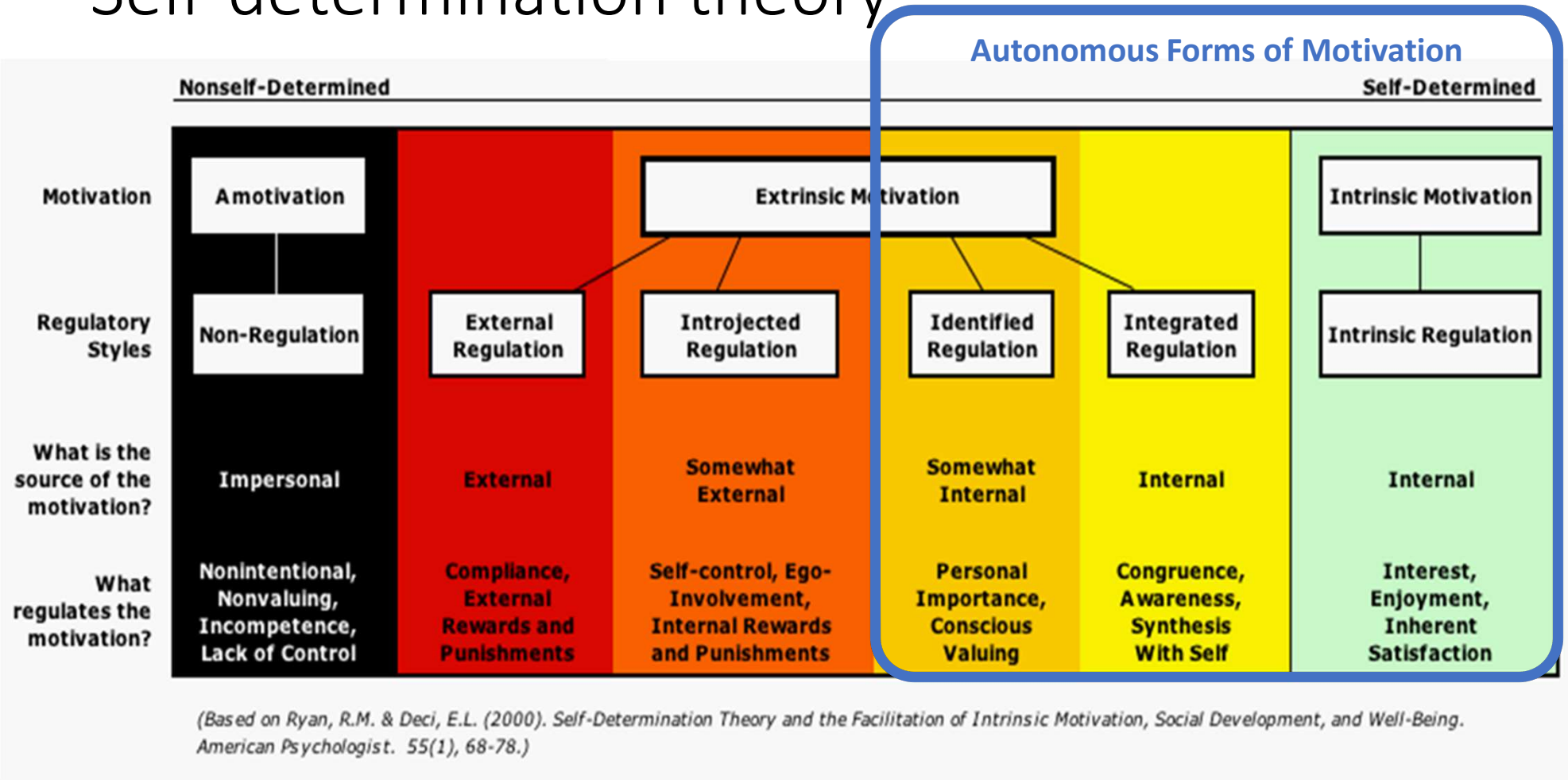


Maintenance Motives

- People **start** new behaviors based on what they **think** will happen.
- People **maintain** behaviors based on what **actually** happens.
  - –Rothman, Sheeran & Wood, 2009
- To maintain a behavior, people must feel that it is worth it (i.e., rewarding)

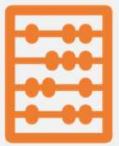


Self-determination theory



(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!

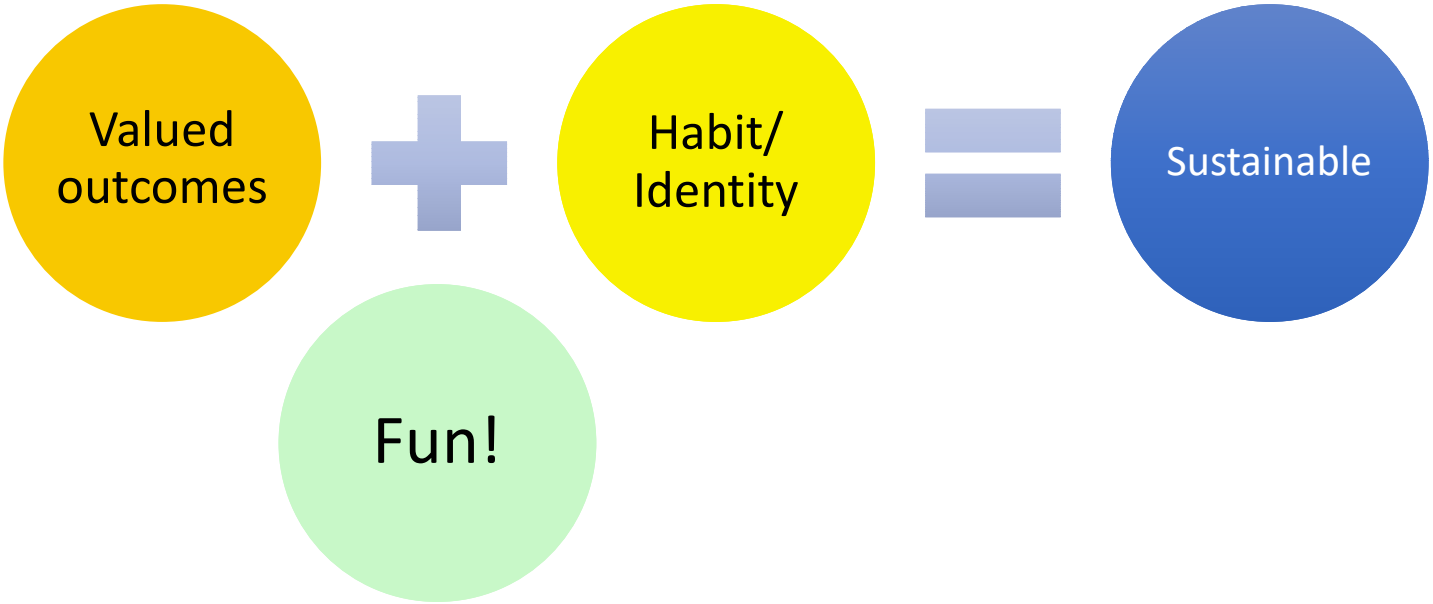


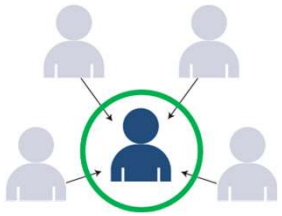
Predicts behavioral maintenance, task persistence

Predicts performance

Predicts well-being

Keeping behavior going





Main Question:

Which *self-enactable* techniques have likely impacts on core SDT constructs?

Online survey of SDT experts (n=62)

Each expert rated 40 random techniques

Technique's number & label

#8 - Action planning

Technique's definition & example

Definition: Plan performance of behaviour in detail, including context, frequency, duration and/or intensity
Example: Clearly specifying the behaviour you want to undertake can help you to take action. Make a detailed plan of where, how and how often you will be physically active. For example, plan to go to an exercise class in the gym nearby every Tuesday after work. You can write this down on a piece of paper or enter into your (electronic) agenda or calendar.

Rating: basic psychological needs

*When a person self-enacts this technique, what is its likely effect on the ***basic psychological needs*** listed below?

	-3	-2	-1	0	1	2	3	
	Much more likely to de-crease	Somewhat more likely to decrease	Slightly more likely to de-crease	Equally likely to decrease/ increase	Slightly more likely to in-crease	Somewhat more likely to increase	Much more likely to in-crease	Don't know
Autonomy	○	○	○	○	○	○	○	●
Competence	○	○	○	○	○	○	○	○
Relatedness	○	○	○	○	○	○	○	○

Definitions of each need

Autonomy – refers to "the experience of self-endorsement and ownership of one's actions"

Competence – refers to "the feeling of being effective in one's interactions with the social environment — that is, experiencing opportunities and supports for the exercise, expansion, and expression of one's capacities and talents"

Relatedness – refers to "experiencing others as responsive and sensitive and being able to be responsive and sensitive to them — that is, feeling connected and involved with others and having a sense of belonging"

ELSEVIER

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Self-enactable techniques to influence basic psychological needs and regulatory styles within self-determination theory: An expert opinion study

Keegan Knittle [a b], Christin Fidrich [a c], Nelli Hankonen [a d]

Results

Intrinsic Motivation

Fun!

				7	3	
		Intrinsic				
#	BCT Name	n	Mean		LL	UL
92	Behaviour cost	15	-1.73	DET	-2.34	-1.12
93	Self-penalty	13	-2.08	DET	-2.79	-1.36
94	Remove reward or incentive	14	-2.14	DET	-2.78	-1.51
2	Brainstorm options	19	1.53	BEN	1.06	1.99
3	Consider behaviour change options	18	1.72	BEN	1.14	2.31
31	Add challenge	17	1.53	BEN	1.01	2.05
56	Obtain instruction on how to perform the beha	20	1.50	BEN	1.11	1.89
102	Find meaning in target behaviour	18	1.61	BEN	1.04	2.18
109	Focus on enjoyment (pleasant aspects) of beha	14	2.00	BEN	1.45	2.55
122	Emphasize autonomy	15	1.80	BEN	1.28	2.32

Integrated Regulation

Habit/ Identity

				18	0	
		Integrated				
#	BCT Name	n	Mean		LL	UL
2	Brainstorm options	19	1.63	BEN	1.20	2.06
3	Consider behaviour change options	18	1.89	BEN	1.35	2.43
4	Hypothetical thinking	17	1.65	BEN	1.29	2.01
5	Behavioural goal setting	20	1.60	BEN	1.07	2.13
32	Goal integration	13	2.23	BEN	1.73	2.73
34	Obtain information about antecedents	18	1.72	BEN	1.19	2.26
43	Comparative imagining of future outcomes	14	1.50	BEN	1.06	1.94
52	Support others	12	1.58	BEN	1.01	2.16
70	Habit formation	13	1.69	BEN	1.02	2.36
73	Generalization of target behaviour	11	2.09	BEN	1.46	2.73
100	Reflect on reasons to perform the behaviour	20	1.85	BEN	1.39	2.31
102	Find meaning in target behaviour	18	2.61	BEN	2.19	3.03
105	Associate identity with changed behaviour	18	1.78	BEN	1.25	2.31
106	Valued self-identity (personal strengths)	17	1.82	BEN	1.30	2.35
107	Verbal self-persuasion about own capability	14	1.64	BEN	1.28	2.01
108	Mental rehearsal of successful performance	17	1.47	BEN	1.02	1.92
109	Focus on enjoyment (pleasant aspects) of beha	14	1.71	BEN	1.10	2.33
122	Emphasize autonomy	15	2.00	BEN	1.53	2.47

Identified Regulation

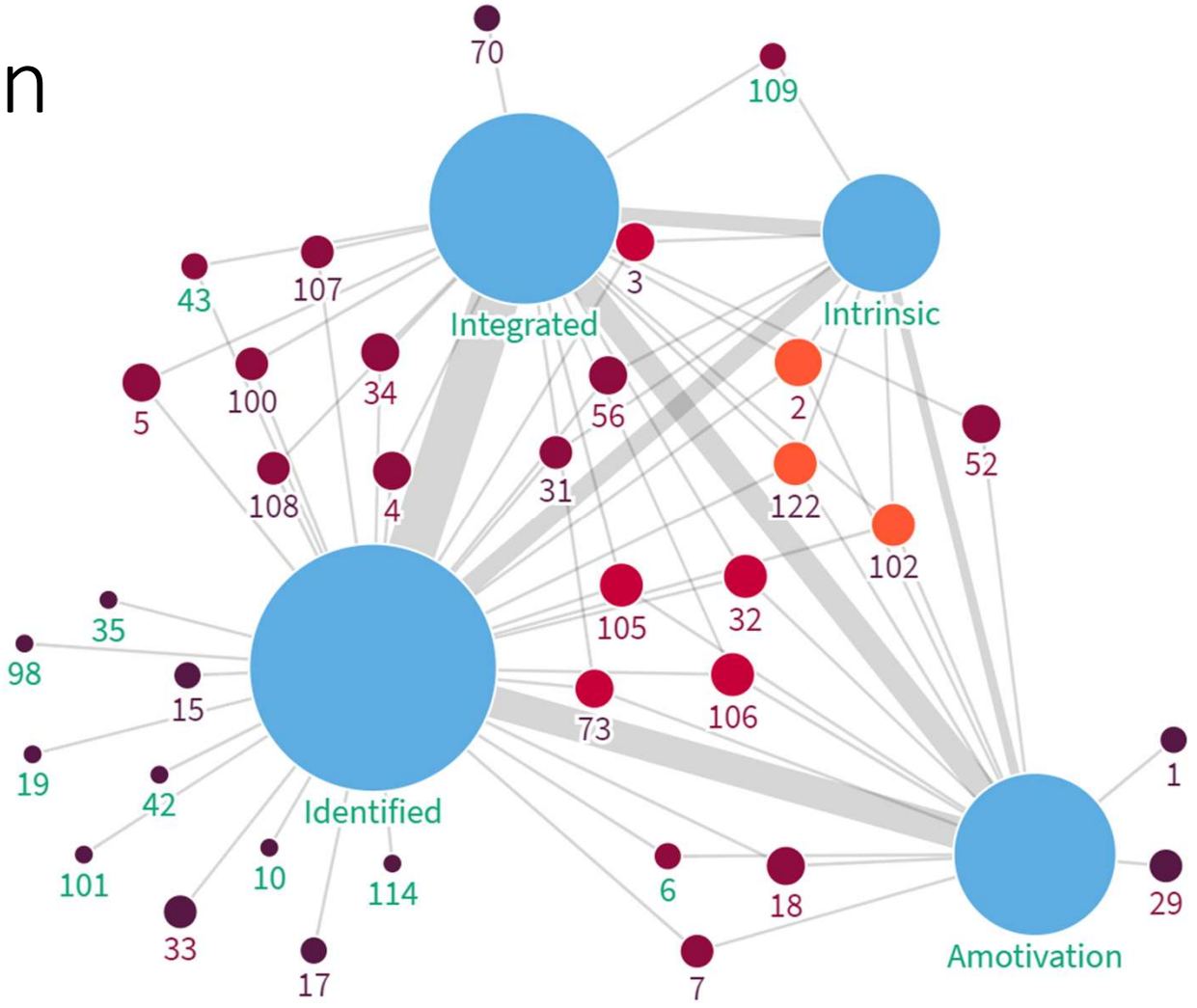
Valued outcomes

		30	0			
		Identified				
#	BCT Name	r	Mean		LL	UL
2	Brainstorm options	19	1.42	BEN	1.05	1.79
3	Consider behaviour change options	18	1.72	BEN	1.25	2.20
4	Hypothetical thinking	17	1.59	BEN	1.18	2.00
5	Behavioural goal setting	20	1.80	BEN	1.31	2.29
6	Outcome goal setting	12	2.00	BEN	1.46	2.54
7	Problem Solving	16	1.56	BEN	1.09	2.04
10	Review outcome goal(s)	15	1.53	BEN	1.03	2.04
15	Obtain feedback on behaviour	14	1.86	BEN	1.36	2.36
17	Self-monitoring of behaviour	15	1.93	BEN	1.44	2.42
18	Self-monitoring outcome(s) of behaviour	12	1.67	BEN	1.04	2.29
19	Monitoring of emotional consequences	13	1.85	BEN	1.36	2.33

#	BCT Name	r	Mean		LL	UL
31	Add challenge	17	1.53	BEN	1.12	1.94
32	Goal integration	13	1.85	BEN	1.30	2.39
33	Behavioural experiments	13	1.62	BEN	1.09	2.14
34	Obtain information about antecedents	18	1.89	BEN	1.38	2.40
35	Obtain information about health consequences	20	1.75	BEN	1.13	2.37
42	Contrast/compare pros and cons	16	1.63	BEN	1.01	2.24
43	Comparative imagining of future outcomes	14	1.57	BEN	1.13	2.01
56	Obtain instruction on how to perform the behavi	21	1.48	BEN	1.03	1.92
73	Generalization of target behaviour	11	1.91	BEN	1.35	2.47
98	Reflect on desire to perform behaviour	18	1.61	BEN	1.12	2.10
100	Reflect on reasons to perform the behaviour	20	1.85	BEN	1.39	2.31
101	Reflect on need to perform the behaviour	17	1.94	BEN	1.25	2.63
102	Find meaning in target behaviour	18	2.56	BEN	2.21	2.91
105	Associate identity with changed behaviour	18	1.67	BEN	1.10	2.23
106	Valued self-identity (personal strengths)	17	1.65	BEN	1.10	2.19
107	Verbal self-persuasion about own capability	14	1.79	BEN	1.54	2.03
108	Mental rehearsal of successful performance	17	1.41	BEN	1.05	1.78
114	Normalize difficulty	13	1.62	BEN	1.09	2.14
122	Emphasize autonomy	15	1.80	BEN	1.28	2.32

Possible Effects on Regulatory Styles

k = 35



Likely effects on ALL parts of autonomous motivation

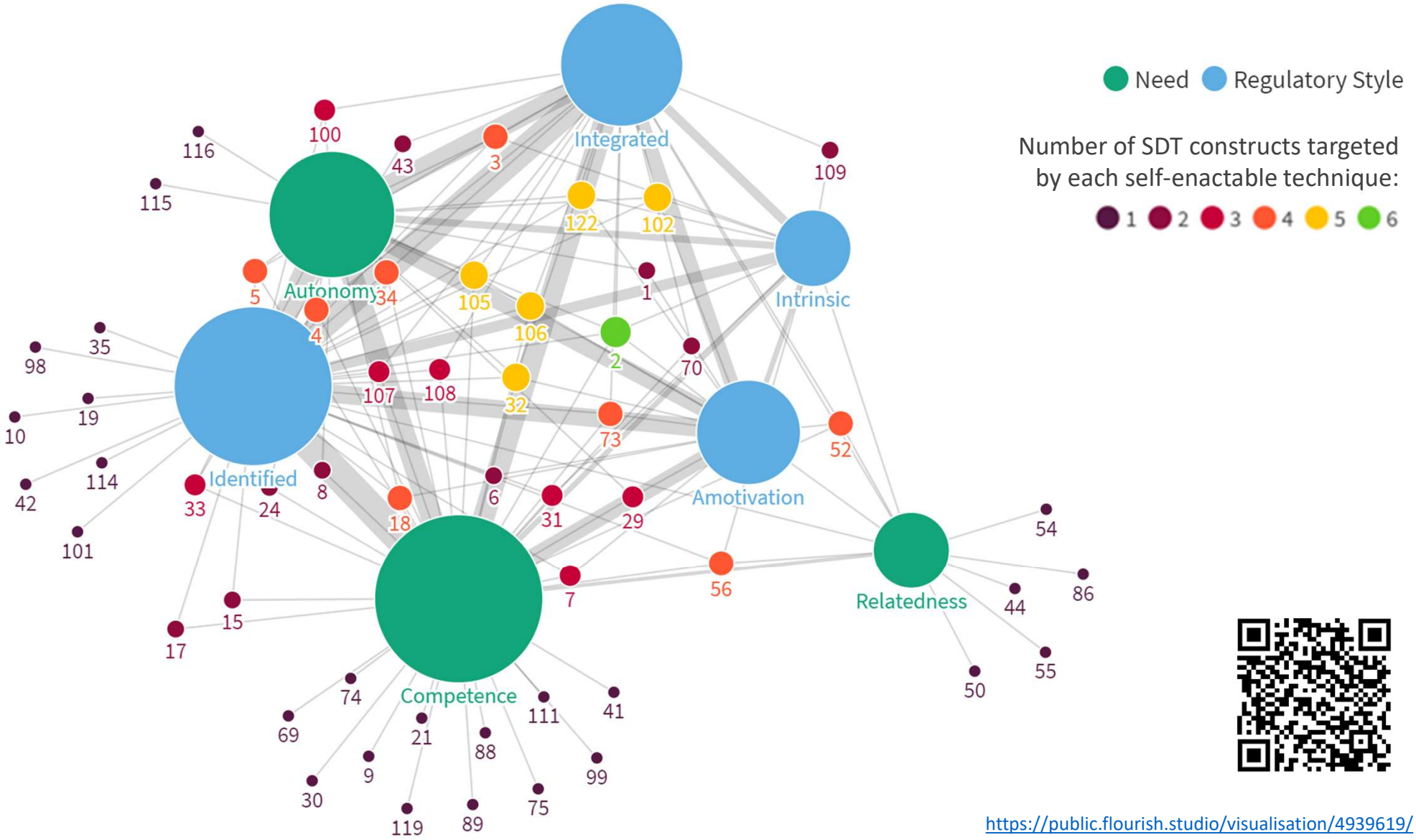
- 2 Brainstorm options
- 3 Consider behaviour change options
- 102 Find meaning in target behavior
- 122 Emphasize autonomy

Likely effects on 2 parts of autonomous motivation

- 4 Hypothetical thinking
- 5 Behavioural goal setting
- 31 Add challenge
- 32 Goal integration
- 33 Behavioural experiments
- 34 Obtain information about antecedents
- 43 Comparative imagining of future outcomes
- 52 Support others
- 56 Obtain instruction on how to perform the behaviour
- 100 Reflect on reasons to perform the behaviour
- 105 Associate identity with changed behaviour
- 106 Valued self-identity (personal strengths)
- 107 Verbal self-persuasion about own capability
- 108 Mental rehearsal of successful performance
- 109 Focus on enjoyment (pleasant aspects) of behaviour

Likely effects on 1 part of autonomous motivation

- 6 Outcome goal setting
- 7 Problem solving
- 10 Review outcome goal(s)
- 15 Feedback on behavior
- 17 Self-monitor behavior
- 18 Self-monitor outcome(s) of behaviour
- 19 Monitor emotional consequences
- 29Task crafting (enjoyment)
- 35 Obtain information about health consequences
- 42 Contrast/compare pros and cons
- 98 Reflect on desire to perform behaviour
- 101 Reflect on need to perform the behaviour
- 114 Normalize difficulty
- 116 Acceptance
- 119 Interpreting physiological and emotional states



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APPLIED PSYCHOLOGY: Health and Well-Being IAAP

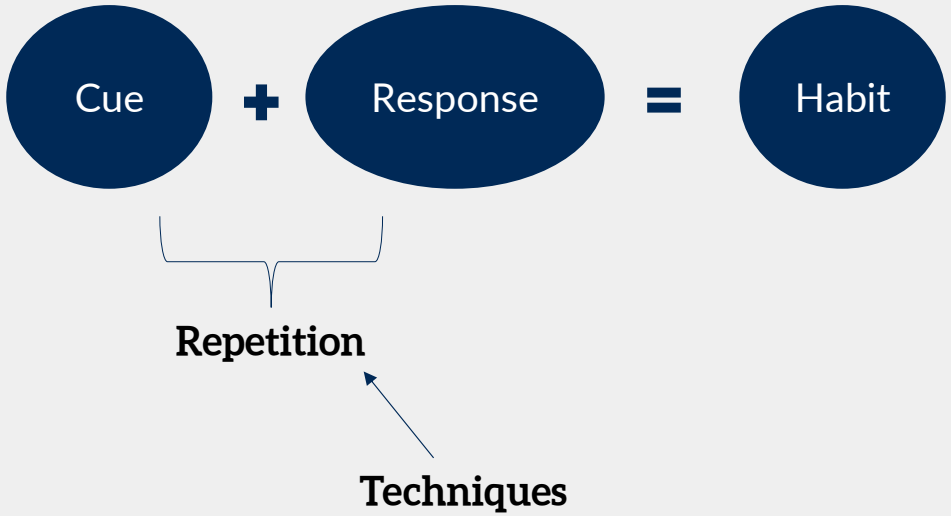
ORIGINAL ARTICLE

Self-enactable technique use and physical activity: A comparative qualitative study of habit formation and maintenance

Eleonoora Hintsa, Martin S. Hagger, Taru Lintunen, Kyra Hamilton, Keegan Knittle

First published: 20 March 2025 | https://doi.org/10.1111/aphw.70016

Habit/
Identity



Background

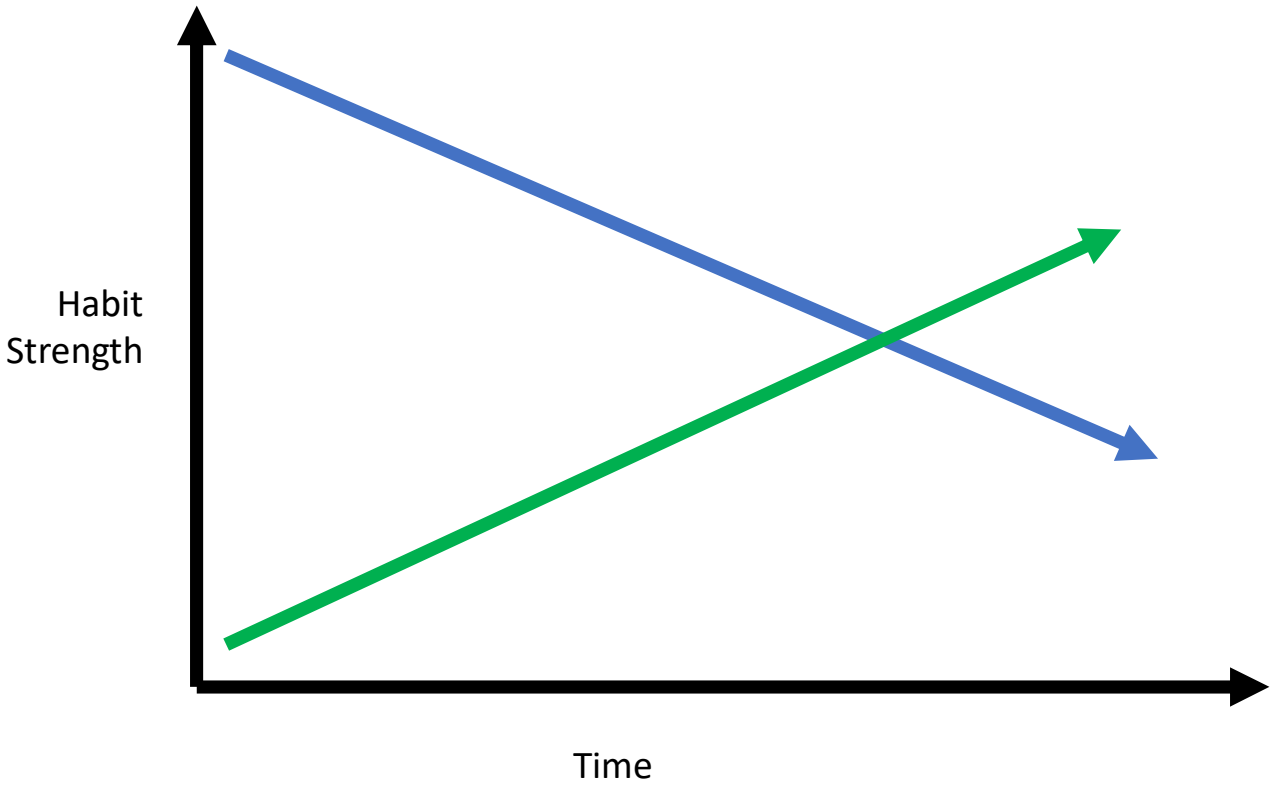
Habitual physical activity

- Habit guides automatic selection of physical activity over other alternatives (Gardner 2020)
- Habit strengthens through repetition (Gardner & Lally 2018)
- Limited evidence on which BCTs can speed up or assist the habit formation process

Which self-directed techniques do individuals with different levels of habit strength adopt to promote habit and physical activity participation?

Habit Growth & Extinction

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



Methods

"Novice"
2> months active
Low habit strength

"Intermediate"
0,5–2 years active
Medium habit strength

"Expert"
4+ years active
High habit strength

Procedure

- N = 24 (8/group)
- Identification through pre-questionnaires (GPAQ, SRBAI)
- Semi-structured interviews
- Mixed-methods analysis: content and thematic analysis

Findings

Self-enactable BCTs in numbers	
Total number of BCTs identified as ‘common’	47
Range, nr. BCTs/participant	33-47

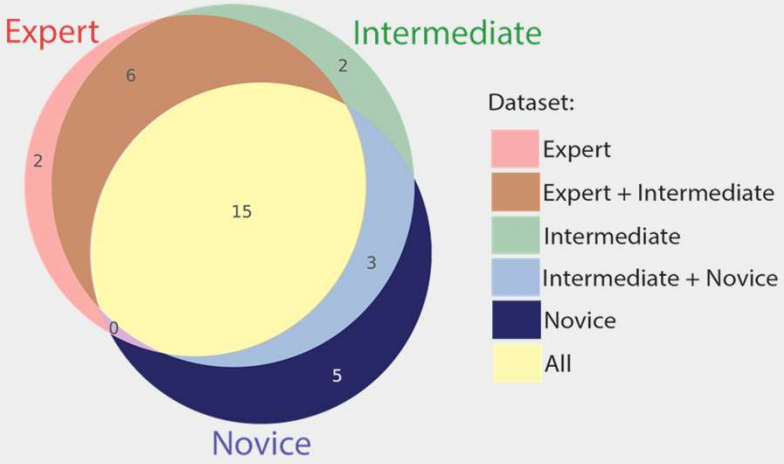


Figure 2. Clusters when techniques reported by ≥4 in the group.

3 Themes

1. Different techniques used

2. Techniques used differently

3. Technique use reflected internal states

Theme 1. Different techniques used

Novice	Intermediate	Expert

INFORMATION SEEKING
3 Consider behavior change options
35 Obtain information about health consequences[1]
36 Obtain information about social and environmental consequences
47 Vicarious consequences
48 Social comparison
112 Looking back

Information seeking

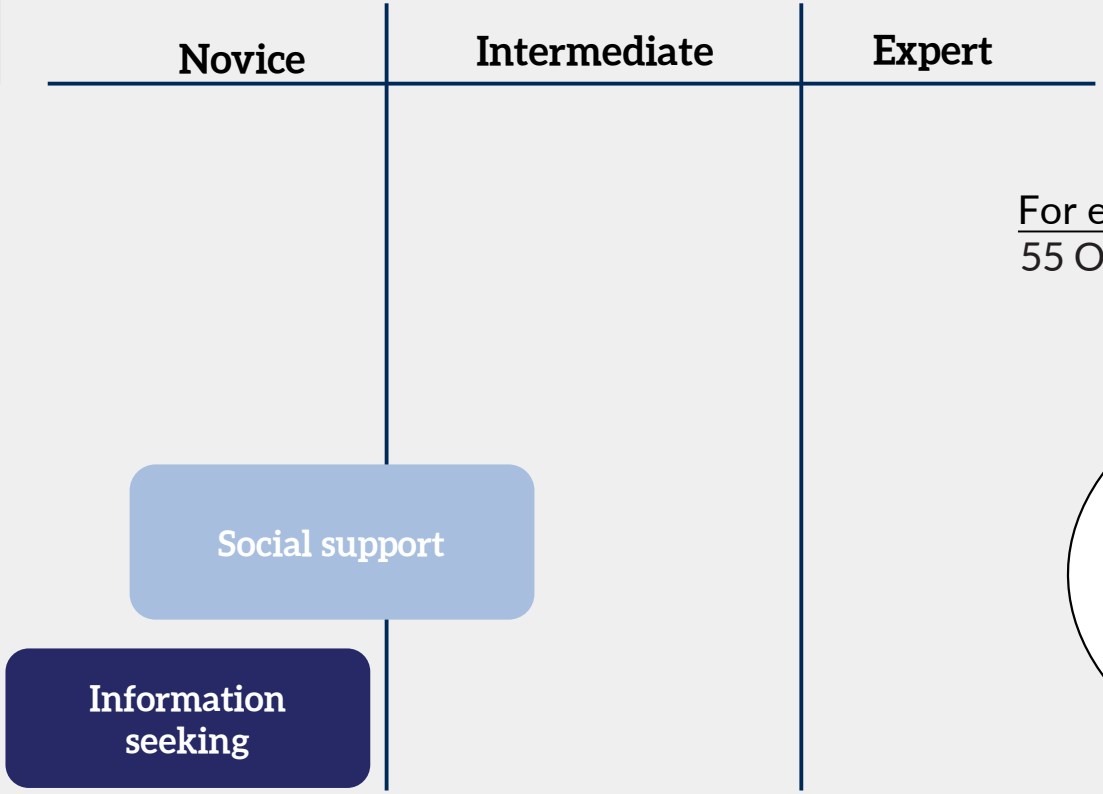
For example:
56 Obtain instruction on how to do behaviour

*It was really difficult to get started… Like **what do I actually do** in practice? Even if I have time, where should I start?*

*I have the benefit that **my wife** is a personal trainer. So, she **tells me what I should do at the gym**.*

Male, 25–34 years, novice

Theme 1. Different techniques used



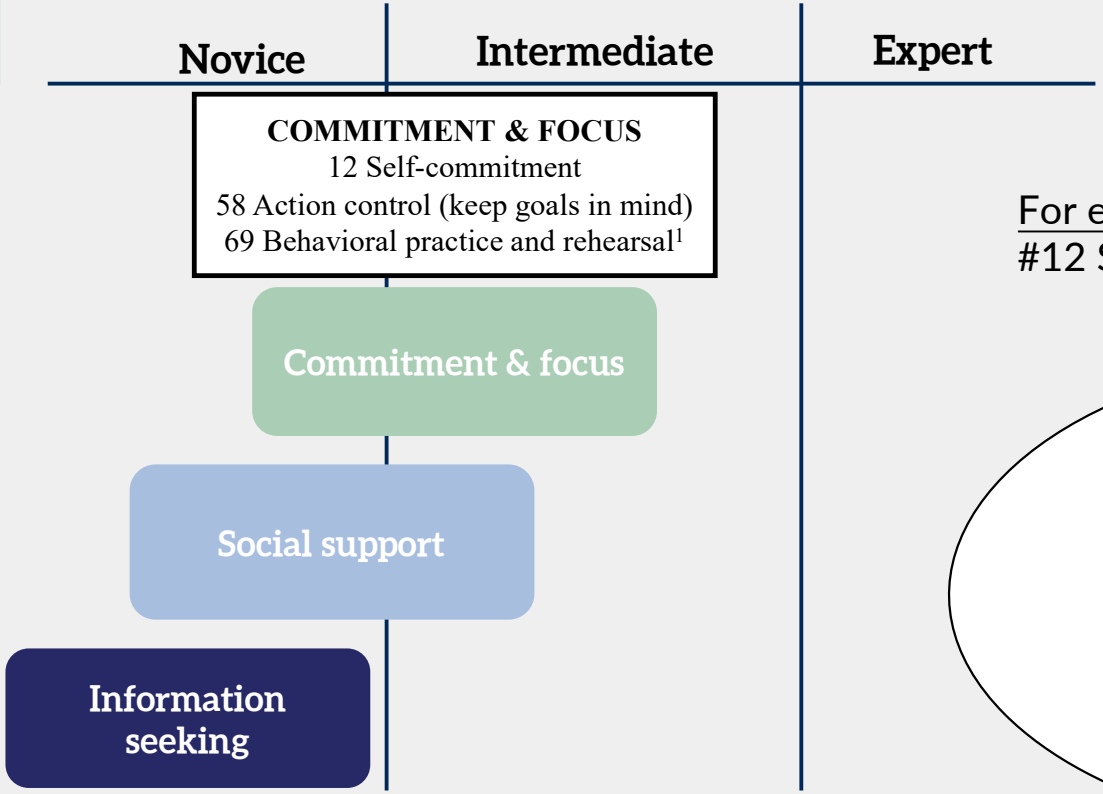
For example:
55 Obtain emotional support

I convinced my husband to come with me *for my first gym session..*

So ***that helped****.. to have someone at my side at the beginning.*

Female, 25–34 years, novice

Theme 1. Different techniques used



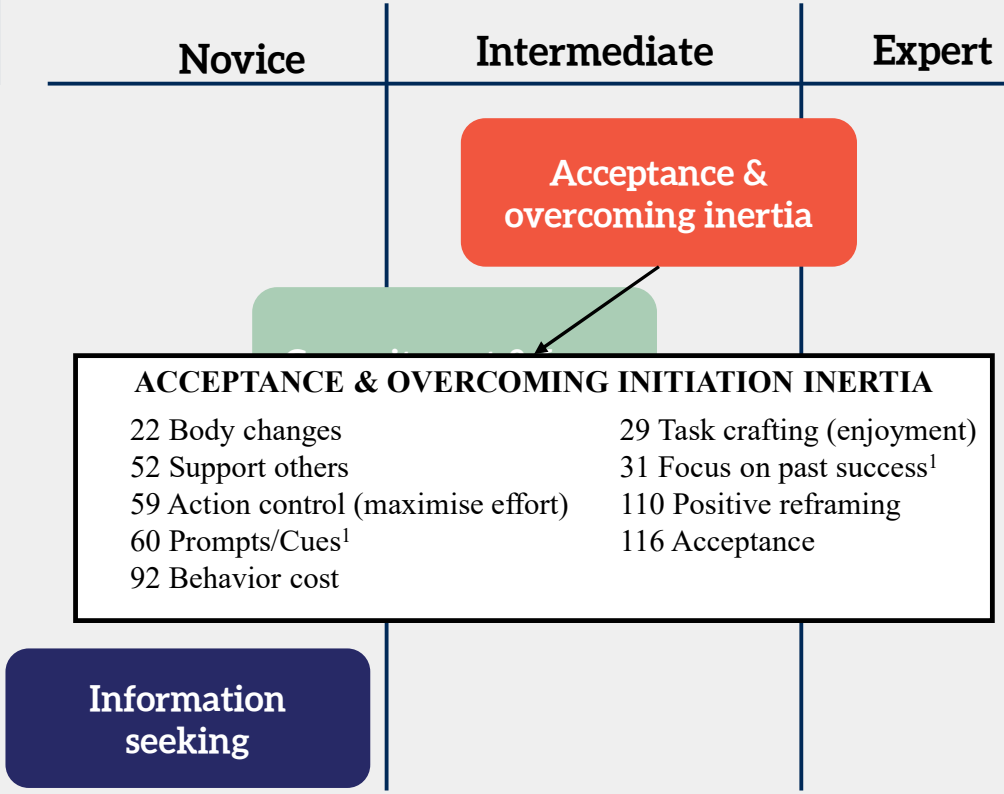
For example:
#12 Self-commitment

*It was a very similar feeling, that **I had made a promise to myself to stick to doing the workouts**.*

I had decided that it just had to be done… because I had promised myself that I would make this change.

Male, 25–34 years, intermediate

Theme 1. Different techniques used



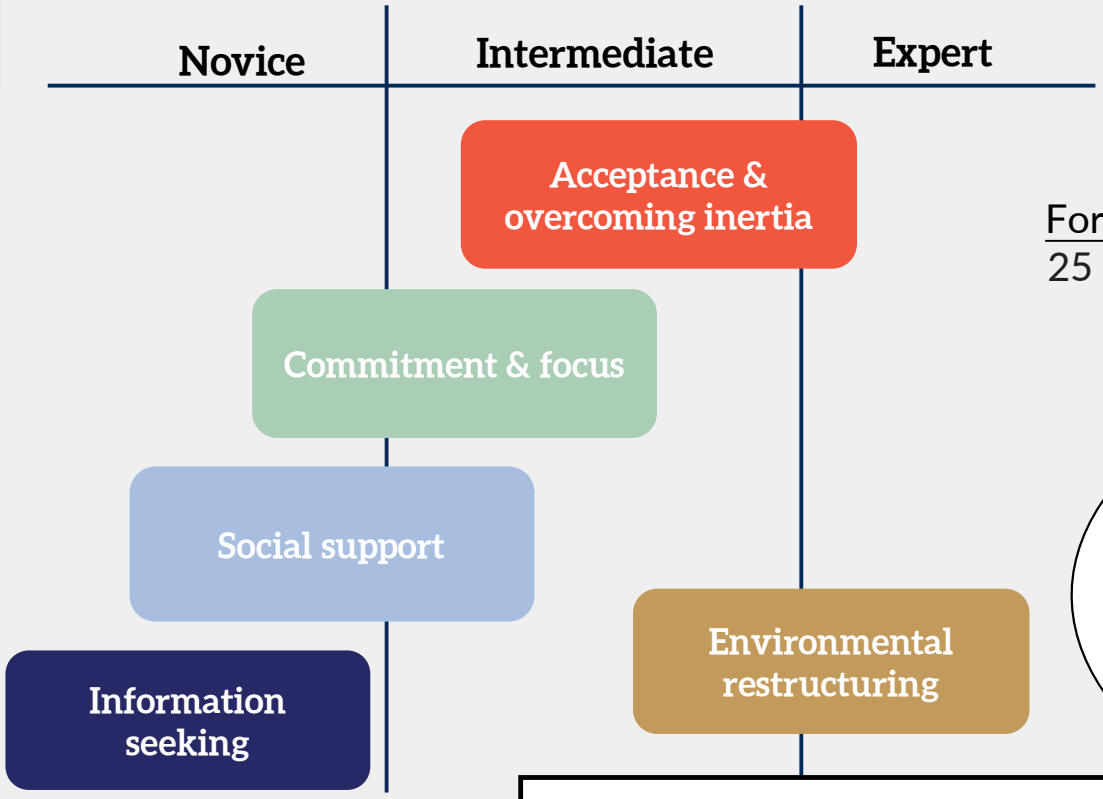
For example:
116 Acceptance
75 Train executive functions

*In the past, **I had to find tricks to motivate myself**. Thoughts creeped in like 'Hey, I don't want to go to the gym,' literally as I was about to leave...*

***I overcame it by just going there without thinking** about it... just get to the gym and do something.*

Male, 25–34 years, intermediate

Theme 1. Different techniques used



RESTRUCTURING THE ENVIRONMENT
25 Restructuring the physical environment[1]
26 Restructuring the social environment
73 Generalization of target behavior
67 Behavior substitution

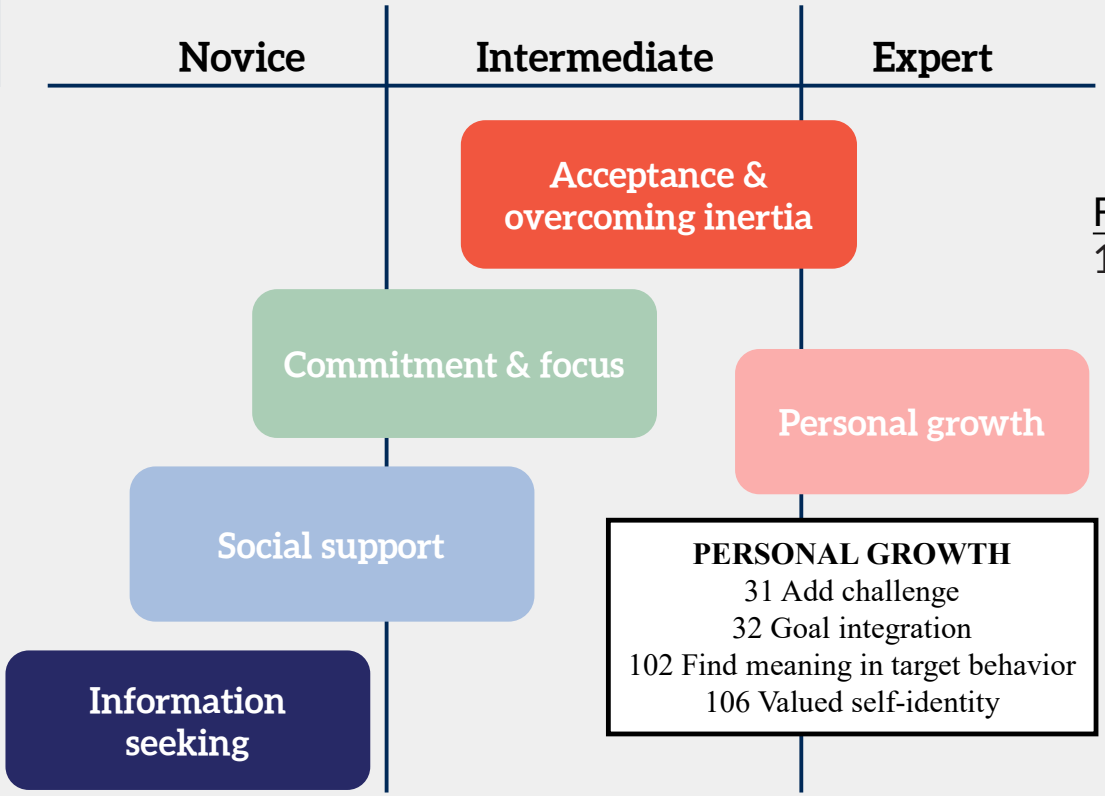
For example:
25 Restructuring the physical environment

I have arranged my life so that starting physical activity is as easy as possible. *We live on the ground floor, the gym is close, biking and skiing trails are close.*

The most important thing is to make it as easy as possible – the starting, the doing.

Female, 35–44 years, expert

Theme 1. Different techniques used



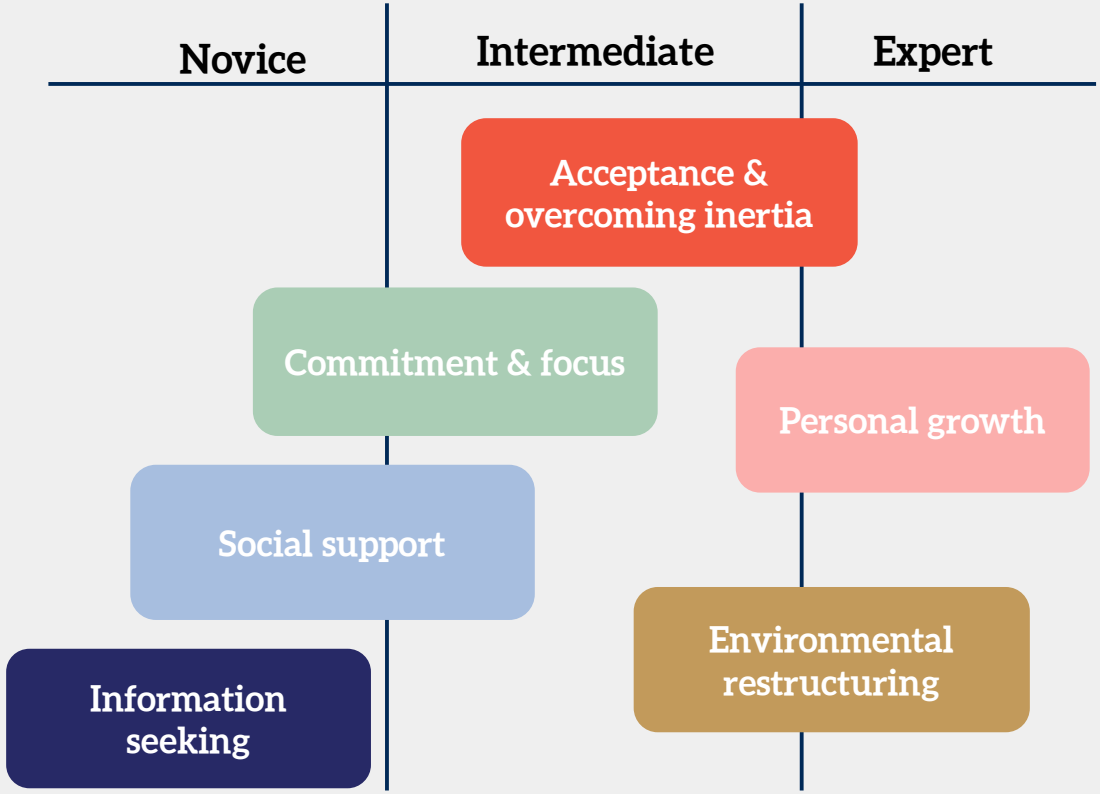
For example:
102 Find meaning in the target behavior

*When I became a parent, it was important to realize, that **it's not selfish to take alone time to be physically active**.*

*It's important for the parent to be well. **Being active benefits the whole family**.*

Male, 35–44, expert

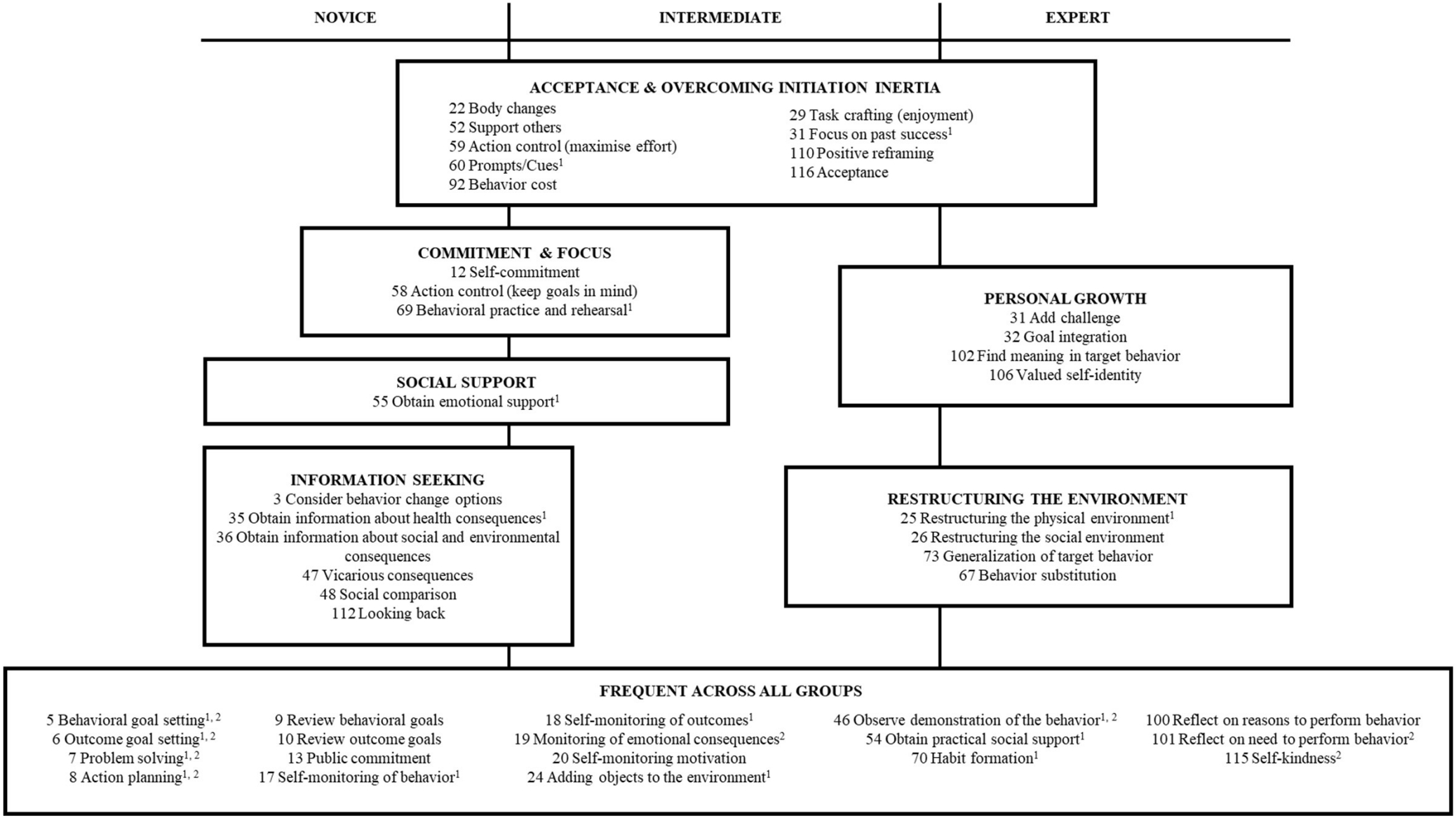
Theme 1. Different techniques used



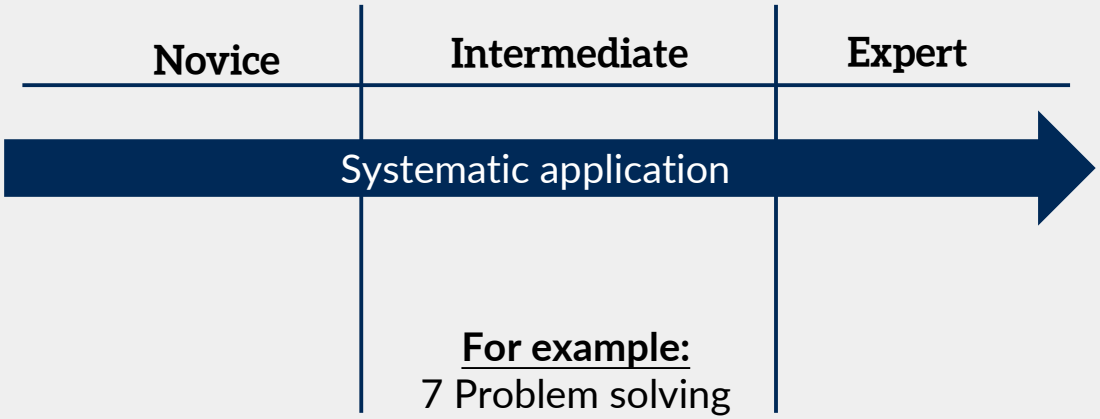
1. Gaining confidence, reducing complexity

2. Enforcing commitment, developing consistency

3. Enabling effortless initiation, life integration


NOVICE
INTERMEDIATE
EXPERT
ACCEPTANCE & OVERCOMING INITIATION INERTIA
22 Body changes
52 Support others
59 Action control (maximise effort)
60 Prompts/Cues[1]
92 Behavior cost
29 Task crafting (enjoyment)
31 Focus on past success[1]
110 Positive reframing
116 Acceptance
COMMITMENT & FOCUS
12 Self-commitment
58 Action control (keep goals in mind)
69 Behavioral practice and rehearsal[1]
SOCIAL SUPPORT
55 Obtain emotional support[1]
INFORMATION SEEKING
3 Consider behavior change options
35 Obtain information about health consequences[1]
36 Obtain information about social and environmental consequences
47 Vicarious consequences
48 Social comparison
112 Looking back
PERSONAL GROWTH
31 Add challenge
32 Goal integration
102 Find meaning in target behavior
106 Valued self-identity
RESTRUCTURING THE ENVIRONMENT
25 Restructuring the physical environment[1]
26 Restructuring the social environment
73 Generalization of target behavior
67 Behavior substitution
FREQUENT ACROSS ALL GROUPS
5 Behavioral goal setting[1, 2]
6 Outcome goal setting[1, 2]
7 Problem solving[1, 2]
8 Action planning[1, 2]
9 Review behavioral goals
10 Review outcome goals
13 Public commitment
17 Self-monitoring of behavior[1]
18 Self-monitoring of outcomes[1]
19 Monitoring of emotional consequences[2]
20 Self-monitoring motivation
24 Adding objects to the environment[1]
46 Observe demonstration of the behavior[1, 2]
54 Obtain practical social support[1]
70 Habit formation[1]
100 Reflect on reasons to perform behavior
101 Reflect on need to perform behavior[2]
115 Self-kindness[2]

Theme 2. Techniques used differently



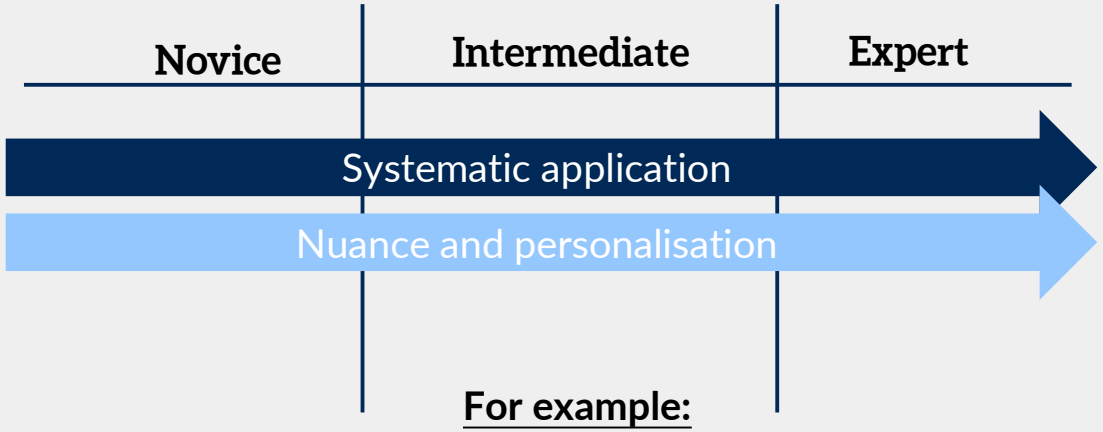
"Sometimes, if I miss my gym, I sometimes go for a walk later... But it's less than half of the time."

Female, 45–54 years, novice

"I have adopted a mindset, that even if I miss my opportunity for the gym, I will do something else at home. That's my strategy."

Female, 35-44 years, expert

Theme 2. Techniques used differently



For example:
6 Action planning

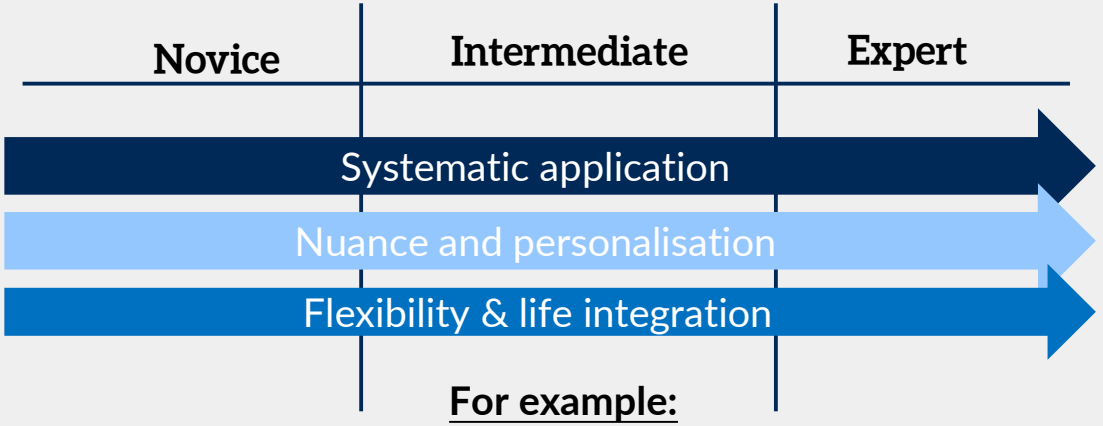
"I look at the beginning of the year, which days I could be active and mark them in my calendar."

Female, 45–54 years, novice

"In my planning, I consider things like sleep and crowdedness at the gym. If I plan my activities too early or too late, I might start negotiating with myself when it's time to go."

Female, 35-44 years, expert

Theme 2. Techniques used differently



For example:

5 Behavioral goal setting

"Physical activity for me is that I go to the gym… and it's the only way I am exercising.

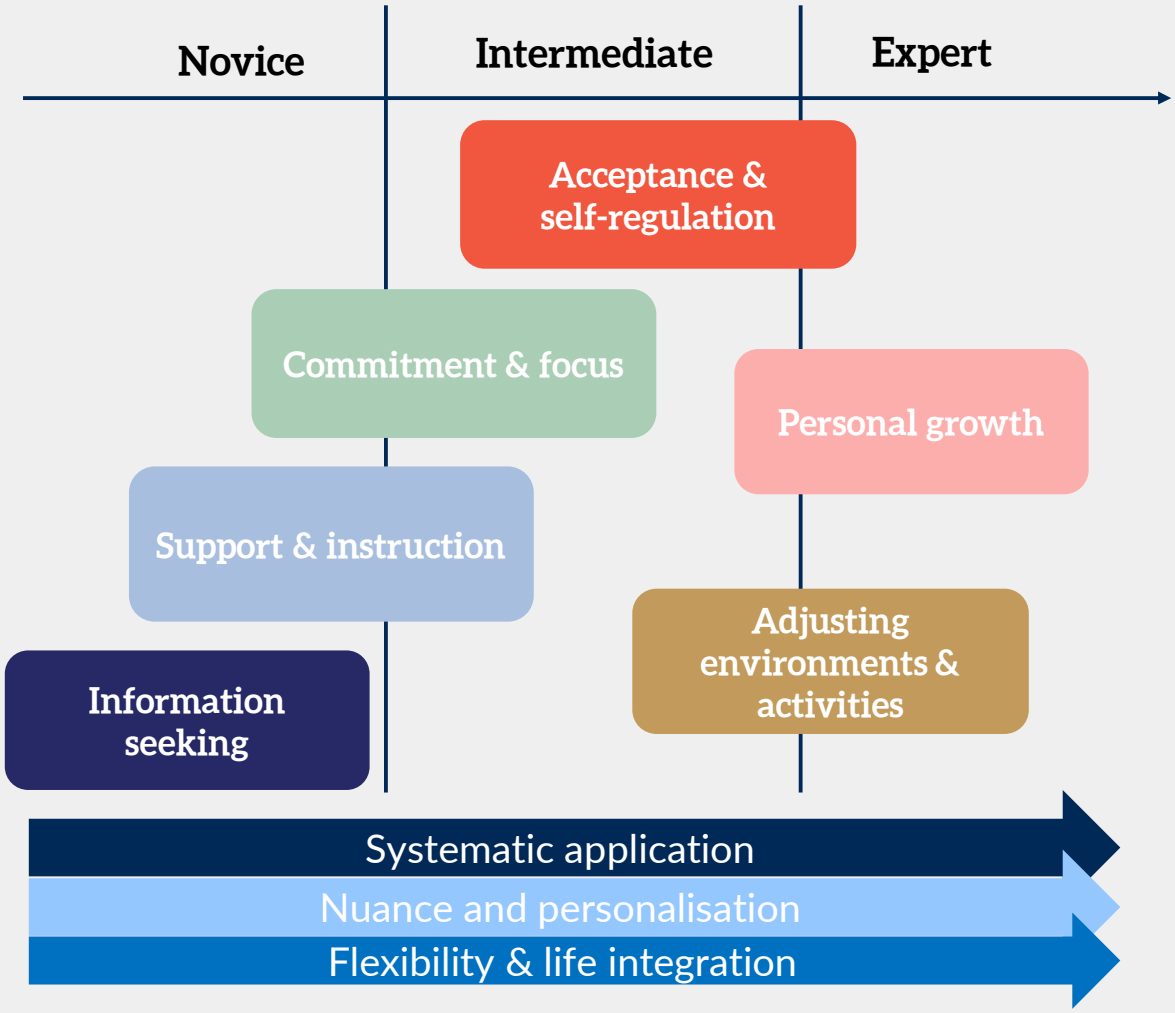
I got a new job, tried to fit the schedules, and was like, oh my god, so I stopped the gym fully."

Female, 45–54 years, novice

"During COVID, our team activities were canceled. I'm not set on solely volleyball, so it was easy to find alternative ways to be active. The most important thing was to be active."

Female, 35–44 years, expert

Themes 1 & 2: “what” & “how”



Key Points

- Personalize interactions with clients
- Self-regulation techniques for motivation, action **and** maintenance
  - Self-monitoring, Goal setting, Action planning, Problem solving, Feedback
- Many behavior change techniques require active engagement
- Forming habits takes time, effort, and skill development
  - We're still trying to figure out what works best!

Thanks for listening!

University of Jyväskylä