Attentional (dys)control is key to (mal)adaptive responding to both environmental (external) and metal (internal) events and demands (Ruimi, Amir, Hadash, Goldstein & Bernstein, submitted/2020; Amir, Ruimi, & Bernstein, submitted; Ehring & Watkins, 2008; Goldin, Manber, Hakimi, Canli, & Gross, 2009; Harvey & Watkins, 2004; Ingram, 1990; Mogg & Bradley, 2018; Williams, Watts, MacLeod, & Mathews, 1988)

* Names and cites of disorders related to attentional dyscontrol

The importance of meta wareness:

* Meta-awareness- Meta-awareness has been theorized to serve a monitoring-for-control function over various internal states and mental operations. These include (i) metacognitive- and self- monitoring (Creswell, 2016; Dunne, Thompson, & Schooler, 2019; Schooler, 2002) and, thereby, (ii) metacognitive-, behavioral- (e.g., response inhibition), and emotional- control or regulation (e.g., reactivity) (Bernstein & Zvielli, 2014; Creswell, 2016; Dahl et al., 2015; Dunne et al., 2019; Posner & Rothbart, 1998; Schooler, 2002)
* Findings from MAB 2018: “Meta-Awareness of Dysregulated

Emotional Attention” and introduction of the method – quantifying metaawerness

Two approaches to target meta awareness:

1. Mindfulness/meditaion based interventions:
   1. **meta-awareness and attention**: body of research of direct relevance to meta-awareness and attention involves the study of mindfulness meditation and mindfulness-based interventions (Wielgosz, Goldberg, Kral, Dunne, & Davidson, 2019). Indeed, meta-awareness is a central target and key mechanism of action of mindfulness training (Bernstein et al., 2015; Dunne et al., 2019; Wielgosz et al., 2019).
   2. **Helped with**: Briefly, a number of studies have documented that mindfulness is associated with better performance on cognitive-experimental tasks designed to measure sustained attention (e.g., Elliott, Wallace, & Giesbrecht, 2014; Hodgins & Adair, 2010; Mrazek, Smallwood, & Schooler, 2012; van Leeuwen, Müller, & Melloni, 2009), attentional selection (e.g., Becerra, Dandrade, & Harms, 2017; Felver, Tipsord, Morris, Racer, & Dishion, 2017; Norris, Creem, Hendler, & Kober, 2018), and attentional control (e.g., Elliott et al., 2014; Malinowski, Moore, Mead, & Gruber, 2017; Moore & Malinowski, 2009; Norris et al., 2018).
2. Real time feedback on attentional bias towards emotional stimuli
   1. Studies of A-FACT have reported effects including: (1) elevated levels of meta-awareness of biased external attention and thereby greater external attentional control (Ruimi, Hendren, Zvielli, Amir, & Bernstein, 2019); (2) greater control over covert (response time) as well as overt (eye-movement) external attentional processing of threat and reward (Bernstein & Zvielli, 2014; Zvielli, Amir, Goldstein, & Bernstein, 2016; Ruimi, Hendren, Zvielli, Goldstein, & Bernstein, under review); and subsequent (3) reduced emotional reactivity to an anxiogenic stressor (Bernstein & Zvielli, 2014; Zvielli et al., 2016). Likewise, Sanchez-Lopez et al (2016) delivered real-time (trial-level) gaze-contingent feedback via Eye-gaze Contingent Attention Training (Sanchez-Lopez, De Raedt, Van Put, & Koster, 2019; Sanchez-Lopez, Everaert, Van Put, De Raedt, & Koster, 2019; Sanchez, Everaert, & Koster, 2016). This gaze-contingent feedback was designed to help participants select positive rather than negative information and thereby reduce negative and facilitate positive self-referential interpretation of target stimuli (i.e., scrambled sentences). They found that training led to (1) facilitated attention regulation, (2) improved reappraisal, and (3) reduced state rumination. Similarly, Lazarov, Pine, and Bar-Haim (2017) used real-time (trial-level) gaze-contingent feedback, via rewarding music, to train attentional control. They reported that, relative to controls, real-time gaze-contingent feedback training led to reduced dwell time on threatening face stimuli as well as reduced social anxiety outcomes.

Only external - Yet, across these domains, research to date has been limited to the role of meta-awareness for *external*, typically visual, attentional control.

***On external and internal:***

External attention refers to sensory-perceptual processing of objects in our environment, such as via vision (Amir, Ruimi, & Bernstein, submitted; Chun, Golomb, & Turk-Browne, 2011; Dixon et al., 2014; Gazzaley & Nobre, 2012). Yet, meta-awareness may also involve monitoring and control of *internal attention* – the selection and modulation of information stored in the mind, recalled from long-term or active in working memory (Amir, Ruimi, & Bernstein, submitted; Chun et al., 2011; Klinger, 1978; Zabelina & Andrews-Hanna, 2016).

**Internal attention:**

*Internal attention* is the processing of information stored in the mind, recalled from long-term or active in working memory (Amier et al., submitted; Chun et al., 2010).

Just as external attention determines which information from the environment reaches awareness (Posner, 1994), internal attention determines which internal representations reach awareness (Verschooren, Schindler, De Raedt, & Pourtois, 2019). Accordingly, internal attention may be important for understanding a variety of mental phenomena quintessential to human mental life, such as mindwandering, mindfulness and spontaneous thought

***Amit’s guidelines:***

Aims

* 1. For each aim why it is important (what are the hypotheses underlying this statement)

1. Bullet points
2. The critical gaps limitation – what is missing in the literature that
   1. wasn’t asked
   2. doesn’t have answer
   3. has answer but the answers have problems
   4. have answers but only a few.

What are my targets and what are the target to the audience?

* I want others to understand why I’m doing what I’m doing
* We know -a b c , we tried d, lets test e
* I want to talk a lot about the design
  + Amount order?
  + Number of trials?
  + BMM – ideas?

My project

Put power point on the side – and write a week.

1. What we don’t now on awareness AND control
2. Internal MAB + Iftach underreview, Afact-last paper, iftach model (liad first author + mab)
   1. Omer send me the most updated
   2. Amit sending me it

* Experimentally manipulating meta-awareness in order to test if its malleable and
* Does incrementing it have impact on attentional control (disengaging internal attention – like from negative thoughts and re-engaging)
* And We don’t have internal AFACT and BMM
* What is my question:
* My addition over former work –
* Mindfulness – is doing the exact same thing.
  + Internal attention dis-control
  + Dichotic – internal-internal – a task that is a generalization to the trained.
  + To this is the next incremental stem – in understanding the mechanism in an experimental manipulation (my three groups)
  + Translational implication to experimental therapeutic – augmented large-scale intervention in a focused experimental training.