



The doping mindset – Part II: Potentials and pitfalls in capturing athletes' doping attitudes with response-time methodology



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ABSTRACT

The aim of this narrative review is to provide an overview of the progress made in applying response time methodology to assess implicit doping attitudes. The eight published studies reviewed in this paper evidenced the presence of implicit doping-related social cognition but without convincing discriminatory or predictive power. The response-time based measures using affective valence generally showed negative 'implicit attitudes' toward doping regardless of involvement; and none were able to predict self-reported doping behaviour over and above explicit attitude measures. Results suggest that this shortcoming could be explained by cognitive (in)consistency, marginally relevant affective frames and lack of conceptual clarity about what response time measures represent. Evidence emerged that relying on self-reports as behavioural outcome measures can yield misleading conclusions about the predictor variable. Research-design-imposed framing effect of the socially but not ecologically relevant heuristics on the implicit tests can produce non-interpretable outcomes. To facilitate future research into doping-related implicit social cognition, it is proposed that implicit doping attitude is best conceptualised as a collection of evaluations of the self-relevant thoughts about doping behaviour that are contextually retrieved from mental representations in meta-cognitively validated forms. Future research should adopt conceptual clarity of what performance on implicit tasks actually measure, focus on the cognitive processes and context that produce these measures and separate attitude from environmentally influenced associations. Researchers should move away from the prevailing but limiting affective/moralistic view of doping and incorporate alternative frames and methods to implicit social cognitive measures.

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The way athletes cope with social and normative realities of high performance sport have influence on their inner thoughts about doping. Understanding these mental processes both under and outside conscious awareness is fundamental for effective anti-doping. The Incremental Model of Doping Behaviour, proposed in this issue (Part I: Implications of the Functional Use Theory on Mental Representations of Doping, Petróczi, 2013), conceptualises doping as an unwanted and prohibited, non-deterministic but nevertheless logical incremental step of performance-goal oriented, prolonged involvement in assisted performance enhancing practices. This functional approach to doping leads to a unique scheme of 'doping mindset' which is reflective of the internalised normative expectations for both goals (performance enhancement) and behaviour

(doping or abstinence), the degree of cognitive dissonance between attitude toward performance-goals and the behaviour to achieve these goals; and the behaviour itself.

The Functional Theory and its manifestation in the athletes' doping mindset have implications on doping-related social cognition research. Humans are creatures of preferences which is conceptualised in explicitly expressed forms as attitudes. Attitude definitions inherently include an evaluative component of the conscious mind, weighting negative and positive aspects to form preferences. However, consciously recalled and explicitly reported mental experiences (e.g., preferences, reasons or motivations) are not equivalent to the host of mental processes that happen mostly outside conscious awareness and underlie behavioural choices.¹ In

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¹ The key difference between mental experiences and mental processes is that *mental experiences* reflect only the segment of the mental operations that people are conscious of. These can be captured via explicit assessments such as surveys in quantitative investigations or gleaned from self-reflections in interviews if using qualitative methodology. Because mental experiences reflect awareness, they do

fact, Nosek, Hawkins and Frazier state, reflecting on progress made in understanding implicit social cognition² to date, that: “one’s beliefs about why a behavior was performed need not have any relation to its actual cause” (2011, p. 152).

Explicitly expressed doping attitudes and other doping related psychosocial constructs have been extensively investigated. The present paper focuses solely on issues around capturing mental processes outside conscious awareness with the purpose of dissecting the existing implicit measures of ‘doping attitude’ from the conceptual and methodological point of view. Following the prevailing literature precedence, these mental processes are referred to as ‘implicit attitudes’, with a noted caveat that these are not necessarily the implicit equivalents of the explicitly expressed attitudes and should not be interpreted as such.

Doping is a highly sensitive issue that carries not only career-limiting sanctions but also attracts social disapproval. The widely acknowledged self-presentation distortions, such as impression management (deliberate faking) to self-enhancement (claiming virtue), self-deception (favourably biased but honestly held self-views) and denial, are known to escalate with the increasing sensitivity of the construct being investigated; and call for caution in interpreting outcomes from self-report questionnaires. In theory, stimulus driven, uncontrolled, unintentional, goal independent or unconscious processes could offer a feasible way to capture important thoughts about doping without contamination of self-report response biases. This does not automatically imply that these implicit assessments are lie detectors that are able to reveal concealed information (e.g., Gregg, 2007; Sartori, Agosta, Zogmaister & Castiello, 2008). Rather, they capture implicit associations that cannot be introspectively accessed and verbally reported.

Although research in implicit cognition has proliferated in social and experimental psychology, such work in doping research is limited to a handful of studies. The reasons behind such paucity can be multifold, ranging from unawareness through scepticism to lack of interest, skills or background. The relative absence of implicit assessments in doping could also be the results of publication bias – if disappointing, negative, hard to interpret or perplexing results were considered unworthy for public dissemination.

Despite the significant literature and number of models proposing integrated approaches to the combined effect of explicit and implicit attitudes (Dimofte, 2010; Gawronski, 2009; Perugini, Richetin, & Zogmeister, 2010; Petróczy et al., 2011), prevention and intervention efforts are criticised for the assumption typically assume that behaviour is a deliberate choice between competing alternatives, and thus is under conscious control (Nosek & Riskind, 2012). Doping is no exception to this self-limiting tendency, which makes incorporating implicit attitudes into anti-doping timely. To realise this goal, first there is a need for a better understanding of how implicit doping attitudes are conceptualised and best captured. Subsequently, this should assist anti-doping researchers in exploring how these implicit doping attitudes can be controlled, modified or changed.

Building upon prominent attitude models and underlying assumptions of implicit assessment paradigms, this narrative review examines the literature on implicit association measures

in doping research. Specifically, the aim of this review is to ‘make sense’ of the outcomes of the existing measurements of implicit ‘doping attitude’ and to provide a conceptual framework to inform future endeavours. The cornerstones of this conceptual framework are the ‘doping mindset’ and a meta-cognitive approach in which doping attitudes are not seen as evaluative constructs about doping in its abstract form but as evaluation of the self-relevant thoughts about doping behaviour, which are contextually activated. A doping mindset is defined as a collection of mental representations³ in which doping-related attitudes are stored (Petróczy, 2013).

The paper is comprised of three main sections. The first section provides a theoretical framework that encapsulates various concepts of implicit attitudes within attitude formation theories, their application to ‘doping attitude’ and the conditions for establishing predictive or discriminative power. The second main section contains the methods, results and discussion of the narrative review of the implicit doping attitude measures, with a specific focus on the potential reasons behind the poor discriminatory power observed in empirical studies published to date. The final section offers recommendations for future anti-doping research and efforts.

1. Theoretical framework

The doping literature has been criticised for the lack of standardised tools for measuring doping attitudes (Morente-Sánchez & Zabala, 2013). Whilst this criticism is valid, unfortunately most empirical studies that embarked on assessments of doping attitudes did so without defining attitudes. Most studies took a uniform and shared understanding of the attitude concept granted. In the few exceptions to this omission, doping attitude was defined as “an individual’s predisposition toward the use of banned performance enhancing substances and methods” (Petroczi, 2007, p 7) and as “an evaluative judgement (Fazio, 1995) of doping practice, where this evaluation is based on personal experience with the attitude object (doping situation) but filtered through individual values and dispositions” (Petróczy & Aidman, 2009, p. 392). With the emergence of implicit assessments in doping research, the lack of conceptual clarity about the underlying assumption of the formation, storage and retrieval of doping attitude has become particularly limiting as some form of explicitly expressed attitude toward doping was often used as a criterion variable when implicit doping attitude was conceptualised and interpreted.

1.1. Conceptual differences in attitude models

Stemming from the fundamental assumptions about attitudes, definitions of an attitude are reflecting associative vs. propositional⁴ origins and are ranging between stable-entity

not provide a comprehensive view of the full range of mental processes (all *mental operations*) or complete *representational structures*.

² The term *implicit social cognition* was introduced as an umbrella term for cognitive processes relating to social psychological constructs (e.g., attitudes, stereotypes, motivations, Self-related concepts) that happens outside conscious awareness (Greenwald & Banaji, 1995a, 1995b). As such, the term can equally refer to the nature of the cognitive process and the outcome of this process. Since the inception of the term, further investigations have suggested that implicitly measured social cognitive constructs are not entirely unconscious (e.g., De Houwer & Moors, 2007; Fazio & Olson, 2003; Gawronski & Strack, 2004).

³ Broadly, *mental representation* refers to a collection (or operation) of perceptions, thoughts and feelings, stored in memories with attached evaluations for truth, affective valence, relevance and consistency. Mental representations are construct specific (e.g., mental representations of doping); unique to and characteristic of a person. With regards to implicit vs. explicit characteristics, some theories posit that these are features of the representation itself; whereas others approach the question from the functional point of view and distinguish between explicit and implicit nature based on how the mental representation is used (Payne & Cameron, 2013). The definition of mental representation in this paper aligns with the latter approach and refers to mental representations as a collection of perceptions, memories, knowledge that are contextually and situationally retrieved.

⁴ *Propositional* thinking refers to higher order mental processes in the evaluative, reflective system. Because of this characteristic, constructs captured via explicit assessments (e.g., inventories, interviews) are exclusively *propositional representations* of the target construct, resulting from propositional processes that generate declarative knowledge (e.g., doping is cheating). In contrast, *associative representations* are thought to be uncontrolled and automatic. Generally, propositional representations influence explicit responses only when they are regarded as true by the person, but associative representations are not linked to agreement; and

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