

How the AS Tracking Assessment measures affective-social self-regulation

Self-regulation: the purposeful adjustment of heuristic bias

The AS Tracking assessment uses the imagination to make visible the self-strategies a pupil uses as they participate in their social environment. Often those self-strategies are intuitive, autonomic and unconscious, rather than intentional or explicit; these strategies can be thought of as *instinctive biases* which influence how a pupil engages and participates in the world. Such biases have sometimes been referred to by researchers as *heuristic biases* (Kahneman et al. 1982; Kahneman 2012, 2001, 2001; Evans, J. S. B. T., Stanovich 2013; Evans, Jonathan St. B. T., Frankish 2009).

The AS Tracking assessment measures the degree of bias a pupil has in four affective –social factors:

- *Self-disclosure: the degree to which a pupil chooses to share or hold back their thoughts, feelings, ideas and opinions*
- *Trust of self: the degree to which a pupil trusts or questions their own qualities, skills, ideas and opinions*
- *Trust of others: the degree to which a pupil trusts or questions others' qualities, skills, ideas and opinions*
- *Embracing change: the degree to which a pupil seeks to bring about or reduce change, novelty and risk*

Whilst a pupil may have an instinctive bias towards particular self-strategies in each factor, this bias is not necessarily fixed; it can be seen as fluid and contingent – influenced by the situation, task or encounter the pupil is engaging in at the time. Those pupils with *less bias* are more likely to *read* the particular situation, encounter or context; they notice extrinsic and intrinsic cues which lead them to purposefully choose a particular affective-social response (Rothbart et al. 2000; Eisenberg et al. 2000; Halberstadt et al. 2001; Tangney et al. 2004); these pupils can be said to exhibit greater self-regulation. In contrast, pupils who develop a *polar bias* are less likely to notice those extrinsic and intrinsic cues; they tend to iterate the same self-strategies again and again which further reinforces their bias. These pupil can be said to have poor self-regulation; poor self-regulation predisposes them to a number of incipient risks (Eisenberg et al. 2003; Sallquist et al. 2009; Simonds et al. 2007).

The role of the imagination in measuring self-regulation of heuristic bias

The imagination is a critical component in eliciting and measuring the heuristic bias a pupil has in each of the four factors. In recent years, a number of neuroscientists have conjectured the important role our imagination plays in influencing, shaping and directing our behaviours.

When thinking about an upcoming situation, encounter or task, our imagination acts as a mental simulation arena in which it plays two important functions. Firstly, it retrieves retrospective memories laid down by past events and experiences. These memories may not necessarily be conscious; a pupil may not always be able to articulate them, but they are retained nevertheless within an area of the brain called the amygdala (Buchanan 2007; Phelps 2004). These memories are subconsciously recalled and reimagined when an upcoming situation, encounter or task resonates with a similar, previous experience. Secondly, the imagination also acts projectively by simulating various responses from which the pupil will make and activate a choice (Schacter et al. 2008; Schacter 2012; Garry, Polaschek 2000; Buckner, Carroll 2007; Decety, Grezes 2006).

Schacter et al. write

*“A rapidly growing number of recent studies show that imagining the future depends on much of the same neural machinery that is needed for remembering the past. These findings have led to the concept of the **prospective brain**; an idea that a crucial function of the brain is to use stored information to imagine, simulate and predict possible future events”* (Schacter et al. 2007)

The AS Tracking assessment builds upon the concept of the *retrospective and prospective brain*. Pupils are led through several imagination exercises which facilitate two processes. Firstly, *imagined self-representation* in which a pupil retrieves retained conscious or unconscious memories and projects them onto neutral cues to visually represent their sense of self. Secondly, *imagined self-operation*, in which a pupil retrieves conscious or unconscious memories and simulates possible future actions from which she will make a preferred choice of response. In analysing a pupil's scored responses cross multiple contexts, it is possible to measure the degree of bias a pupil instinctively has towards a particular self-strategy and how that bias is influenced by a particular priming context.

Assessment One: assessing instinctive bias

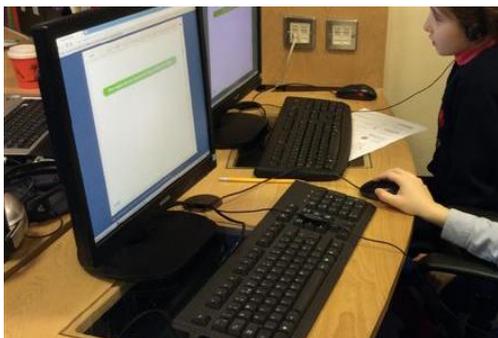
Imagined self-representation in an unprimed or neutral context

Before pupils complete the assessment, they are led through a short visualisation though which they create a visual, spatial, embodied representation of self: their self-concept. Baumeister describes the self-concept as *"the individual's belief about himself or herself, including the person's attributes and who and what the self is"* (Baumeister 1999).

Through carefully timed and purposefully neutral cues, which can be both read on screen and heard through headphones, pupils imagine a virtual space in their imagination. In constructing their Space, a pupil's imagination draws upon meaningful metaphors from their own frame of reference which reflect their emergent sense of self at this point of their development. This process is a *projective technique*. Pearson and Wilson describe projection as *"an alternative means to traditional self-disclosure. The process of projection allows [the child] to create an external reality, give visible shape, through story, word, symbol or picture to both known and unknown aspects of [the self]"* (Pearson March 2007 p7).

Visual metaphor gives children a safe, rich, visual language to express aspects of self which could not easily be put into verbal language. In the words of James Geary *"Metaphor is a way of thought, long before it is a way with words"* (Geary 2012 p3). Indeed, the most prolific users of metaphorical language are three and four year olds who reach for visual metaphor to convey a level of understanding that cannot be expressed through their limited language acquisition. Furthermore, the process of projection in this context is self-directed and open; the pupil has total ownership of what is being created in their imagination; they are not required to draw it, talk about it or share it. This removes potential affective interference and enables the pupil to relax and engage fully in the imaginative process.

The assessment leads pupils through a carefully constructed process which metaphorically mirrors the psychological development of the self-concept.



Imagine that you are standing outside.

A pupil's self-concept is distinct

Initially, a pupil sees them self *within* the whole space, rather than separate from it; in the same way as a young infant sees herself as coterminous with her caregiver in the first few weeks of life. It takes several months for an infant to become aware that she is a separate self: the *existential self* as described by Lewis (Lewis M. 1990). Choosing a part of her imagined space to call her own, and putting something around the edge of their Space to demarcate it as such, symbolises an important psychological construct about the self-concept: *"the sense of being separate and distinct from others and the awareness of the constancy of the self"* (Bee 1997 p377). This psychological process is known as *individuation*; the process by which a young child recognises that they are an individual, distinct from their caregiver and as such have their own agency. It is a process which continues into adulthood as children increasingly detach from their parents and form other significant attachments, whilst gaining greater personal autonomy (Mahler et al. 2000).

A pupil's self-concept is not disconnected, but remains attached

Whilst a pupil is encouraged to see their own space as distinct from what is around it, it is not wholly disconnected, isolated, solitary or detached; it remains connected, attached and related to the wider space. Attachment theorists such as Bowlby, Sroufe and Winnicott have conjectured that whilst healthy human development involves the formation of a separate sense of self, it also seeks a sense of relatedness. Carol Gilligan expresses this clearly and succinctly *"we know ourselves as separate only insofar as we live in connection with others, and that we experience relationship only insofar as we differentiate other from self."* (Gilligan 1993)

A pupil's self-concept is not fixed, but relative, responsive and emergent

In inviting pupils to see their space as both distinct and connected, they are reminded that their sense of self is not fixed or predetermined, but relative. How a pupil sees them self will always, to some degree, be influenced by the interactions, encounters and situations they are engaged in. The self is seen as relational, rather than absolute; we find our own meaning

in relation to others. The self can also be described as an emerging narrative. As pupils create their space, their visual self-representation, they draw upon the narrative that they have etched of themselves to date through the stories they tell about themselves; their space becomes their stage and their performance. In understanding the self to be relational and narrative, we see our self-concept as *“necessarily fluid, changing, contingent and responsive”* (Erricker, Erricker 2000 p112), rather than fixed or predetermined.

Having chosen an area of Space to call their own, and demarcated it as such, pupils are invited to inhabit their Space more fully. They are asked to notice what is happening in their Space, what they can hear, smell, see and touch. As they populate their Space and give purpose to different parts, they feel a greater degree of affective attachment towards it. What happens in it from then on matters and will evoke an affective response. Furthermore, having created their Space, they have ownership of it; they have a sense of agency and control over what happens in it. This prepares their imagination for the second part of the assessment.

Imagined self-operation in an unprimed or neutral context

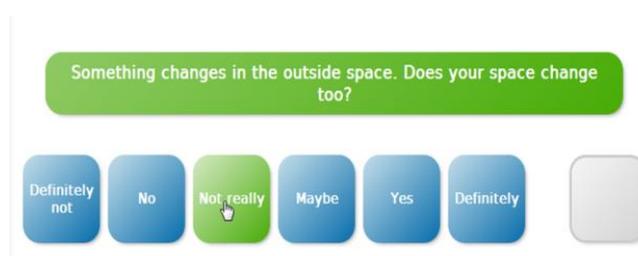
The second part of the assessment leads pupils through a number of imagined scenarios taking place within their Space and elicits their imagined response.

The questions are purposefully clean and neutral, drawing on David Grove’s work on clean language (Lawley, Tompkins 2000). The neutrality of the language is important for two reasons; firstly it lessens the likelihood of pupils detecting a value component. In traditional self-reports pupils are alert to what they perceive to be a correct answer, and filter their responses accordingly. Secondly the language is free of any emotive or affective vocabulary which could disproportionately bias a pupil’s answer. The questions are intentionally generic and open, rather than specific or particular; they aim not to trigger a particular memory about a specific event, but to draw out iterated patterns of thinking, feeling and acting laid down over time. Finally, the answers from which pupils choose ensure a constancy of language to avoid additional cognitive loading which could detract from the imaginative process.

TRUST OF SELF QUESTIONS		
1	Is your Space different from the outside Space? <i>Has your Space been changed by having your house In it?</i>	definitely not; no; not really; maybe; yes; definitely
2	Something changes in the outside Space. Does your Space change too? <i>Something changes in your house; does it make your Space change?</i>	Definitely; yes; maybe; not really; no; definitely not
3	Would a visitor looking at your Space know that this Space belongs to you <i>Would your house know this was your Space just by looking at it?</i>	Definitely; yes; maybe; not really; no; definitely not
4	How easy would it be for the visitor to walk straight across your boundary and into your Space? <i>How easy would it be for your house to walk across your boundary and into your Space?</i>	very difficult; difficult; quite difficult; quite easy; easy; very easy

Pupils’ answers are scored on a six point Likert scale. The language of the multiple choice answers detects the *degree of bias*, ranging from one polar response to another.

A pupil with a moderate bias will answer more contingently; he will recognise that each situation will have a set of variables, both intrinsic and extrinsic which will influence his response. The reading of those cues enables the pupil to self-regulate: to purposefully adjust his affective-social response in a particular situation or encounter. A pupil with a polar bias will answer more assuredly; he will be less open to the variables of the situation and will be less likely to vary his response. In iterating the same response over and over, he is exhibiting poor self-regulation.



Assessment Two: assessing contextual bias

If a pupil's self-concept and subsequent engagement with the world is contingent and responsive, rather than fixed and predetermined, we can conjecture that different environments and social groupings may have differing priming effects on an individual pupil's self-concept and self-strategies.

Imagined self-representation in a primed context e.g. school, lesson, boarding house, outdoor expedition

The second assessment asks the pupil to return to their Space, and to imagine a particular context within their space. Note the priming context enters the pupil's space, rather than the pupil's space entering into the priming context; this is purposeful, ensuring the pupil continues to feel a sense of ownership and personal agency within their space. Whilst it may appear strange for older pupils or adults to imagine, for example, a boarding house or school within their Space, our imagination has the capacity to hold what may seem irrational and impossible. Children, who are more able than adults to hold the concrete and the abstract in tension (Egan 2001, 1998, ©1997), do not find this difficult.

Imagined self-operation in a primed context

Pupils repeat the same 16 questions, each amended to incorporate the priming context.

Using pupil data to identify, support and track pupils with poor self-regulation

Each factor is scored on a scale of 0-15, with 7.5 as the midpoint.



Pupils who score within the red zones, either low or high scores, have a polar bias towards one strategy. They are less likely to notice the internal and external cues; they iterate the same response irrespective of the particular context. There are incipient risks associated with developing a polar bias; whilst those risks may not be manifest these pupils have a greater predisposition towards those risks emerging.



Pupils who score within the amber or green zones, either higher or lower, have slight to moderate bias towards one strategy; they are more aware of the internal and external cues that enable them to read the particular situation and purposefully adjust their response accordingly.



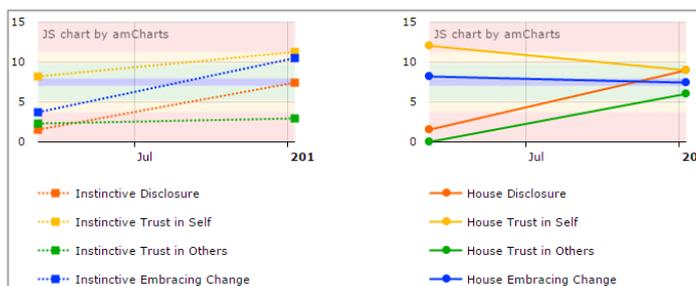
Pupils who score within the blue zone are hyper vigilant of the internal and external cues in reading a particular situation; they are consistently self-monitoring. Over time this can lead to strain and depletion of self-regulatory skill.

Each pupil is given an instinctive and a contextual score which enables comparison.

	Instinctive Self-Disclosure	Contextual Self-Disclosure	Instinctive Trust of Self	Contextual Trust of Self	Instinctive Trust of Others	Contextual Trust of Others	Instinctive Embracing Change	Contextual Embracing Change
Pupil 1	6	1.5	4.5	8.25	6.75	9	11.25	9.75
Pupil 2	10.5	5.25	6.25	7.5	7.5	7.5	4.5	6.75
Pupil 3	8.25	9.75	12	13.5	9	8.25	1.5	4.5
Pupil 4	6.75	9.75	2.25	5.25	0.75	10.5	9	5.25

Comparing both scores suggest the priming impact of the priming context on the pupil's ability to self-regulate. Those pupils whose scores show a fixed polar bias, contextual dysregulation or over regulation are more predisposed to the incipient risks associated with poor self-regulation and over regulation. Personalised action plans can be written to ensure support is proactive, precise and targeted.

instinctive	house/school	Good self-regulation	GO
4.5	9		
instinctive	house/school	Contextual self regulation	GO
1.5	4.5		
instinctive	house/school	Contextual dysregulation	⚠
9	1.5		
instinctive	house/school	Fixed polar bias	⚠
2.25	1.5		
instinctive	house/school	Flipped dysregulation	⚠
3	12.75		
instinctive	house/school	Over regulation	⚠
7.5	7.5		



Repeated assessments will track individual pupils' self-regulation over time, in both contexts.

Date	Self disclosure		Trust of self		Trust of others		Embracing Change	
	Instinctive	House	Instinctive	House	Instinctive	House	Instinctive	House
2014-03-07	1.5	1.5	8.25	12	2.25	0	3.75	8.25
2015-01-09	7.5	9	11.25	9	3	6	10.5	7.5

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