Canadian Consortium for Early Intervention in Psychosis

Promoting Recovery With Cognitive Health Interventions in Early Psychosis

A brief review of evidence-based interventions

Tania Lecomte, Ph.D.

Professor, Dept of Psychology, Université de Montréal

Researcher, CRIUSMM, CRIPCAS

Director, Canadian Network for Research in Schizophrenia and Psychoses

Senior Editor Canadian journal of Community Mental Health,

Executive member North American Cognitive Behavior Therapy for Psychosis

Martin Lepage, Ph.D.

James McGill Professor, McGill University, Montréal, QC

Deputy Scientific Director, Douglas Research Centre, Montréal, QC

Psychologist, Douglas Mental Health University Institute, Montréal, QC

Director-at-Large, CCEIP

Disclosures

Tania Lecomte, Ph.D.:

1. None other than grant support (SSHRC, CIHR, IUSMM foundation)

Martin Lepage, Ph.D.:

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2. Speaker's honoraria: Boeringer Ingelheim, Janssen, Lundbeck, Otsuka
3. Grant/research support: CIHR, diaMentis, Douglas Foundation, FRQS, Ministère des Relations Internationales, Otsuka-Lundbeck Alliance, Roche

Learning Objectives

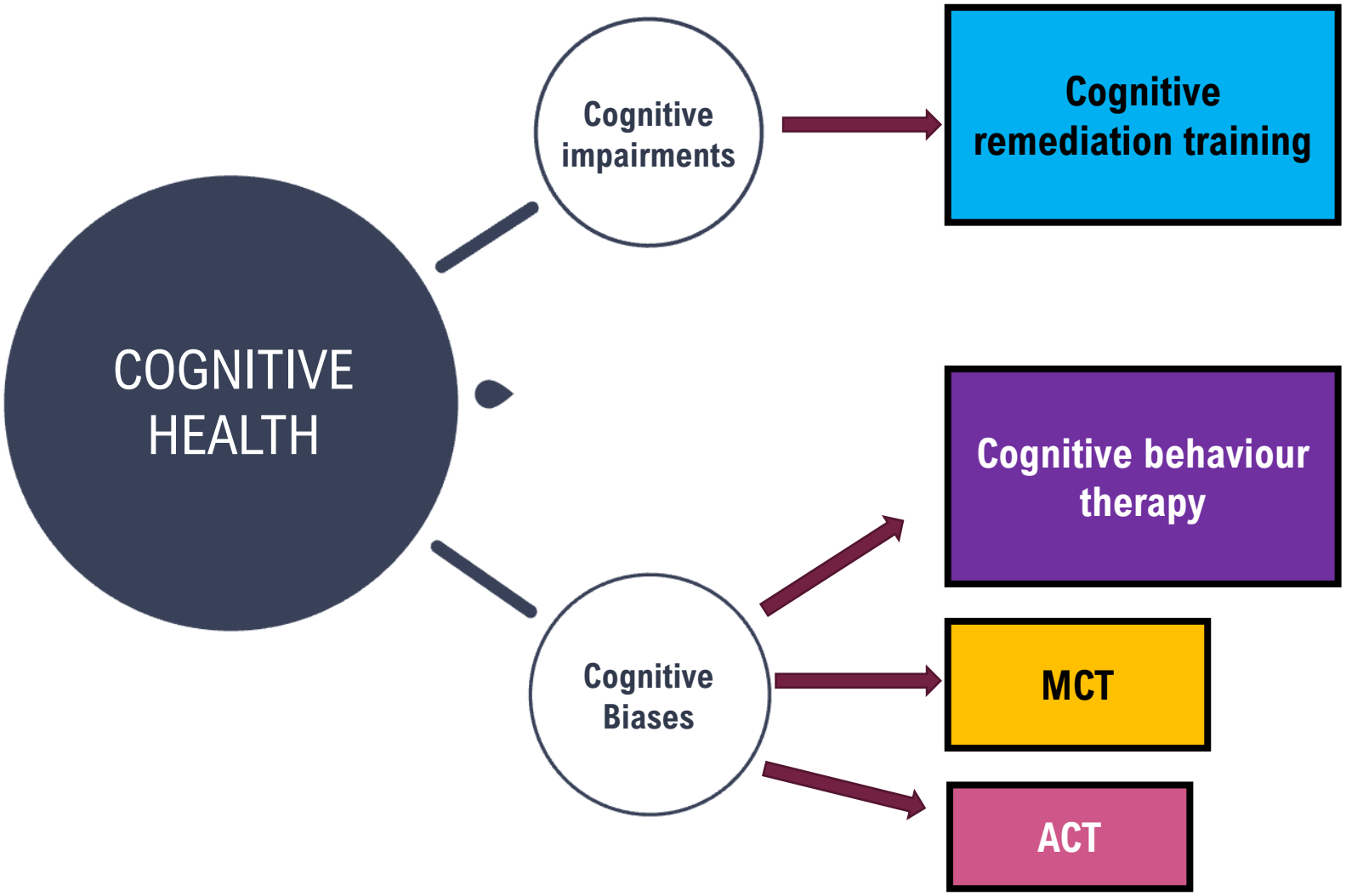
After participating in this session, participants will be better able to;

- Assess the evidence supporting the use of cognitive health interventions in psychotic disorders
- Better understand what intervention is effective for what problem
- Appreciate the need for proper training for effective implementation

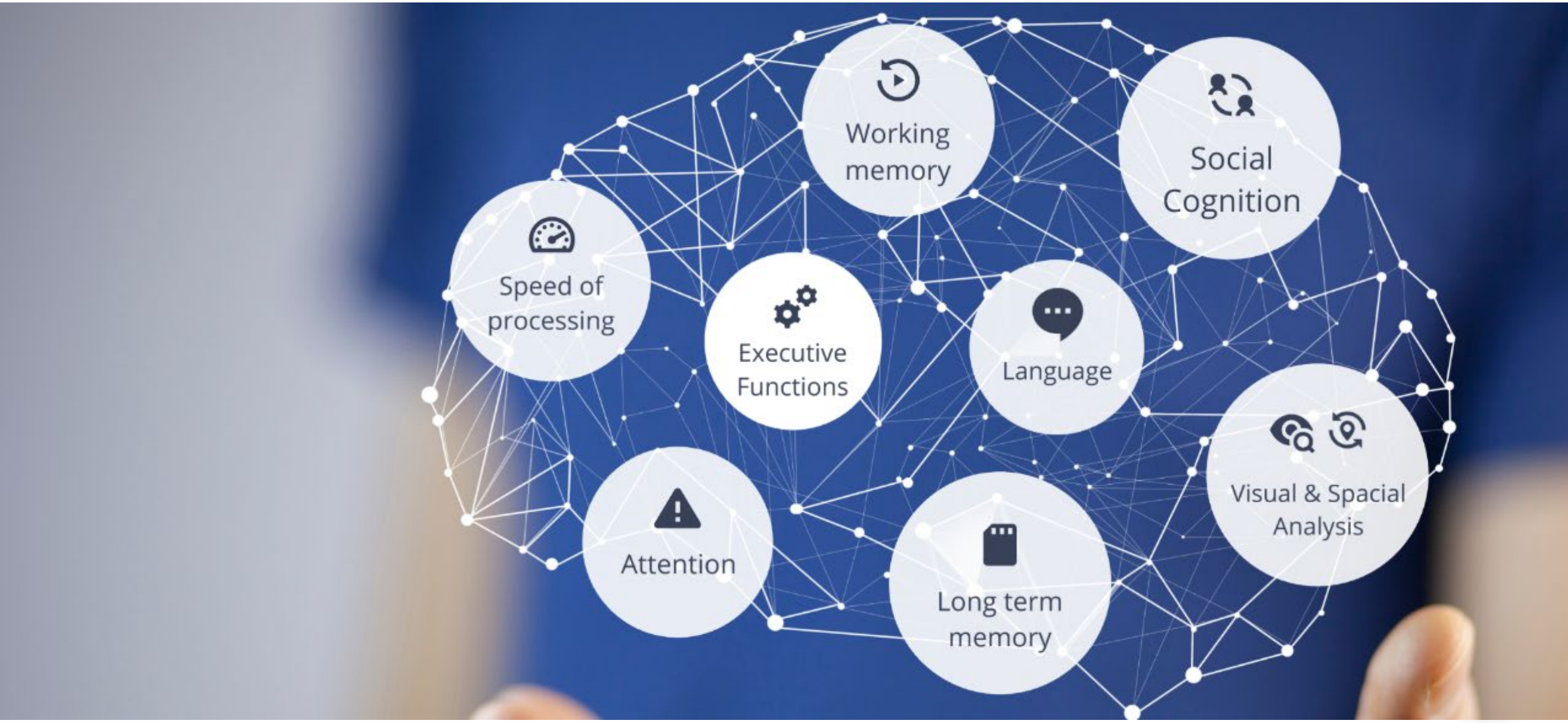
What do Cognitive Psychotherapy and Cognitive Training Target in Early Psychosis?

- Positive symptoms:
  - Medication response is not optimal in all - many still experience delusional thoughts and/or hallucinations (between 30-40%).
  - Focus on cognitive biases and cognitive strategies linked to positive symptoms
- Negative symptoms:
  - Poor motivation, anhedonia, defeatist beliefs
- Other symptoms and impairments:
  - Anxiety (social anx), depression, emotion regulation (transdiagnostic), memory, attention, reasoning and problem solving
- Other recovery goals:
  - Work/school integration, social inclusion/interactions, romantic relationship development, family issues.

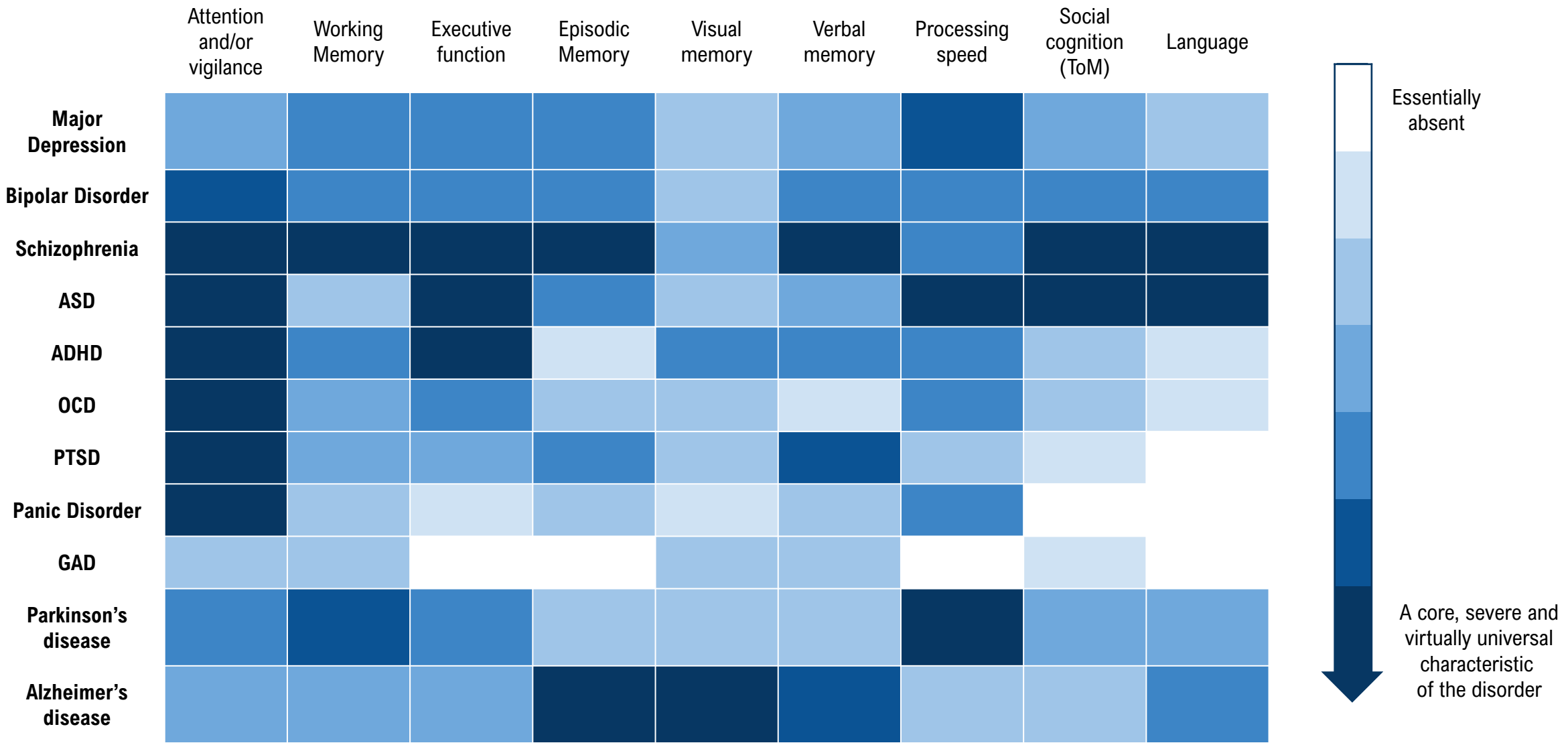
Therapeutic Options



Cognitive Impairments



Cognitive Impairment Across Psychiatric Disorders



Millan et al (2012) *Nature Reviews Drug Discovery 11*(2):141-168

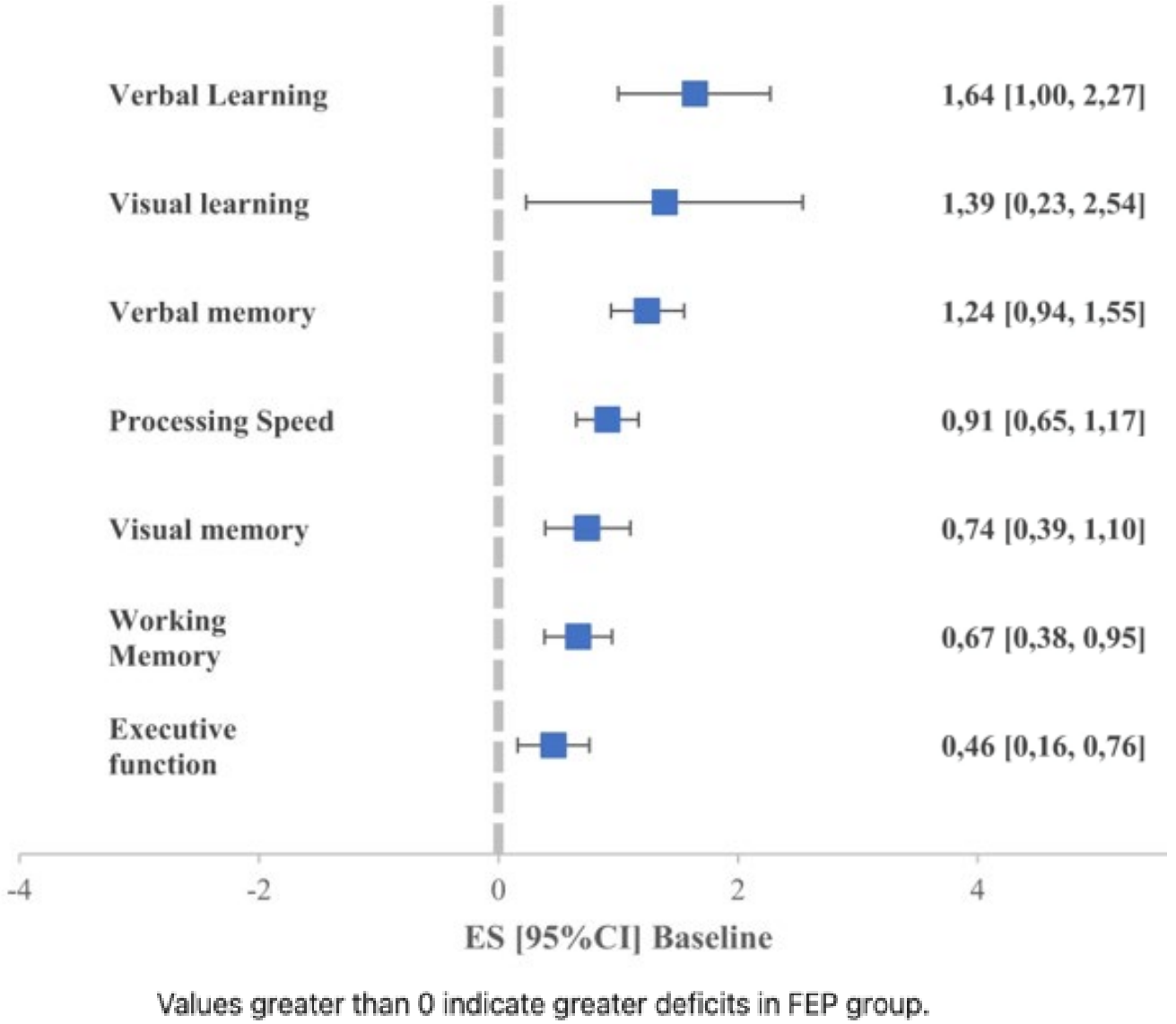
First Episode Psychosis and Cognitive Capacity

People with a FEP exhibit significant cognitive impairments

54 longitudinal studies

3925 FEP patients

1285 control subjects



Catalan et al., (2004) *Translational Psychiatry*: **14**:15.

Why Cognition Matters in First Episode Psychosis?

Associations with clinical trajectories

Associations with functioning

Window into the brain

Cognitive Remediation

Action-Based Cognitive Remediation (ABCR)

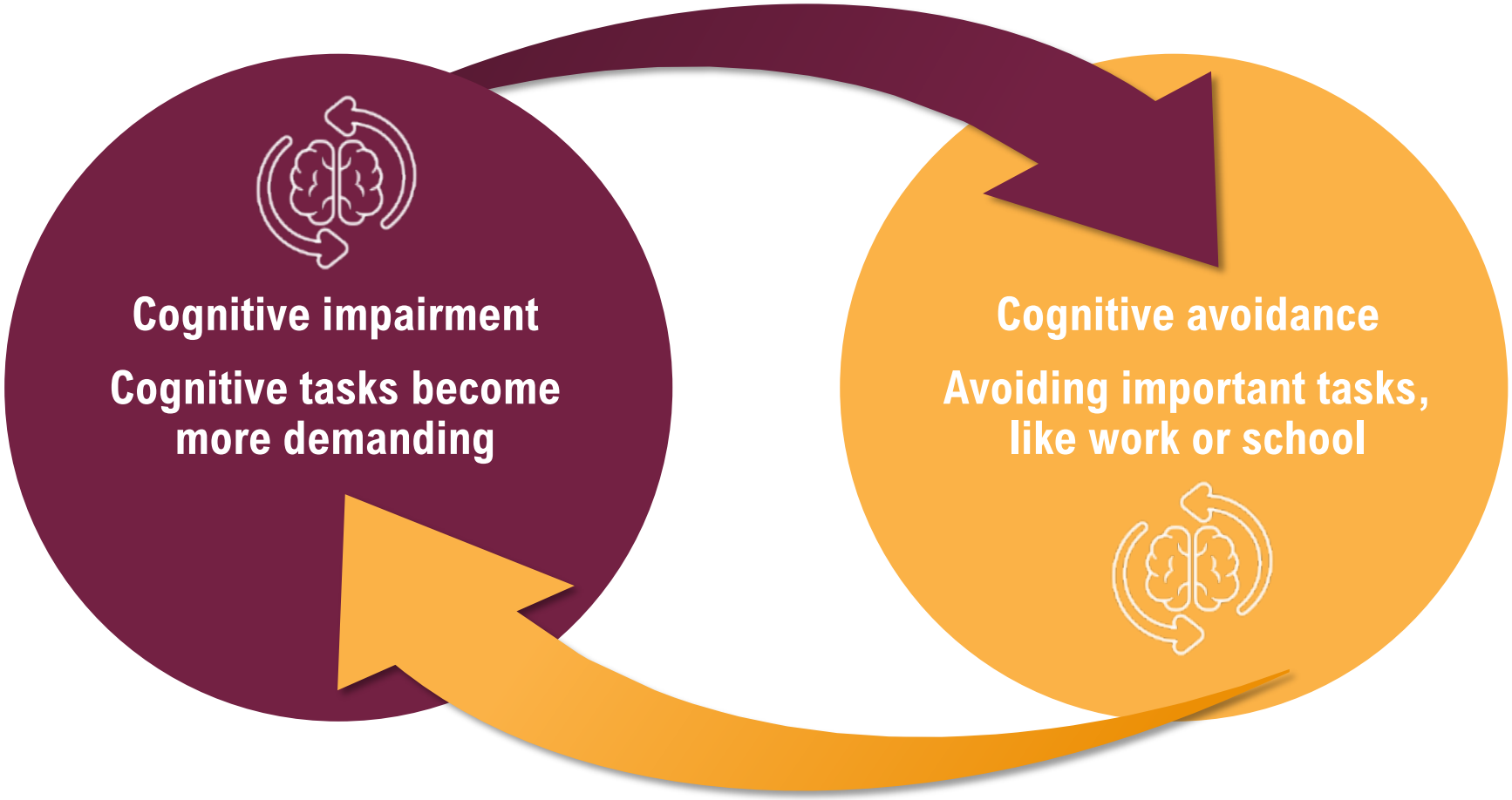
Drill and practice computer tasks

Discussion of cognitive strategies

Real-life-related role-play

Bowie et al (2017) *Psychiatric Rehabilitation Journal 40*(1):53

Cognitive Remediation Ultimately Targets the Avoidance of Cognitively Challenging Tasks



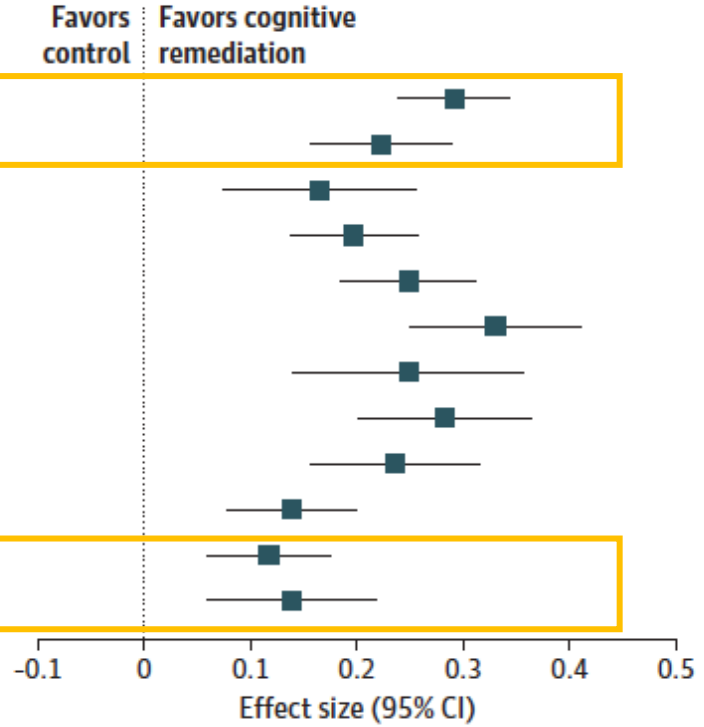
Capacity – Cognitive Remediation

130 studies

8851 participants

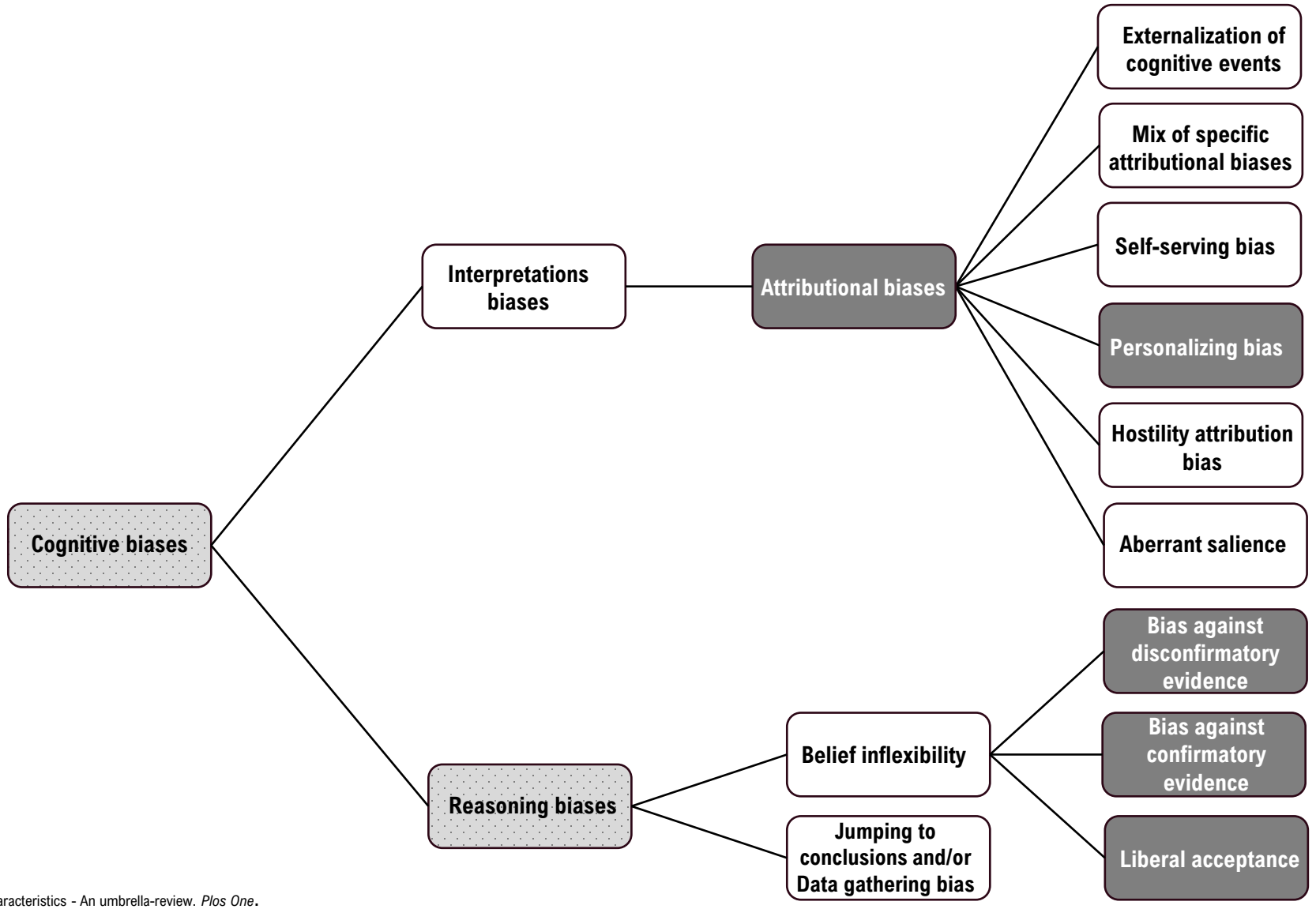
Figure 2. Effects of Cognitive Remediation

Outcome	Studies	Participants	Effect size (95% CI)
Global cognition	135	7813	0.29 (0.24-0.34)
Global functioning	95	6091	0.22 (0.16-0.29)
Attention	40	2483	0.17 (0.07-0.26)
Processing speed	80	4917	0.20 (0.14-0.26)
Working memory	93	5493	0.25 (0.19-0.31)
Verbal memory	81	4954	0.33 (0.25-0.41)
Visual memory	43	2970	0.25 (0.14-0.36)
Executive functions	86	5196	0.28 (0.20-0.36)
Social cognition	55	3389	0.24 (0.16-0.32)
Global symptoms	76	4735	0.14 (0.08-0.20)
Positive symptoms	79	4700	0.12 (0.06-0.18)
Negative symptoms	82	4892	0.14 (0.06-0.22)



Vita et al (2021) *JAMA Psychiatry 78*:848-858

Most Studied Cognitive Biases in Psychosis



Sufficient quality evidence

Insufficient quality evidence or no effect/extra-small effect

No analyses reported for this category

Samson et al. (sous presse). Reasoning and interpretation cognitive biases related to psychotic characteristics - An umbrella-review. *Plos One*.

Reasoning and Interpretation Cognitive Biases Found in Psychosis

Bias	Meaning
Arbitrary reference (jumping to conclusions)	Person doesn't take the time to gather sufficient information prior to making a decision.
Attribution	Negative events are always blamed on others (external, stable and global attribution).
Overgeneralisation	The smallest hint or detail will confirm the belief.
Selective abstraction	The person focuses only on information confirming the belief.
Belief inflexibility	Person won't change their mind even with proof.

Other Biases

- Memory biases
  - Only remember what fits my current mood or belief
  - Can build false beliefs while revisiting the past, depending on current state
- Emotion recognition biases
  - Recognize emotions that fit my mood – tend to attribute symptom-congruent emotions to neutral stimuli
- Attention biases
  - Selectively give more attention to threatening stimuli
  - Notice only people who are looking at them

Cognitive Behaviour Therapy for Psychosis

What is CBT for Psychosis?

- It is an adaptation of the CBT approach designed by A.T. Beck (in the 50's) for depression, and also partly based on his case-study from 1952.

- Has re-emerged, initially in the UK, from experimental and cognitive psychologists' findings regarding specific **cognitive biases** in psychosis and schizophrenia.

What is CBT for Psychosis?

Philosophy:

- Help modify dysfunctional beliefs (thoughts) and behaviors by using specific cognitive and behavioral techniques, in the context of a working alliance.
- The idea behind it is that irrational thoughts or beliefs help maintain symptoms through specific assessments of situations, which lead to dysfunctional behaviors and emotional distress.

The ABC Model

Antecedents

What's the situation?

Beliefs

Thoughts?

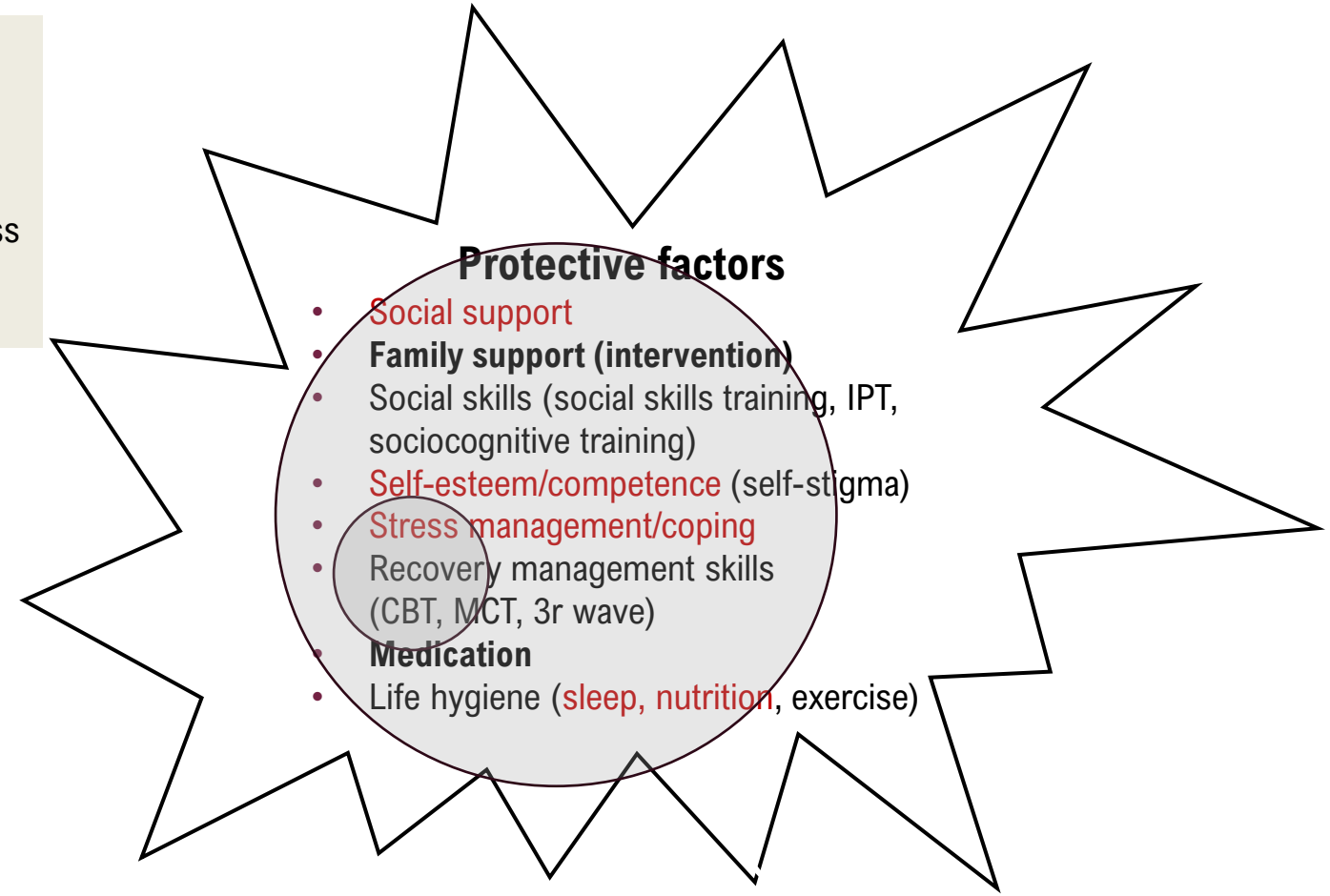
Consequences

Emotions and behaviors triggered

CBTp in Stress-Vulnerability - Protective factors model

Vulnerability

- **Genetic heritability**
- Paternal age
- **Obstetric complications**
- Maternal diet, influenza, stress
- Season of birth/latitude
- Toxoplasma gondii



Stressors

- Urbanicity
- **Migrant status**
- **Childhood adversity**
- Illicit drugs
- Tobacco
- Parental communication (deviance, EE)
- Life stress, stress reactivity
- Traumatic brain injury

Symptomatic relapse or symptom development — **No relapse or symptom remission**

Outcome

Lecomte, T., et al, (2019). Predicting and preventing symptom onset and relapse in schizophrenia—A metareview of current empirical evidence. *Journal of abnormal psychology*.

Bold: medium to large effect size and moderate to strong evidence
Red: no meta-analyses found in link with relapse/symptoms

Group Studies

Studies suggest that group CBTp is as effective as individual CBTp, and even more so for those with a first episode of psychosis, adolescents or people who are marginalized and isolated,

In fact, our own group CBTp studies found large effect sizes for overall symptoms (small-moderate for positive symptoms), as well as large effects on self-esteem, and coping (linked with strong group cohesion).

In person or via group teletherapy.

(Saksa et al, 2009).

Advantages of Group Interventions?

Socialization

Experience

Normalization

Save time and money

Effect is exponential

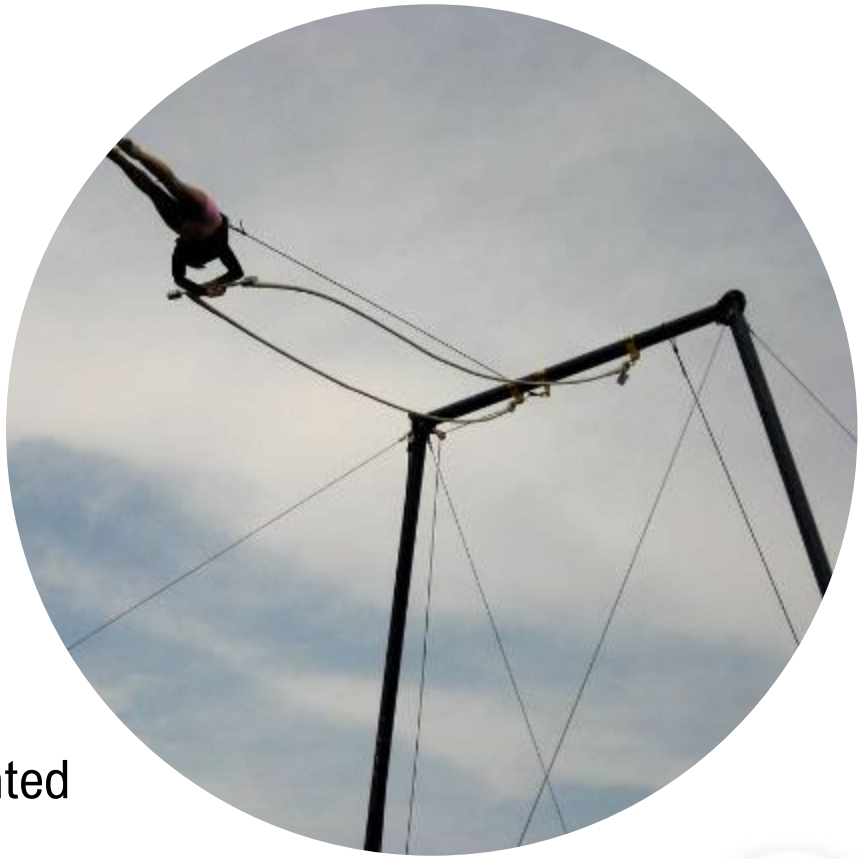
How Does it Work?

First, need to create a strong relationship (alliance, group cohesion) that will be collaborative – via questions, empathy, creating a safe environment;

Only after this, is it possible to start using certain techniques to help change how one sees their experiences;

When change in perception is not possible, then we focus on coping strategies to decrease distress; a safe environment;

CBTp is typically time-limited and goal/recovery oriented



Staying on the fence

CBTp Techniques Most Widely Used with Clients with Delusions and Hallucinations

Normalization:

Formulation/offer alternate understanding:

Socratic questioning

Check the facts

Seek alternatives:

Modify attributions

Set agenda and use homework

CBTp Techniques - Cont'd

3 Cs: Catch, Check it, Change it

Français : les 3 Rs: Repère, Revois, Remplace

Explore and practice coping skills

Prepare staying-well plan

The goal, ideally…

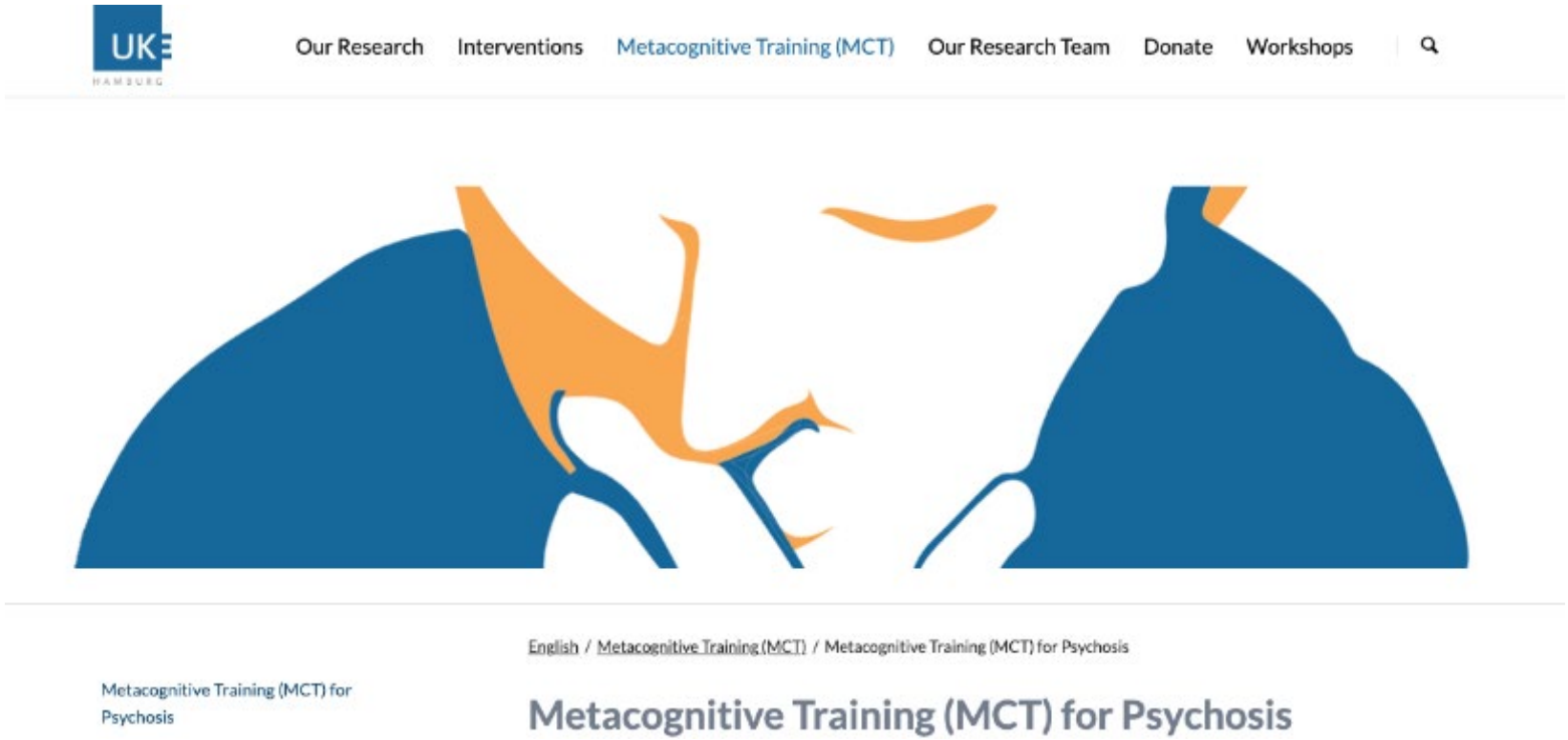
Is to improve metacognition by

bringing the person to realize when he/she is wearing tinted glasses…

and that perception is not the same as reality.

1/13 second exposure, f16, ISO100

Metacognitive Training



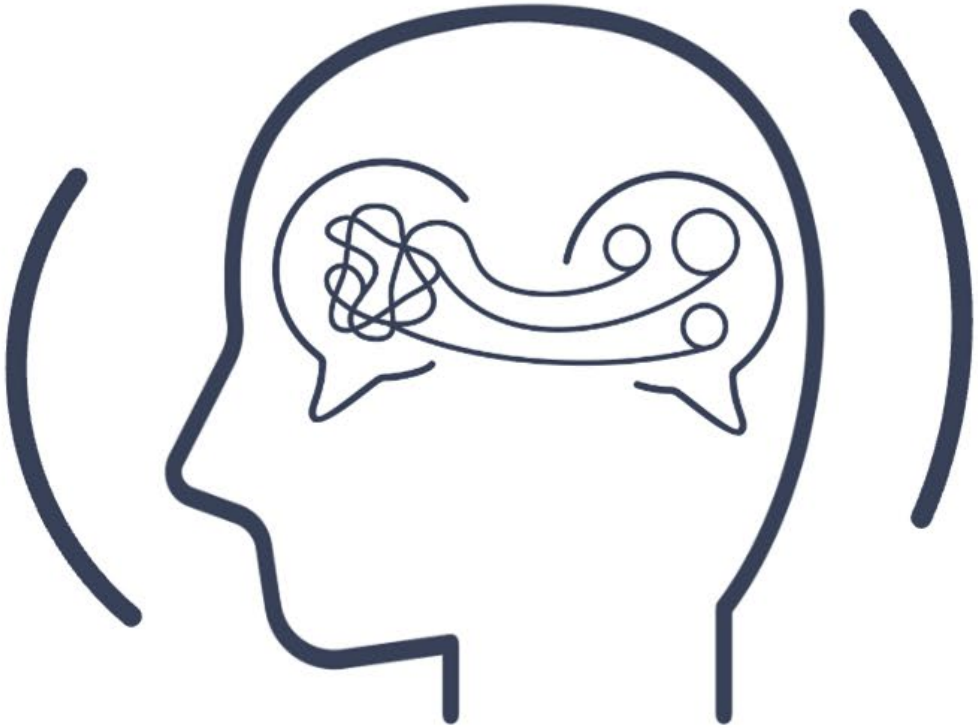
https://clinical-neuropsychology.de/metacognitive_training-psychosis/

Biases – Metacognitive Training (MCT)

Psychoeducation

Cognitive remediation

Cognitive-behavioral therapy

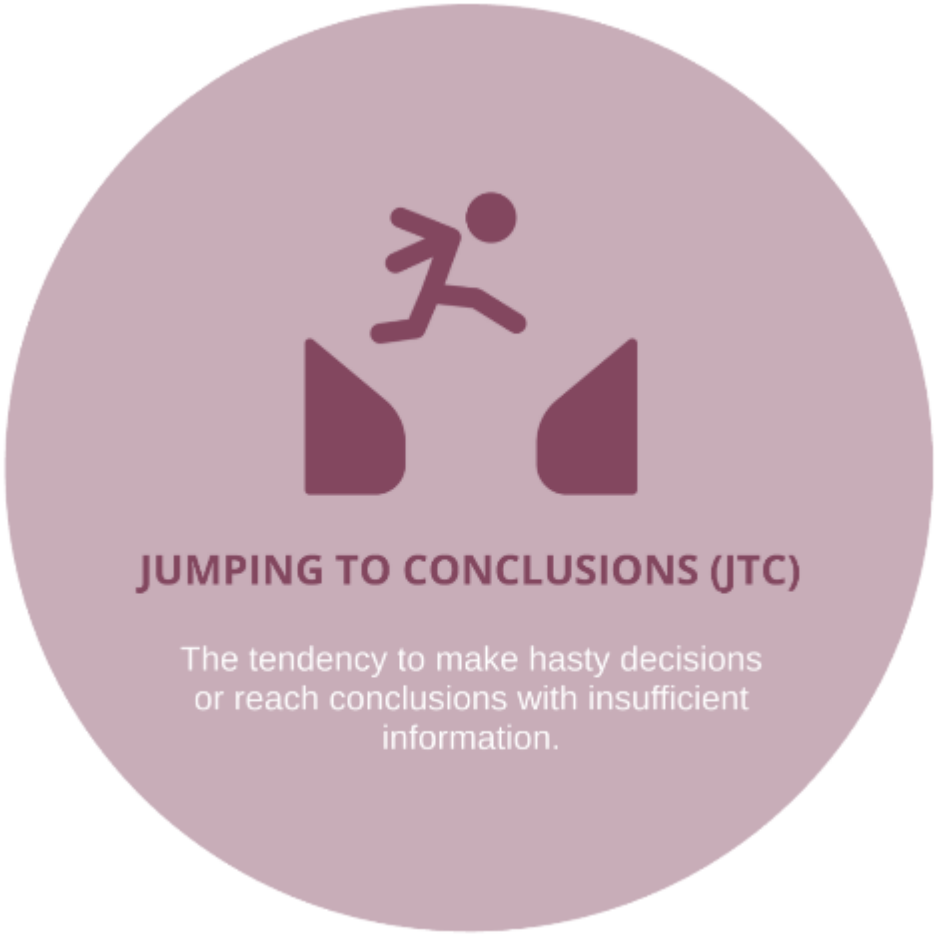


Detect own biases and consequences

Develop techniques to manage them

Moritz et al., (2014)

Examples of Cognitive Biases – Jumping to Conclusions



What Might be Presented in this Picture?

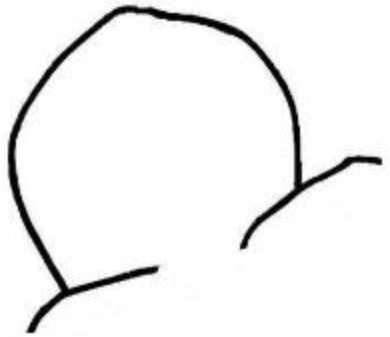
Metacognitive Training 2 - Jumping to Conclusions I

How confident are you?

Do you want to make a decision yet?

What Might be Presented in this Picture?

Metacognitive Training 2 - Jumping to Conclusions I



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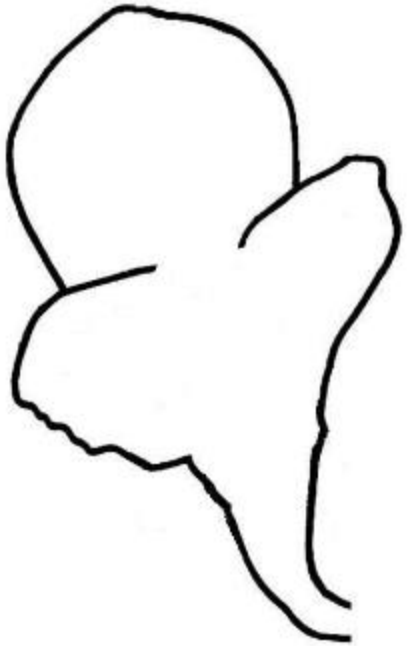

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Do you want to make a decision yet?

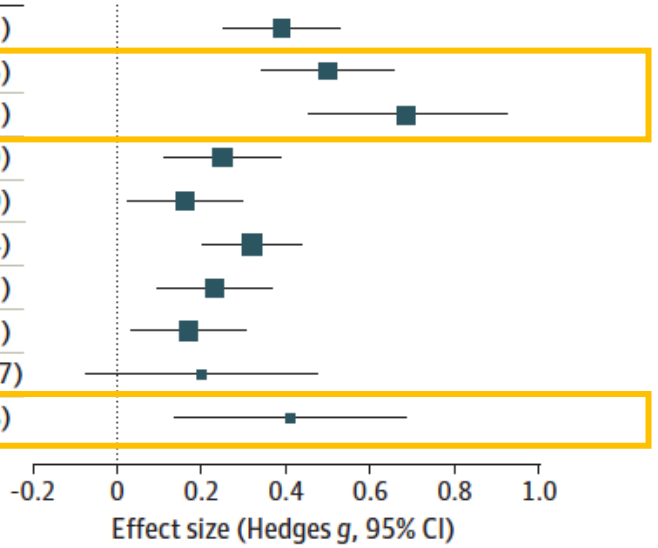
Biases – Metacognitive Training (MCT)

40 studies

1816 participants

Figure 2. Effect Sizes of Metacognitive Training for Proximal and Distal Outcomes

Variable	No. of studies	No. of participants	Effect size (Hedges *g*, 95% CI)
Proximal outcomes	38	1717	0.39 (0.25 to 0.53)
Positive symptoms	36	1648	0.50 (0.34 to 0.66)
Delusions	23	1156	0.69 (0.45 to 0.93)
Hallucinations	9	518	0.25 (0.11 to 0.39)
Cognitive bias	19	931	0.16 (0.02 to 0.30)
Distal outcomes	26	1180	0.32 (0.20 to 0.44)
Negative symptoms	17	765	0.23 (0.09 to 0.37)
Self-esteem	5	325	0.17 (0.03 to 0.31)
Quality of life	7	278	0.20 (-0.07 to 0.47)
Functioning	13	522	0.41 (0.14 to 0.68)



Penney et al., (2022) JAMA Psychiatry; 79:417-429

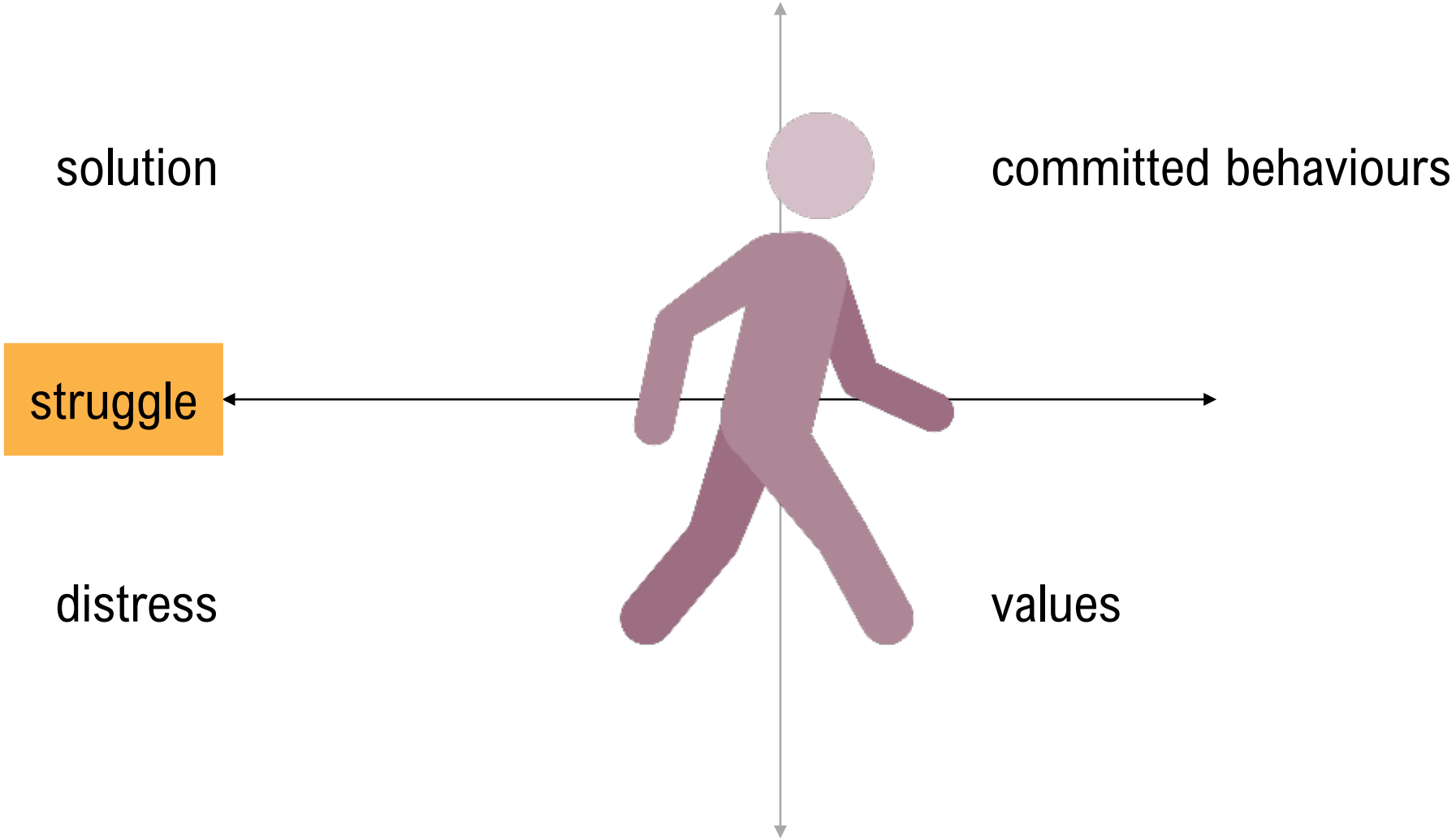
Third Wave Approaches

- When it is impossible to change a thought – you can learn to accept it, live with it, and decrease the distress associated with it
- Third wave therapies in psychosis focus on:
  - Acceptance
  - Compassion (self-compassion)
  - Defusion (stepping away from thoughts)
  - Emotion regulation
  - Mindfulness

Mindfulness in Psychosis

- Mindfulness is not just meditation – several easier strategies to propose
- Mindfulness = being in the present moment
- Long-term ‘’esoteric’ meditations are not recommended for psychosis

ACT Matrix



Virtual Reality

VR can be used in therapy to increase the effects of the therapy - as we have done in CAM+VR for social anxiety in early psychosis (with large effect sizes).

Classroom (intervention)

Factors Influencing Cognitive Health

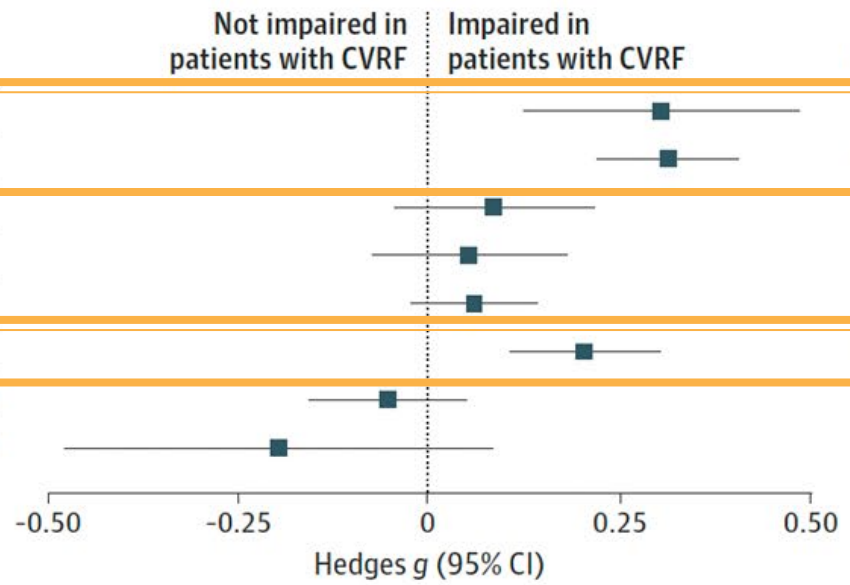
Malleable Factors Affecting the Evolution of Cognitive Capacity (or how to avoid cognitive decline)

- Pharmacotherapy: high doses of antipsychotics, polypharmacy, anticholinergic load of neuroleptics
- Substance abuse (cannabis, alcohol)
- Persistent symptoms (especially negative symptoms), relapses, hospitalizations
- Physical health problems (type 2 diabetes, cerebrovascular and cardiovascular problems, obesity, low level of exercise, etc.)
- Sedentary lifestyle and avoidance of cognitively challenging tasks

Benkalcem et al., 2023; Murray et al., 2022; Velthorst et al., (2021) Mol Psychiatry

Meta-Analysis on Cardiovascular Risk Factors and a Global Measure of Cognition in Schizophrenia

CVRF	No. Studies	CVD risk	Controls	Hedges *g* (95% CI)	*P* value	I^2
MetS	13	1128	1672	0.313 (0.128 to 0.498)	.001	77.7
Diabetes	8	588	2388	0.322 (0.227 to 0.417)	<.001	0
Obesity (BMI ≥30)	8	1304	1475	0.088 (-0.046 to 0.222)	.20	49.3
Overweight (30>BMI≥25)	8	1349	1476	0.055 (-0.076 to 0.186)	.41	58.5
Obesity/overweight (BMI ≥25)	9	2465	1489	0.061 (-0.023 to 0.145)	.16	25.0
Hypertension	5	554	1345	0.210 (0.110 to 0.311)	<.001	0
Dyslipidemia	4	1107	654	-0.055 (-0.162 to 0.051)	.31	3.0
Insulin resistance	1	73	120	-0.201 (-0.492 to 0.089)	.18	NA



BMI indicates body mass index (calculated as weight in kilograms divided by height in meters squared); CVD, cardiovascular disease; MetS, metabolic syndrome; NA, not applicable.

Hagi et al., (2021) *JAMA Psychiatry* 78:510-518

Are Cognitive Issues are Always an Issue?

Factors that influence our cognitive functioning and flexibility:

nutrition

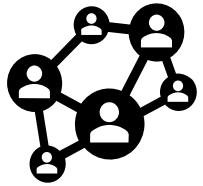
sleep

exercise

education

stress

medication



social context
(isolated or group beliefs)

How Can we Make Cognitive Health Interventions More Accessible?

The E-Cog training platform

CYPSY 27 - 2024

Implementing E-Cog

Martin Lepage, PhD, McGill University
Ana Elisa Sousa, PhD, Douglas Research Centre
Caroline Dakoure, MSc, Douglas Research Centre
Christy Au-Yeung, PhD candidate, McGill University
Katie Lavigne, PhD, Douglas Research Centre
Delphine Raucher-Chéné, PhD, MD, McGill University
Geneviève Sauvé, PhD, Université du Québec à Montréal

Let's go! →

The iCogCA Implementation Trial

A multi-site trial to deliver and assess remote cognitive interventions to individuals with psychosis across Canada

- **390 participants**
- **5 sites**
- **2 interventions:**

Metacognitive Training for psychosis targeting cognitive biases.

Action-Based Cognitive Remediation for improving cognitive functioning in psychosis.

The iCog Pilot

Aim: to assess participants' and therapists' perspectives on the feasibility, acceptability, and engagement in a videoconference delivery of group psychosocial therapies for SSD patients' cognitive health.

- **28 participants**; 75% completion rate
- All reported **positive experience with therapy**
- **2/3 not bothered by remote setting**
- **77% trusted confidentiality** of the info shared
- **Technology did not appear to impede participation** significantly
- **Satisfactory therapist-related levels of engagement**

ELSEVIER

Schizophrenia Research: Cognition
Volume 28, June 2022, 100230

Remote group therapies for cognitive health in schizophrenia-spectrum disorders: Feasible, acceptable, engaging

Daniel Mendelson [a b], Élisabeth Thibaudeau [a c], Geneviève Sauvé [a d], Katie M. Lavigne [a e], Christopher R. Bowie [f], Mahesh Menon [g h], Todd S. Woodward [g i], Martin Lepage [a c 1], Delphine Raucher-Chéné [a j k 1]

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https://doi.org/10.1016/j.scog.2021.100230

THE PROBLEM

Training mental health professionals to use new treatments is challenging

high-quality interventions can have a meaningful impact on individuals struggling with mental health

We can shorten the gap and connect new treatments and the people needing them!

THE SOLUTION

E-Cog: an online learning platform for mental health professionals & specialists

1

Engaging online learning experience

2

Expert coaching & supervision

3

New treatments dissemination

THE SOLUTION

E-Cog Features

Engaging & interactive e-learning experience

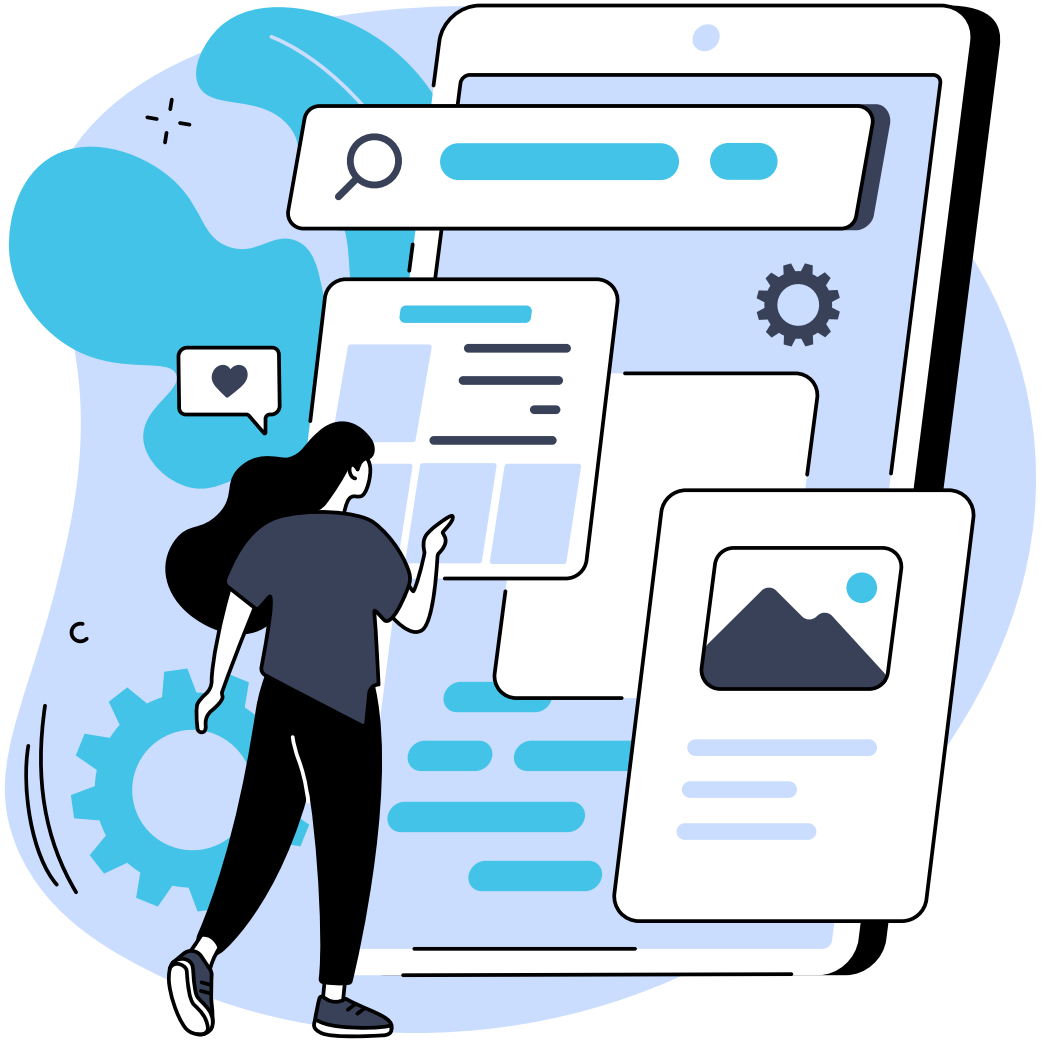
Technological structure ensuring customization, optimal user experience, data security, accessibility, and gamification.

Developed by experts to experts

Content and technical components piloted at different stages of development to enhance final delivery quality.

An evidence-based training tool

Feasability, acceptability and efficacy of **E-Cog** will be assessed within the **iCogCA** multi-site implementation trial



E-Cog: Certification Page

E-Cog

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Home » All Certifications

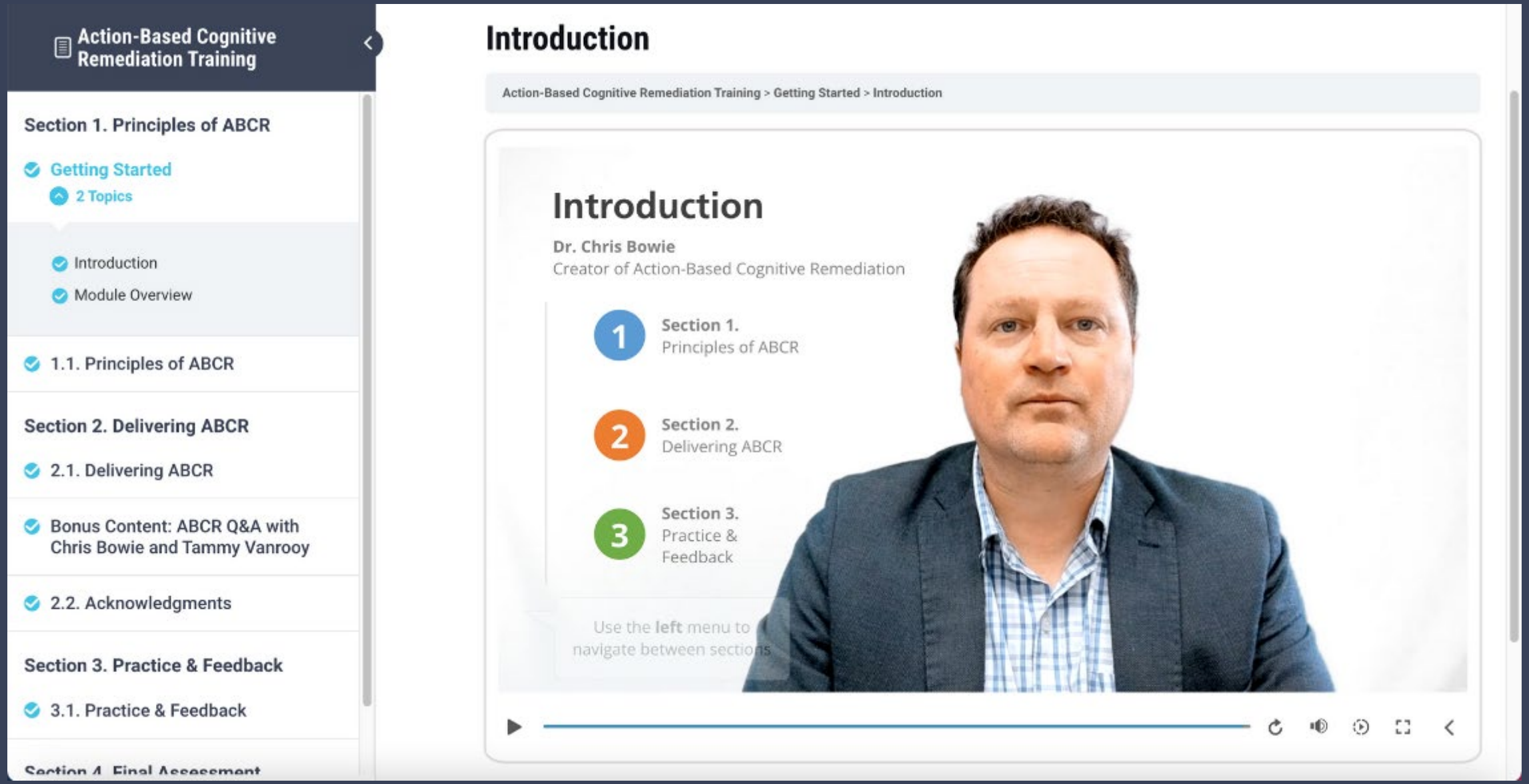
Action-Based Cognitive Remediation for Psychosis

Enroll Now

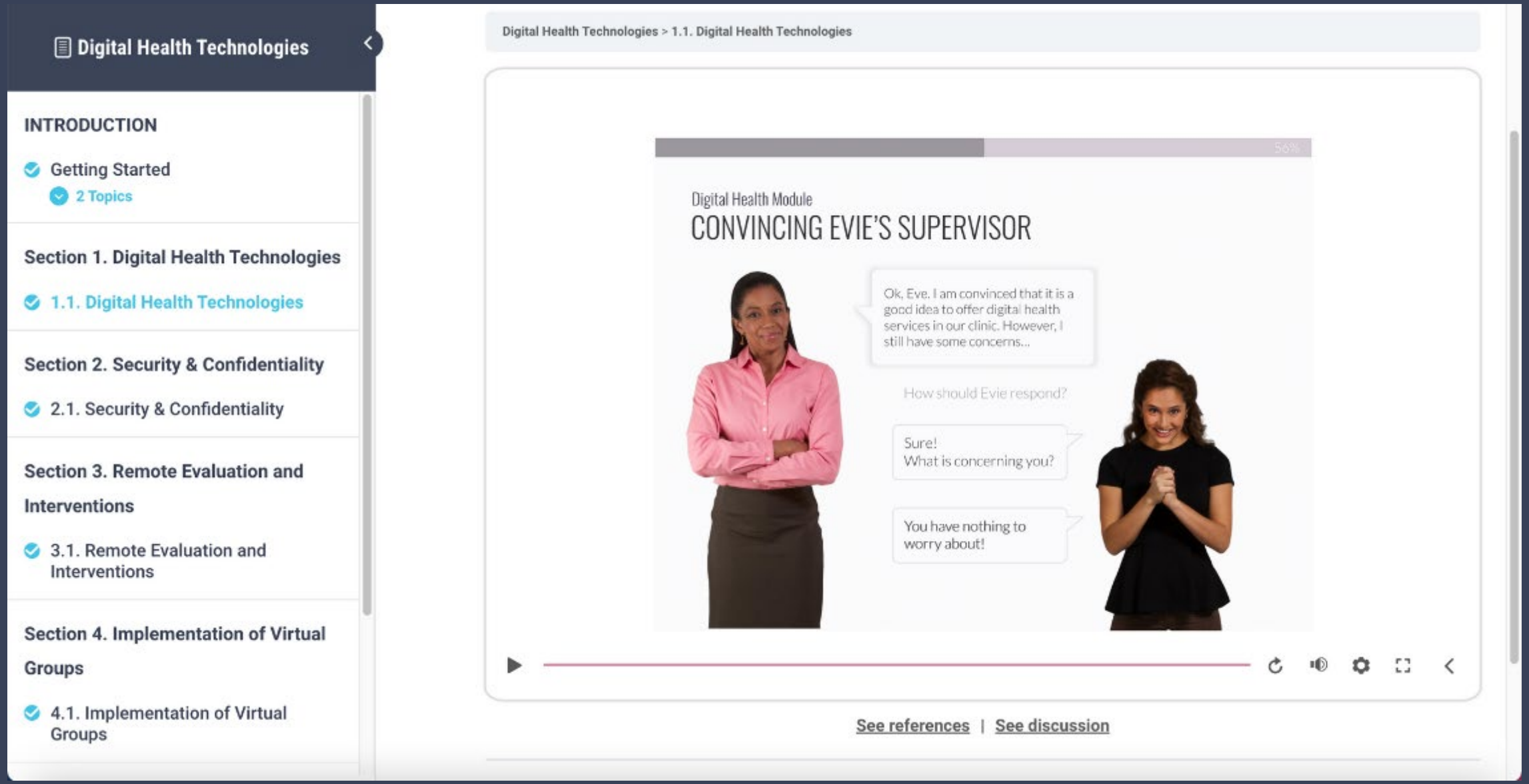
Metacognitive Training for Psychosis

Enroll Now

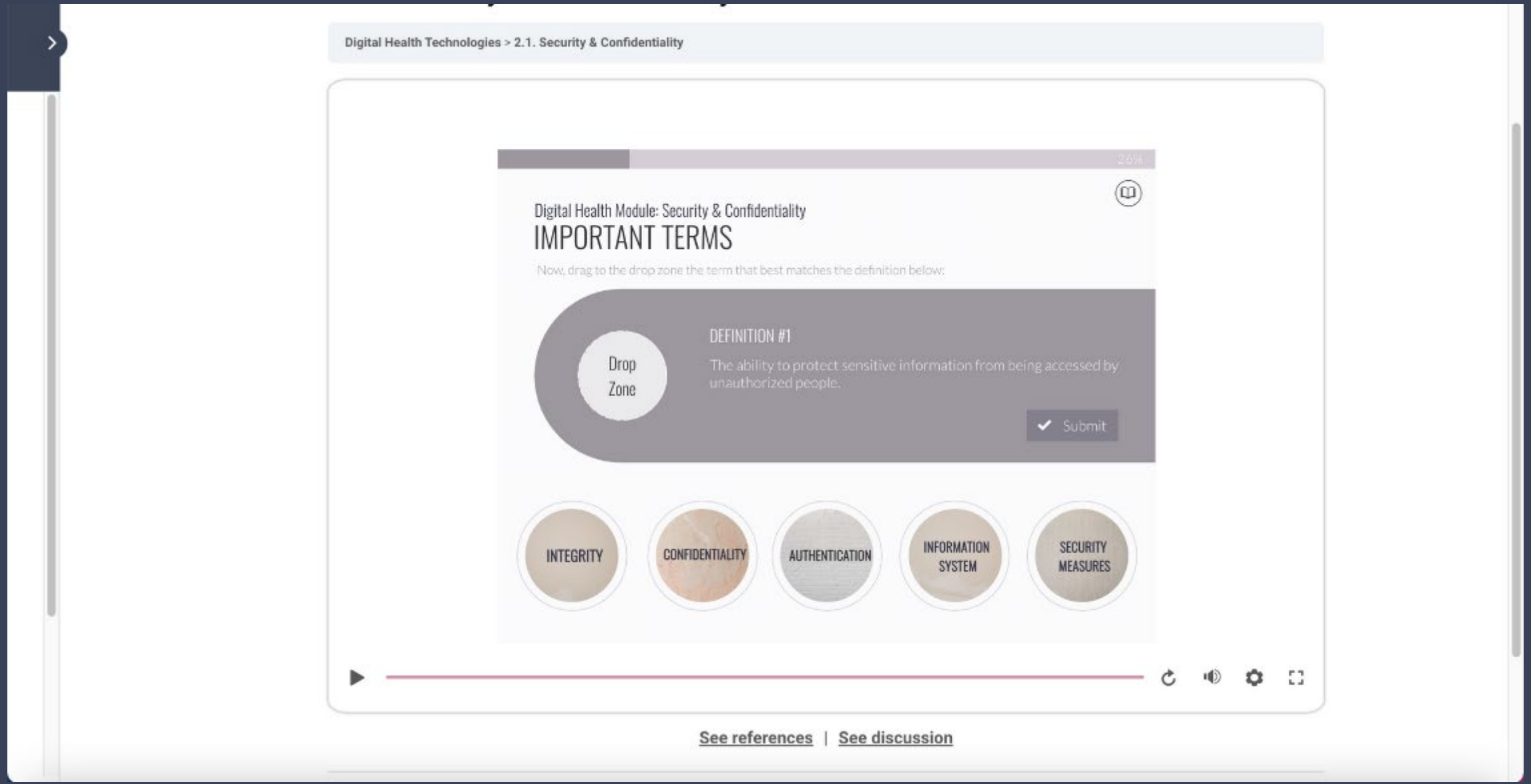
E-Cog: Learning Environment (Instructional videos)



E-Cog: Learning Environment (Interactive Learning - Scenarios)



E-Cog: Learning Environment (Interactive Learning - Interactions)



E-Cog: Learning Environment (Quizzes)

Cognitive Health

SECTION 1. DEFINITIONS

- Pre 1.1. Question
  - 1 Quiz
- 1.1. Cognitive Health
  - 1 Topic
- 1.2. Cognitive Domains
  - 2 Topics
- 1.3. Cognitive Capacity
  - 2 Topics
- 1.4. Cognitive Impairments
  - 3 Topics
- 1.5. Cognitive Biases
  - 4 Topics
    - 1.5.1. Cognitive Biases
    - 1.5.2. Cognitive Biases – Relationship with Clinical Symptoms and Functional Outcomes

1.5.4. Quiz – Cognitive Biases

Cognitive Health > 1.5. Cognitive Biases > 1.5.4. Quiz – Cognitive Biases

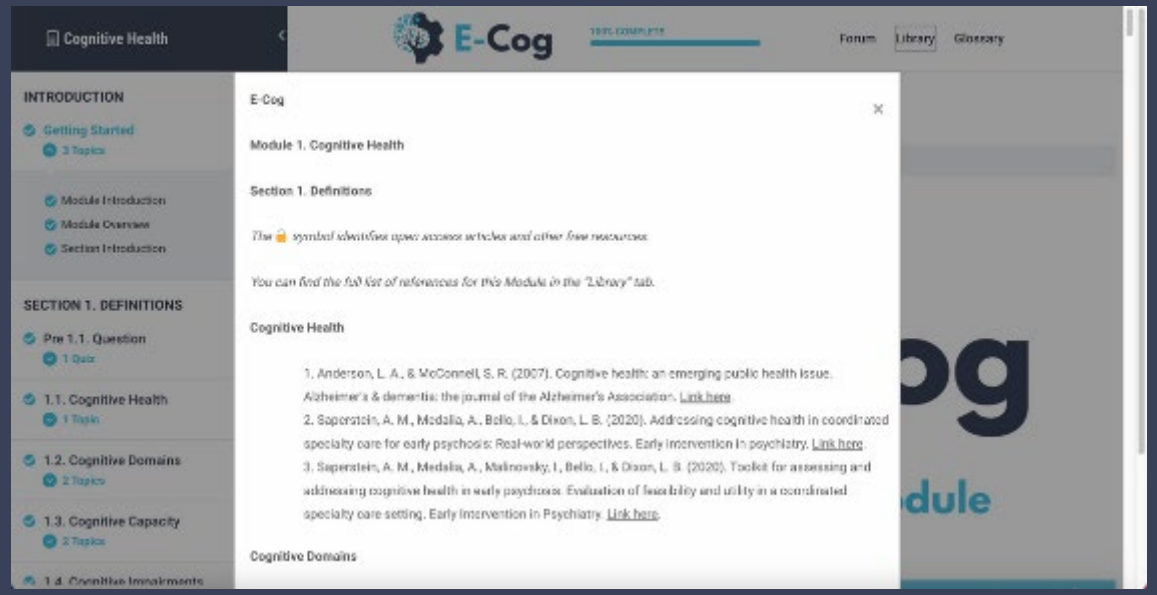
COGNITIVE BIASES

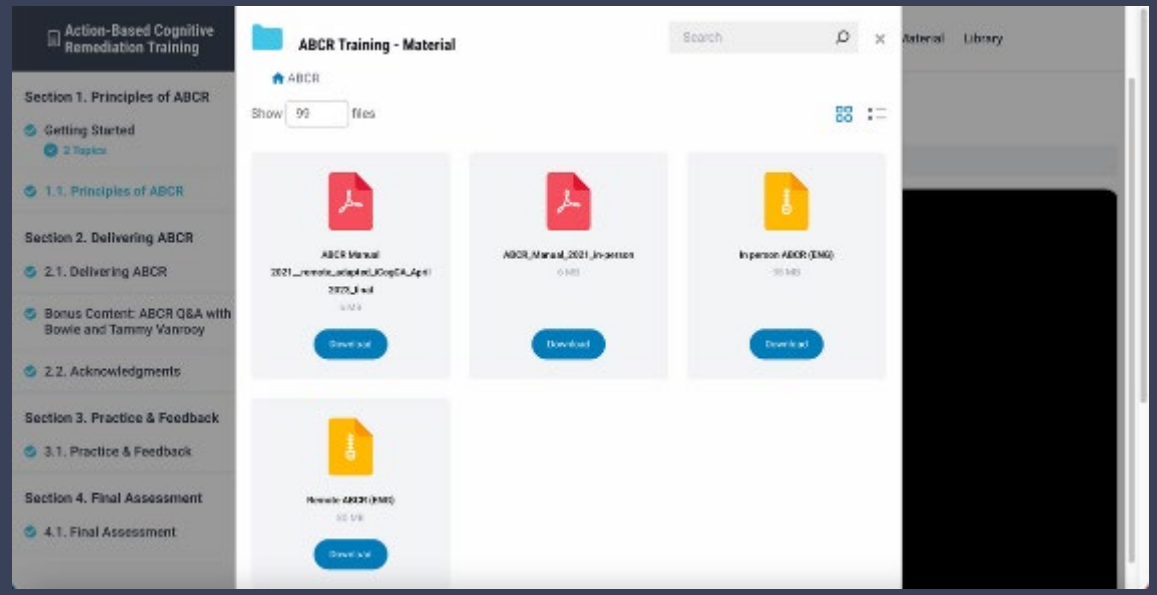
Below you will find several scenarios in which a cognitive bias may be manifesting. For each one, please drag the bias that best corresponds to the scenario to the drop zone.

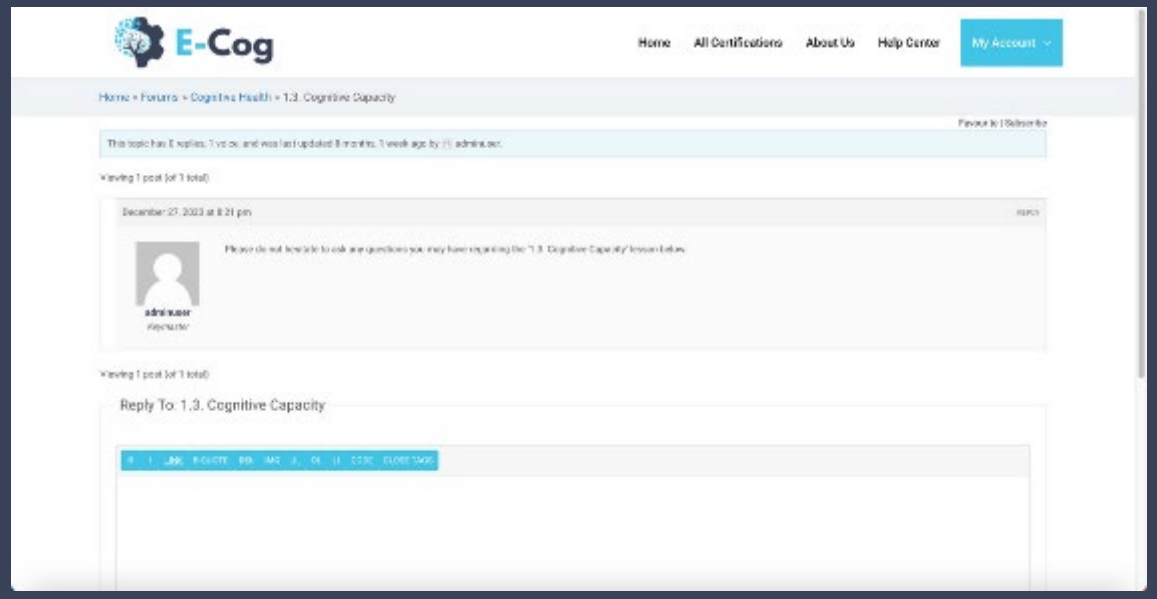
Brad loves to play soccer. Whenever his soccer team wins, he believes it is only because of his hard work and skills. But whenever his team loses he blames the outcome on factors like unfair calls or bad weather.

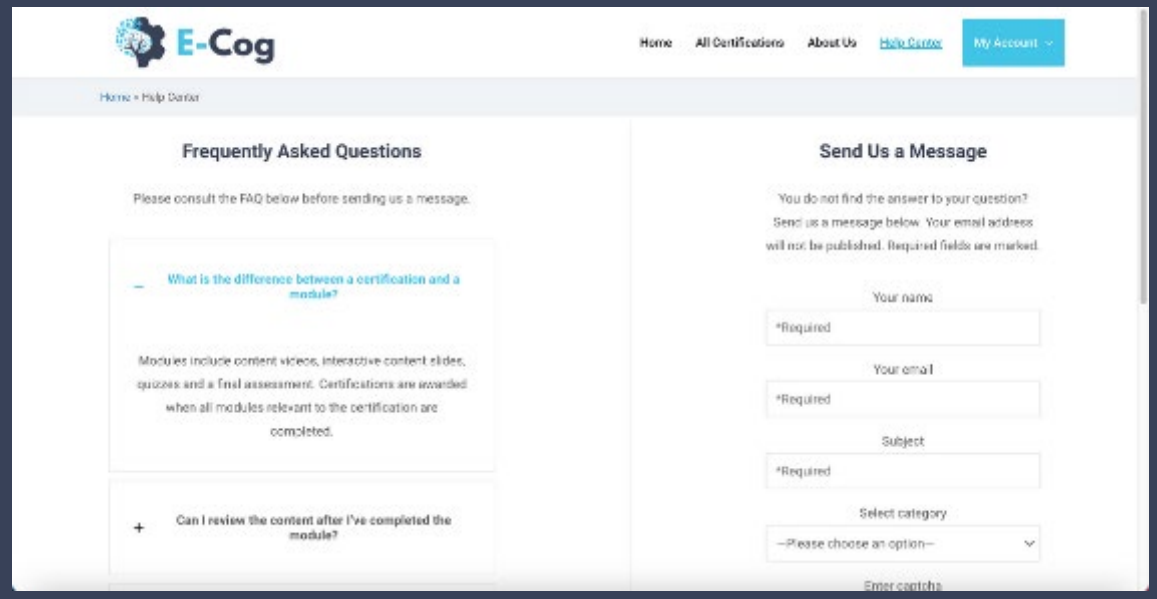
Submit

E-Cog: Learning Environment (Other resources - Library, Forum, Materials, User Support)









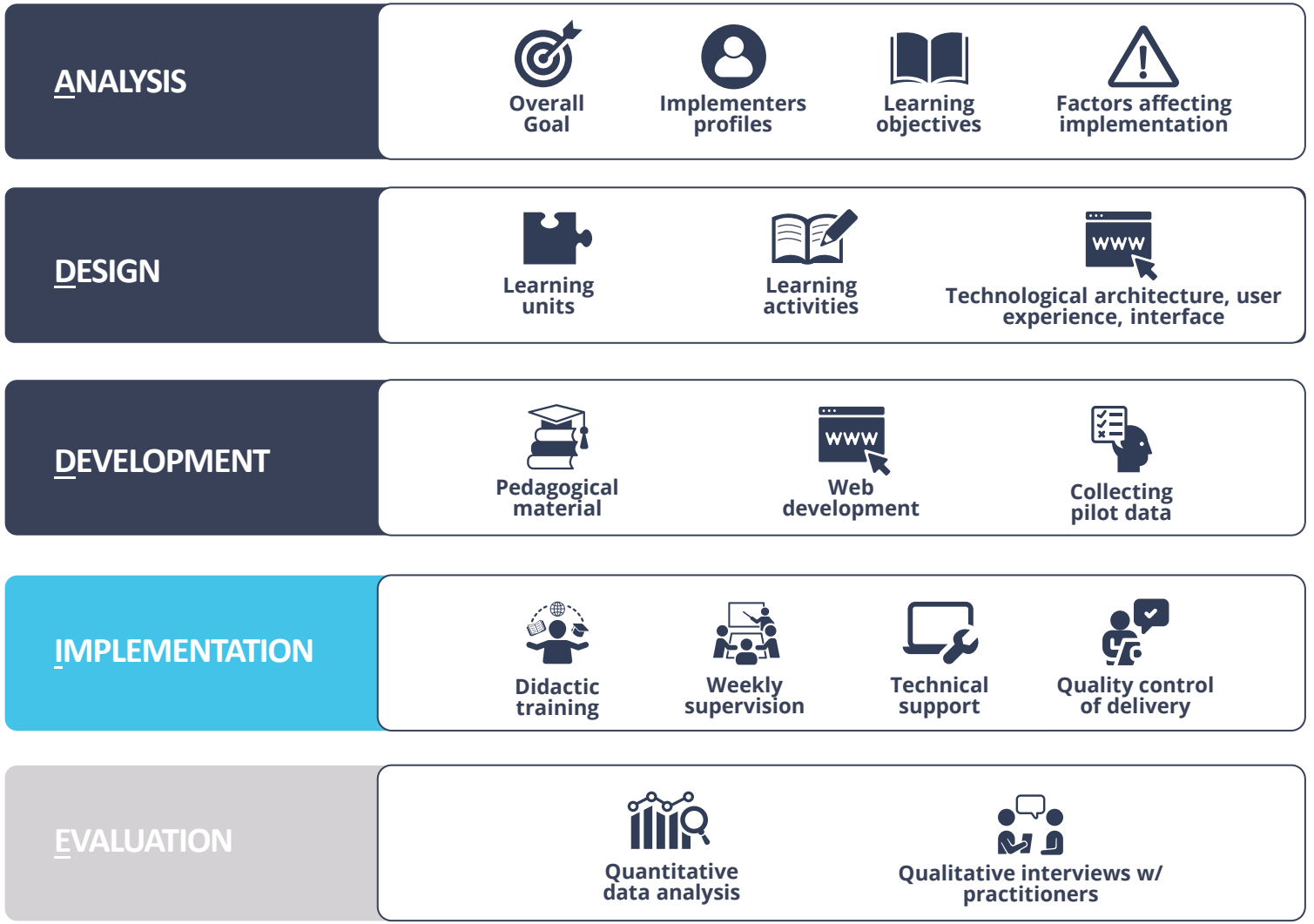
Developed by experts to experts

The ADDIE Model

Gavarkovs et. al, 2019

A framework for creating instructional content

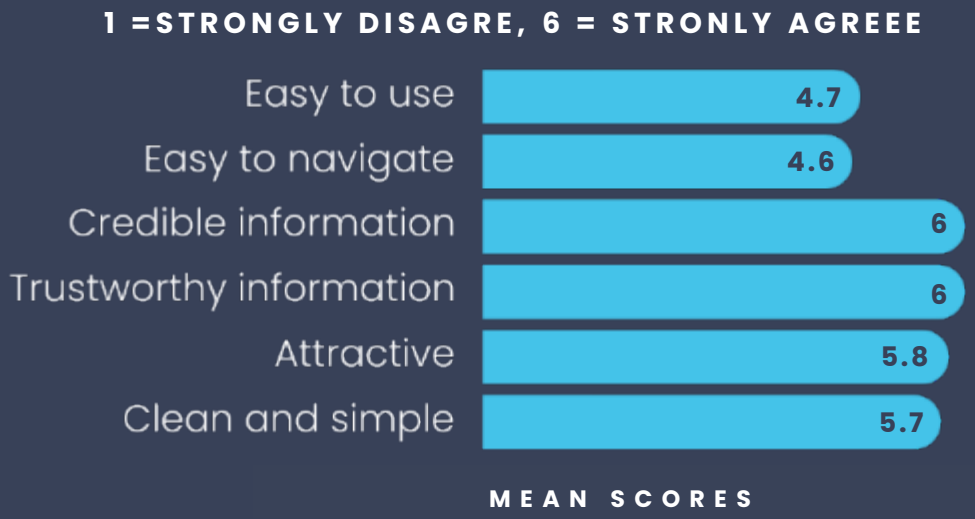
- **Specific steps** for designing online training
- **Widely used in remote education** since the 70's
- Widely recognized as an **optimal model for designing and evaluating** learning content
- A valuable source of good teaching Practices in Online Education (meta-analysis by Spatioti et al., 2022)



E-Cog Pilot Results

Clinical psychologists, trainees and staff (N = 9)

How much do you agree with the following regarding the E-Cog learning environment?



How likely are you to...

Recommend an E-Cog certification

Visit the website/ complete another certification

NEUTRAL

LIKELY OR VERY LIKELY

ROADMAP

What Comes Next

Summer 2024

Beta testing w/ real-world users

Fall 2014

1st submission - protocol paper

> Future

2nd submission - implementation paper

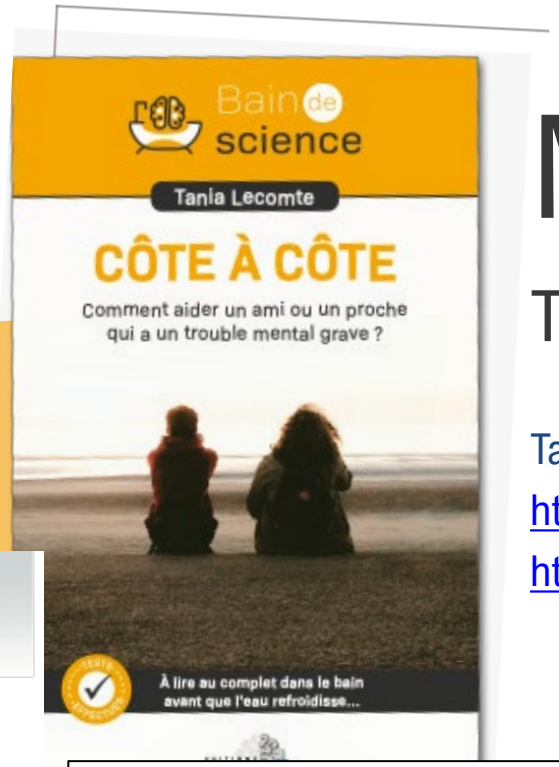
For CBTp – An Online Professional Training and University Course is Being Developed

- Based on similar principles – 45 hours of training (funded by Université de Montréal).
  - 15 hours – basic CBTp-informed care
    - basic therapeutic skills when working in psychosis
    - Theories and models used in CBTp
    - CBTp basic techniques
    - Practice of CBTp skills and basic skills with online avatars and real-patient videos.
  - 15 hours: group CBTp
    - Group notions
    - Applying CBTp techniques in group context
    - Role-plays and live supervision
  - 15 hours: individual CBTp (for those allowed to conduct psychotherapy or aiming to)
    - More advanced notions
    - Working with complex cases (trauma, substance misuse, comorbidities)
    - Integrating second and third wave strategies
    - Role-plays, and supervision of real cases (to reach NACBTp requirements for certification)

Our Treatment Modules (Both in French and English)

www.lespoir.ca

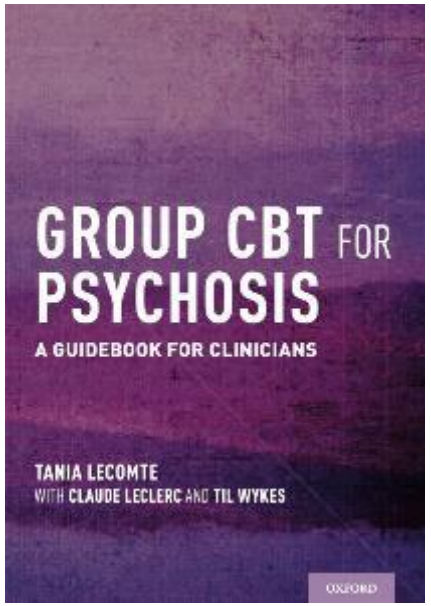
L'espoir
Laboratoire d'étude sur la schizophrénie et les psychoses orienté vers l'intervention et le rétablissement.
Laboratory for education on schizophrenia and psychoses oriented to intervention and recovery.



Merci !

Tania Lecomte, Ph.D.

Tania.lecomte@umontreal.ca
https://www.lespoir.ca/
https://www.schizophrenianetwork.com/



Martin Lepage, Ph.D.

E-Cog Website
www.e-cog.ca

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https://www.crispdouglas.ca/