

When There's an Image There's a Way

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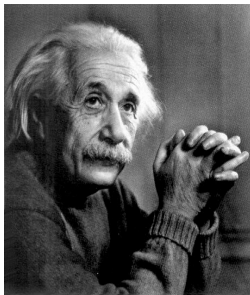
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Will vs Way

Creating lasting change and well-being requires more than just the *will* to succeed – a limited inner resource. It requires a sustainable *way* – and the most potent process for accelerating and consolidating change is mental imagery. Drawing on imagination – is a virtually unlimited inner resource.

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"Imagination
is more important
than
knowledge"
(Albert Einstein)

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History isn't Destiny

- Old habits die hard
- Best predictor of future behaviour is past behaviour
- Mental Imagery to the rescue!
- Reflecting on our past and imagining the future – hot research topic in neuroscience (Van Hoek, et al., 2013).

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Mental Time Travel

- Memory fn adaptive mechanism to be better oriented toward (anticipate) future
- "evolved function of memory was to focus thought and behaviour on the future rather than on the past". (Klein, 2016, p. 383).
- "memory must, of necessity be oriented toward the future". (Klein, 2016, p. 382)
- Future prospection underwritten by memory, but not necessary (Klein, 2016)

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Positive Prospection

- *Homo Prospectus* (Seligman, Railton, Baumeister, & Sripada, 2016).
- Involves ability to forecast [receiving images] and to project to the future [generating images] -- key to our evolution (Seligman, Railton, Baumeister, & Sripada, 2013).

∴ Practice of MI key to our evolution

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Back to the Future

- **Default network:** Future images overlap with same neural structure as memory (fMRI research; see review by Schacter, et al., 2012; Klein, 2016)
 - For efficiency
 - Flaws inbuilt (e.g., heuristic tendency)

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Evolutionary Opportunity?

- Differentiated according to sub-systems activated (depending on task)
- Imagery sub-system activated → resets default
 - i.e., imagination helps come to grips with past and prepare for (better) future (de Brigard, Szpunar & Schacter, 2013)
 - Can ↑ positive heuristic (i.e., correct or preferred) (i.e., boosts positivity bias/tendencies) (Seligman, et al., 2013)

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Imagination & Optimism

- Practical optimism = mental imagery (Blackwell, et al., 2013; Busseri & Choma, 2016)
- Positive imagery - generates greater optimism, confidence and emotional capacity for future events and becoming our best selves (Peters, Flink, Boersma, & Linton, 2010; Pictet, Coughtrey, Mathews, & Holmes, 2011; Layous, Nelson, & Lyubomirsky, 2013; Sheldon & Lyubomirsky, 2006)

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Rewriting History

- Mental imagery (MI) is increasingly being recognized as a powerful tool for reprogramming the brain – for essentially *rewiring the brain* by positively transforming the negative impact of one's past experiences /memories (e.g., DeBrigard, Szpunar & Schacter, 2013; Hackmann, Bennett-Levy & Holmes, 2011; Reinecke, Hoyer, Rinck, & Becker, 2013; Ronen, 2011).
- To creating a better future.

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Imagination, therefore, is one of the most powerful inner mental resources for facilitating and accelerating change – whether adapting to change, or changing patterns of how one thinks, acts (and reacts), and feels. To be more in control over our destiny, and less victim to bad habits, worries and fears (and history), taking better control over the images of our minds will lead *the way*.

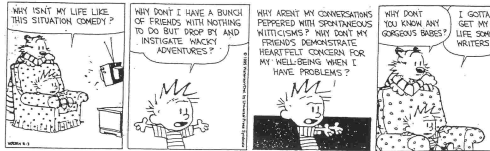
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Creative vs Reactive

Calvin and Hobbes



Source: Watterson, William, 'Calvin and Hobbes', Cartoon, 1995, Andrews McMeel Publishing, Kansas City.

*I gotta get my life some **NEW** writers*

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What is Mental Imagery?

- *Seeing with mind's eye ...*
- Basic form of cognition (e.g., CBT)
- Mental (perceptual) representation of events and objects stored in memory
- Depict information [data] that play functional role in cognition (information processing)

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Mental Imagery in Perspective

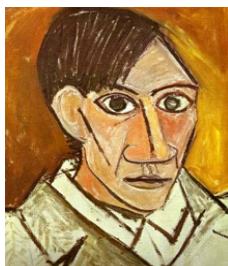
- Best applied to what is (directly) within control in immediate future
 - Your own behaviour, thoughts and feelings.

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HOWEVER ...

“No Order of Difficulty in Miracles”

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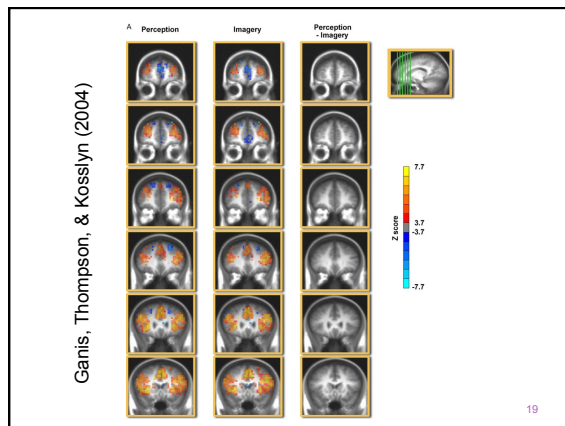
“Everything you can imagine is real”
(Pablo Picasso)

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Evidence

- Indirect via placebo & biofeedback research
- Direct: fMRI studies

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Emotional Implications

Picture is worth a thousand words

◆ Images = emotional amplifier vs verbal meaning/information (Holmes & Mathews, 2010)

- Imagery more powerful evoking emotions (+ / -)
- Conversely: By invoking verbal meaning can reduce negative impact emotionally

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Back to the Future: Looking Back to Move Forward

- Best place to start:
 - Recalling Peak Experiences and Performances (from memory bank)
 - Projecting to future.
- **Best Future Self (BFS)** (aka BPS)
- **Rewriting History:** preferred recreation of memories & therefore future frame of reference.

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Mental Time Travel: Trace, Face, Erase, Embrace

- Inducing 'erase' by future images
- "episodic future thinking can serve as a memory modifier by changing the extent to which memories from our past can be subsequently retrieved." (Ditta & Storm, 2016, p. 339).

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Director Fn

- Highlights important function of goals – as directs attention & brain circuitry (Cole & Berntsen, 2016; Ditta & Storm, 2016).
 - i.e., brain sends out search party for relevant data pertaining to goals to 'recombine/reconstruct' (i.e., imagine) future.

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All is not lost ...

- When helpful memories applied – not forgotten (lost)
- But when new (preferred) 'memory' superimposed – new becomes dominant (Ditta & Storm, 2016)
- Implications

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Counter-Factual Thinking/Imagery

- Over-riding past experience with new 'data' ... thus enabling a better future (frame of reference).
- *Undoing* (effects of) certain action (de Brigard, Szpunar & Schacter, 2013)
- Assoc w/problem solving ability and decision-making (de Brigard, Addis, et al., 2013; Van Hoeck, et al., 2013)
- Relevance to regulation of future behaviour (Van Hoeck, et al., 2013)

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Brain Pattern

- Evoke same brain pattern (fMRI) if within plausible bounds (i.e., likelihood).
- Most overlap according to:
 - Whether w/in realm of plausible otherwise triggers other sub-systems
 - Whether future projection

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Counterfactual Process

- Self-projection & mental scene construction
- Generates cognitive conflict & concomittant feelings

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Upward vs Downward

- Upward counterfactuals
 - Behavioural fn -- Help us learn from mistakes ...
 - Not always helpful – in boosting positivity
 - Can elicit regret
- Downward counterfactuals
 - Affective fn
 - More assoc w/positive emotion
 - Elicit relief

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Differentiated effects and brain pattern according to:

- Repetition factor (deBrigard, Szpunar & Schacter, 2013)
- Valence
- Self-relevant (i.e., first person)
- Likelihood (plausibility)
 - The less likely (plausible) the more sub-system activated (parahippocampal cortex, inferior frontal gyrus) → mental imagery skill
 - and less another activated (left superior frontal gyrus) (de Brigard, Addis, et al., 2013)

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Implications

- Activates *mentalization* region linked to self-image and related to long term intention/s and goal/s.
 - Executive control factor
- More involved than during mere recall/recast to future
- Focus on future frees brain (from cognitive conflict)

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In Sum: Imagination

"... helps us plan for a better future and ease the burden of our personal past."
(De Brigard, 2015, p. 35).

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Mediating Factor?

- Autonoesis process (Klein, 2016)
- "autonoetic consciousness ... provides the neurocognitive scaffolding necessary to navigate one's future." (Klein, 2016, p. 392).
- "mode of consciousness associated ... with retrieval that most relevant to future prospection". (p. 390).
- Linked to goal intentions

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Autonoesis

- Assoc w/ structures in frontal lobe (& not temporal – where memory resides).
- "Same process can give rise to variety of mental experiences [and vice versa?] (e.g., thought, imagination, belief, desire, inference, plans, attitudes, hope, fear ..." (Klein, 2016, p. 387).
- The very stuff of (psychotherapeutic) change!

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Guided Imagery: Rewriting History*

Keep in mind in practice:

- Draw from relevant **positive memory** (e.g., peak experience recall)
- Keep reasonably **plausible** (though can stretch for future scenario)
- Aligned with established **goals/aspirations**
- Project to **future opportunity**.

* Guided imagery practice and reflection.

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"Go confidently in the direction of your dreams! Live the life you've imagined. As you simplify your life, the laws of the universe will be simpler." (H.D. Thoreau)

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Thank You!

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