

Review article

Giving yourself a good beating: appraisal, attribution, rumination, and counterfactual thinking

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Abstract

How individuals respond to adversity is one component of mental toughness and athletes may manage the adversity of a defeat in very different ways. In this article we focus on four types of cognition (appraisal, attribution, counterfactual thinking, and rumination) that athletes may exhibit in the immediate aftermath of a competitive defeat. In particular we define each of these terms and present a “caricature” of each of the respective literatures, focussing on the prevailing trends and substantive findings. These caricatures assist in the identification of several areas in which literature on athletes’ retrospective cognition about defeat may be advanced. We use combat sports as a vehicle to illustrate our propositions.

Key words: Retrospective cognition, adversity, mental toughness, coping.

Introduction

“I never thought of losing, but now that it's happened, the only thing is to do it right. That's my obligation to all the people who believe in me. We all have to take defeats in life.” (Muhammad Ali, 1973; emphasis added).

Combat sport is unique insofar as it is characterised by two combatants in a fixed environment (Lane, 2006). Although there is risk of injury (a *physical* beating) associated with participating in combat sports (Bledsoe et al., 2006) this review is directed toward the *psychological* “beating” that participants may direct towards themselves in the aftermath of a bout. We use the term “psychological beating” colloquially to signify the maladaptive thoughts that may occupy athletes’ reflections in the aftermath of competition, typically although not exclusively associated with losing. As the above quote by Ali hints at, individual athletes may manage the adversity associated with a defeat in a more or less constructive manner. Indeed, how athletes respond to both adversity and success is one component of a framework of mental toughness proposed by Connaughton and Hanton (2009). Although mental toughness is often considered an important psychological characteristic contributing to performance excellence, there is little understanding of how mental toughness is acquired and developed (Connaughton et al., 2008a; 2008b; Jones et al., 2002). Similarly, there is surprisingly little research directed toward the way in which athletes generally, and combat sport participants particularly, “manage” defeat. Although sport behaviour occurs in the context of time there is something of an asymmetry associated with the

examination of participants’ psychological state – research being directed primarily toward athletes’ pre-event (prospective) cognitions and feelings as opposed to their post-event (retrospective) thoughts and affect (e.g., Cerin et al., 2000). Phrased more precisely it is not so much about when the examination of athletes’ thoughts occur, more about the temporal perspective. For example, in the week leading up to a fight, a judoka may have thoughts about the forthcoming competition alongside thoughts directed toward a past defeat. Retrospective cognitions include both prolonged, recurrent and repetitive reflections about one’s self, one’s concerns, and one’s experiences (Harvey et al., 2004; Watkins, 2008), as well as reflections of a more immediate and intuitive nature (e.g., Vallerand, 1983). Such retrospective cognitions form an important aspect of athletes’ “mental time travel” (Tulving, 2002); they are common to the experience of many sport participants (e.g., Thelwell et al., 2007) including those engaged in combat sports (Devonport, 2006).

Intuitively there is some ambivalence about how to respond to losses in sport. On the back of a resounding defeat, reflecting on what’s happened may appear somewhat fruitless insofar as it changes nothing about the outcome. Such a stance is reflected to some degree in the concept of mindfulness (Bishop et al., 2004), an approach that, at least in part (Gardner and Moore, 2007), advocates a somewhat detached, objective and non-evaluative reference in relation to competitive outcomes. This stands in contrast to the assumption that there can sometimes be a good deal to be gained about reflecting on past defeats, as intimated by Devonport (2006). However, close inspection of the theoretical and empirical foundation for this assertion reveals a paucity of literature. Accordingly, the primary aim of this paper is intended to provide a stimulus for future theorising and research to be directed towards the retrospective cognitions that athletes may exhibit about competitive events. To accomplish this objective we firstly define each of four types of retrospective cognition namely: (re)appraisal (Vallerand, 1987), attribution (Allen et al., 2009), rumination (Maxwell, 2004) and counterfactual thinking (Dray and Uphill, 2009). In the second section we provide a “caricature” of this literature, highlighting the principle features of the content and consequences of each type of cognition. In the final section we summarise the observations and conclude with some directions to move the field forward.

Characteristics of appraisal, attributions, rumination and counterfactual thinking

This section provides a succinct overview of the central characteristics of each of the four types of cognition. Appraisals are in essence evaluations about the significance of events for individuals' well-being (e.g., Lazarus, 1991). As elaborated upon below, appraisals comprise assessments broadly about what is at stake for an individual in an encounter and his/her ability to cope with the demands of a situation (cf. Lazarus, 1991; 1999). While appraisals are concerned with *evaluating* the significance of what's happened, attributions relate to individuals' attempts to *explain* the occurrence of events (Anderson et al., 1996; Rees et al., 2005). Two boxers in the semi-final of the Olympics who both experience a technical knockout might appraise the loss very differently (e.g., "I've done well to get this far" versus "I've really let my family and teammates down"), yet attribute their loss in a similar way (e.g., "I wasn't good enough on the day"). Both appraisals and attributions are prototypically directed to what has happened in the past. In contrast, counterfactual thinking describes the process of imagining how things could, would and perhaps should have *turned out differently* in the past (Roese and Olson, 1995). Arguably counterfactual thinking shares some overlap with appraisal insofar as repeated iterations of appraisal (i.e., reappraisal) may alter the significance of an event for an individual (e.g., Jones, 2003), just as imagining how things may have turned out better or worse (e.g., Medvec et al., 1995, and see below) influences athletes' reactions to success and defeat (Dray and Uphill, 2009). Indeed counterfactual thinking could conceivably be viewed as a type of reappraisal. However, reappraisal need not involve counterfactual thinking. Altering the emotional significance of an event may include a variety of cognitions (e.g., perspective taking) that might not involve a consideration of how things could have turned out differently. A wrestler may alter the significance of a defeat by considering it was his first fight at this weight division (and by implication there is hope for improvement, rather than disappointment at defeat), as opposed to how things may have turned out differently.

Rumination involves repetitive, intrusive and negative cognitions (Papageorgiou and Wells, 2004). Although rumination has typically been examined in relation to depression (e.g., Nolen-Hoeksema, 1991), models have posited theoretical relations between ruminative thinking and sadness (Conway et al., 2000), stress-reactivity (Alloy et al., 2000), and post-event processing (post-mortem thinking) in relation to social interactions (Clark and Wells, 1995) and anger (e.g., Maxwell, 2004). This broadening of the literature, suggests that in comparison to the content of thoughts defining rumination, it is the process of thinking preserveratively (see also Brosschot et al., 2006), about one's feelings and problems that characterise rumination. Spellman and Mandel (1999) highlighted that rumination may be associated with counterfactual thinking, although counterfactual thinking need not involve repetition, a fundamental aspect of rumination (Sukhodolosky et al., 2001).

Even this cursory glance at the literature illustrates commonality between the operational definitions of appraisal, attribution, rumination and counterfactual thinking. These constructs have emerged as part of distinct

research traditions with different precursors and foci. We believe it is desirable to consider these constructs collectively for at least two reasons. Firstly, the appropriateness of distinguishing between constructs versus aggregating constructs with seemingly similar features can be traced to the earliest stages of scientific psychology (cf., Judge et al., 2002). In presenting a position that counteracts the prevailing trend of considering these constructs in relative isolation, we hope to prompt theoretical debate and research as a strategy to strengthen enquiry in athletes' post-competition cognitions generally.

Secondly, there is some overlap in the antecedents of the respective constructs. Although attributions, counterfactual thinking, appraisals and rumination can all occur in response to positive outcomes (e.g., Dray and Uphill, 2009; Ellsworth and Smith, 1988; Smith and Alloy, 2009; Weiner, 1985), it is typically the case that the propensity for these types of thought are prompted in relation to negative affect (cf. Taylor, 1991). In practice then, if not yet in theory, there remains a strong likelihood that these thoughts are intimately related and involved in reciprocal relations, as alluded to above. For practitioners to assist athletes in constructively reflecting on performance it is desirable to understand more about the types of post-event retrospective cognitions exhibited, and their consequences. It is to this end that attention is now turned.

A caricature of the literature

Given the constraints of this paper and the availability of comprehensive reviews of the literature elsewhere (e.g., Biddle et al., 2001; Mandel et al., 2005; Rees et al., 2005; Smith and Alloy, 2009; Vallerand and Blanchard, 2000) we paint something of a caricature of the extant literature. Drawing upon the description of caricatures by Sparkes (1992), it is inevitable that subtleties and areas of debate will be obscured in presenting what is admittedly an oversimplification of the nuances that exist. Moreover the intention is not to cartoon the research or ideas of others. Rather, in recognising and highlighting those areas that characterise the prevailing trends of research in each of these four areas, we utilise this caricature to highlight the central and recognisable features to provide a foundation for the thesis that follows.

Appraisal

The content and outcomes of appraisals are described by a number of appraisal theories which although differing slightly in their detail, typically describe the role of appraisal (or evaluations) in eliciting emotions. The basic premise of appraisal theories generally is that emotions appear to be related to how people evaluate events in their lives. More specifically appraisal theories posit that (a) the meaning of a situation or event influences that individual's emotional reaction and (b) the meaning that an individual ascribes to a situation or event can be regarded as a composite of individual appraisal components (Bennett et al., 2003). Where the theories differ is in the specification of the appraisal components or dimensions.

Roseman and colleagues (e.g., 1984, 1990) suggested that (a) motivational state (extent to which individuals were motivated to avoid punishment versus motivated toward reward), (b) situational state (motive-

consistent, versus motive- inconsistent), (c) probability (occurrence of an outcome is certain or uncertain), (d) power (extent to which the individual is appraised as strong or weak), (e) agency (whether the event is caused by something impersonal, another person, or the self) and (f) legitimacy (whether the outcome is deserved) were implicated in the elicitation of particular discrete emotions (e.g., anger, joy, relief, hope, regret). Sharing some overlap, Smith and Ellsworth (1985) proposed eight appraisal dimensions considered important in differentiating between discrete emotions: pleasantness, anticipated effort, attentional activity, certainty, responsibility, control, legitimacy and perceived obstacle. In a later study Ellsworth and Smith (1988) observed appraisals of human agency or situational control were associated with levels of anger, sadness and guilt; however certainty and attention did not predict differences between emotions.

In sport, Lazarus' cognitive motivational relational (CMR) theory (2000) has been the model of choice for researchers investigating relations between appraisal and emotion (e.g., Skinner and Brewer, 2004; Uphill and Jones, 2007). Briefly stated, Lazarus posited two classes of appraisal: primary and secondary. Primary appraisals relate to whether an event is relevant to the athlete and consists of three judgements: goal relevance, goal congruence and type of ego involvement. Goal relevance concerns an assessment of whether the individual has something important at stake in an encounter. A judoka who experiences a defeat against an opponent in training may not become upset or angry if the defeat is not perceived to matter (e.g., "it's just training"). Goal congruence describes the extent to which an event or situation impedes or facilitates the attainment of a goal. For example, a martial artist who receives a "bye" in the first round because of participant illness could evaluate that occurrence in a negative manner ("I won't be suitably warmed up") versus a more positive manner ("I'll be fresh for my next bout"). Finally, type of ego-involvement addresses the type of goal that is invested in a particular encounter. A boxer may want to win the fight, accomplish the win in style via a knockout in an early round, and avoid getting hurt. Depending on the extent to which these goals are perceived to have been attained, will influence the boxer's post-match response.

Secondary appraisals are broadly concerned with an athlete's perceived coping options and comprise evaluations about blame/credit, ability to cope, and future expectations. Briefly stated, a boxer who receives a cut around the eye and considers himself to blame, is having difficulty against a "rangy" opponent, and suspects things are likely to get worse, rather than better, would be hypothesised to feel differently in comparison to the boxer who appraises the cut eye as a creditable punch by his opponent, has the defensive technique to avoid further injury, and believes that he is ahead on points. While still in its infancy, research has provided some support for the applicability of components of Lazarus' CMR theory to sport broadly (Skinner and Brewer, 2004; Uphill and Jones, 2007).

Appraisal approaches have been subject to a number of criticisms. Critics have questioned the likelihood that (a) elaborate evaluations about the significance of an

event are formed in the few milliseconds it can take for an emotion to arise (Scherer, 1999), and (b) whether cognition is a necessary precursor to the elicitation of emotion (Zajonc, 1984). However, if one subscribes to the view that emotions are not a product of either the person or situation, but as a combination of the two, then cognition plays a significant role in the aetiology of emotion (cf., Bennett and Lowe, 2008). Moreover, the debate about the involvement of cognition in the generation of emotion has become more semantic than substantive, with the answer to the question of whether appraisals are involved in emotion, dependent upon how appraisals and emotion are defined (e.g., Lazarus, 1999; Scherer, 1999).

In summary, not only do appraisal theories represent parsimonious accounts of inter- and intra-individual differences in emotion experience, specific appraisal components associated with Lazarus' CMR theory have been implicated in athletes' emotions (Skinner and Brewer, 2004; Uphill and Jones, 2007). Although appraisals are typically utilised to explain individuals' emotions, understanding how assessments of goal incongruence, or appraisals of whether things are likely to get better/worse for example, relate to individuals' self-efficacy and motivation would represent a useful extension.

Attributions

One assumption of the majority of attribution research is that the explanations individuals give for events are underpinned by a dimensional structure (e.g., Abramson et al., 1978; Weiner, 1985). Moreover, by categorising those explanations into dimensions, one can better understand those explanations (Rees et al., 2005). Five principle dimensions have been proposed (see Biddle et al., 2001; Rees et al., 2005). Dimensions include controllability (those causes that are affected by the individual or not affected by the individual), locus of causality (causes perceived as residing within or without the individual), stability (causes perceived as being stable or transient over time), intentionality (causes deemed to be either deliberate or accidental), universality (extent to which the cause is perceived to be common among others, or specific to the individual) and globality (causes deemed to be perceived as localised or occurring across many situations). As Biddle et al. (2001) observe, these dimensions have been accepted largely uncritically by researchers, and have not been studied extensively. For example, although the dimensions of locus of causality and controllability can be separated, (genetics may be considered internal but not controllable), there is often some overlap between where a cause lies and by whom it is controlled (Ingledeu et al., 1996; Rees et al., 2005).

When assessing individuals' attributions then, one can examine the attributional elements (the specific reasons individuals give) or attributional dimensions that the responses may represent (see Biddle et al., 2001 for a review; Biddle and Hanrahan, 1998). There are difficulties associated with either of these stances. With regard to the former, it is sometimes difficult to be sure what an athlete means by certain words or phrases. A Taekwondo participant may explain a defeat because "an opponent played better". It is unclear whether this example represents an unstable or stable attribution. In the latter case

problems can arise when researchers attempt to categorise attributions along dimensions or otherwise assume the dimensional categories of attributions (Russell, 1982). For example, Weiner (1986) indicated that effort could be conceived as stable or unstable, and luck as either internal or external to the person. Accordingly, it is generally recommended that *participants* rate their attributions along causal dimensions to avoid these interpretational ambiguities.

Importantly how one explains the (perceived) causes of events along these various dimensions has implications for emotional reactions (Weiner, 1986), expectancies (e.g., self-efficacy, Bandura, 1977), and motivation (Biddle et al., 2001). With regard to emotional reactions, Weiner et al. (1978) differentiated between outcome-dependent emotion (e.g., generally being pleased or happy with the outcome) and attribution-dependent emotion, which related to the perceived cause or reasons for the outcome. A similar dichotomy was proposed by Vallerand (1987). In a summary of the literature on attribution-dependent emotions, Biddle et al. (2001) suggest (a) self-esteem emotions (e.g., pride) are associated with an internal causality dimension, (b) emotions related to expectancy (e.g., hope) are associated with the stability of attributions, (c) social emotions (e.g., guilt) are related to the controllability of the outcome.

With regard to expectancies, Weiner (1986) suggested that the stability of the attribution is central in determining changes in expectancy, a statement, or in his terms “law” that has three corollaries: (a) if the outcome of an event is ascribed to a stable cause then that outcome will be anticipated with increased expectancy in the future, (b) if the outcome is ascribed to an unstable cause then the expectancy of that outcome may be unchanged or be different from the past, and (c) outcomes ascribed to stable causes will be anticipated to be repeated with a greater degree of certainty than outcomes ascribed to unstable causes.

However, Grove and Pargman (1986) observed that effort (a relatively unstable attribution) led to the highest expectancy in both success and failure conditions. A “weak” interpretation of this finding is that stability is not the only attribution dimension implicated in changes in expectancy. A “stronger” interpretation is that controllability rather than stability is important in influencing expectations.

Rees et al. (2005) highlight that the unpredictability of competitive sport, coupled with changing interactions with opponents and the environment, affords a focus on controllability rather than stability. Specifically Rees et al. advocate examining the interactive effects of attribution dimensions. For instance, a recent study by Coffee and Rees (2008) found that for individuals who perceived performance as less successful, had higher self-efficacy when they viewed the causes of performance as controllable and when the causes were perceived to be global. Higher levels of controllability were associated with higher levels of self-efficacy.

Although it may sometimes be considered a subtle distinction, attributions to controllable factors, in contrast to factors that have an internal locus of control have been recommended (Rees et al., 2005).

In summary, literature on attributions suggests that how one explains the causes of events can influence our emotion reactions, expectations of future success and motivation. Whereas literature on appraisal has critically considered the extent to which appraisals are unconscious/automatic versus deliberate/conscious, literature on attribution has been relatively more concerned with assessment of the construct, generating a number of instruments (cf. Allen et al., 2009), and recognised the importance of athletes’ perspective on assessing these constructs.

Counterfactual thinking

Counterfactuals in the broadest sense are thoughts or statements that include at least some premises believed to be contrary to fact (Mandel et al., 2005). Indeed, logicians (e.g., Goodman, 1947; Lewis, 1973) have been particularly interested in how knowledge could be derived from false conditional premises (Mandel et al., 2005). Psychologists by contrast, have typically focused on how things could, would and perhaps should have turned out differently *in the past* (Roese and Olson, 1995).

In attempts to understand characteristics of individuals’ counterfactual thinking researchers have typically examined the “direction” (e.g., Roese, 1994), “structure”, (Markman et al., 2007) and “content” (Mandel, 2003) of counterfactual thoughts. Direction of counterfactual thinking refers to the tendency to imagine how things could have turned out better (upward counterfactual thinking) compared to imagining how things could have turned out worse (downward counterfactual thinking). A judoka could conceivably simulate how a loss may have been averted “if only she had not been injured in the week leading up to the fight” (i.e., an upward counterfactual). Although historically upward and downward counterfactual thinking was associated with an emotional contrast effect (e.g., Roese, 1994), that is imagining how things could have been better is associated with feeling worse (and vice versa), more recent literature has suggested that upward and downward counterfactuals can elicit a contrast and *assimilation* effect (McMullen and Markman, 2002). An assimilation effect occurs when judgements are pulled toward the counterfactual comparison (McMullen and Markman, 2002). For instance, a boxer who is awarded victory by a split decision may suggest a downward counterfactual (“that was too close for comfort”) and exhibit negative affect. Extending this example, the defeated opponent may suggest an upward counterfactual (“you almost did it”) and experience positive affect. One explanation for why assimilation and contrast effects occur is the mode of thinking individuals engage in with reflection considered to elicit an assimilation effect and evaluation (or comparison) evoking a contrast effect (Markman and McMullen, 2003).

The structure of counterfactual thought refers to the addition of something that did not happen in the past versus removing something that did. For example, an additive counterfactual could involve a wrestler imagining how the addition of a change in stance might have contributed to a critical throw; in contrast a boxer might rue (and remove) a punch which left him vulnerable to a counter-attack. Counterfactual content refers to the “tar-

get’ – whether in imagining how things could have turned out differently, the individual changes something about themselves, others or the environment (e.g., Dray and Uphill, 2009).

Similar to literature on appraisals and attributions, it is differences in direction, structure and content of counterfactuals that influences affect (e.g., Markman et al., 2007) emotions (Niedenthal et al., 1994), self-efficacy (Tal-Or et al., 2004), and persistence (e.g., Markman et al., 2008). One limitation of the majority of the literature on counterfactual thinking has been the use of vignette studies in which participants rate how things might have been different in response to hypothetical scenarios (cf. Rye et al., 2008). Indeed as has been contended in relation to attributions (Faulkner and Finlay, 2005), there is some doubt about whether counterfactuals generated in the laboratory approximate those that are exhibited in a more ecologically valid context.

Rumination

On the one hand, Martin and Tesser (1996) have proposed that ruminative thoughts are instigated by a discrepancy between one’s current position and desired goal, and by reducing perceived discrepancies within individuals’ lives, rumination is adaptive. On the other hand Nolen-Hoeksma (1996) has conceptualised rumination as maladaptive insofar as it involves thoughts directed towards ones negative affective states, rather than toward resolving problems or reducing goal discrepancy (see also Wade et al., 2008).

Rumination has been considered as either a response style (Nolen-Hoeksma, 1996) or as a state (Wade et al., 2008). Thus, while some individuals may exhibit a propensity to ruminate, rumination may also differ across situations in response to varying antecedents. A number of questionnaires operationalising the measurement of rumination are evident in the literature (Smith and Alloy, 2009). In a review of ruminative thinking, Smith and Alloy (2009) indicate that factor analyses of rumination measures suggest evidence for a dichotomisation of repetitive thinking about the self: broadly speaking harmful or helpful or brooding- and reflective-type rumination (e.g., Treynor et al., 2003).

Predictions about what individuals think about when they ruminate differs between theories (cf. Smith and Alloy, 2009). Some authors suggest that rumination is directed toward the negative feeling states and/or the circumstances associated with that emotion (Nolen-Hoeksma, 1996; Trapnell and Campbell, 1999). Other authors contend that rumination focuses on discrepancies between one’s current and desired status (e.g., Martin and Tesser, 1996). Finally, other models contend that it is negative themes of uncontrollability and harm in meta-cognitions that are important (Smith and Alloy, 2009). Smith and Alloy recognise however that few studies have been directed toward the analysis of the content of ruminative thought. Indeed, although a high number of causal words in written accounts of rumination has been reported (indicative of a search for the antecedents of current distress, Watkins, 2004), one cannot be sure that written accounts, mirror cognitive content (Smith and Alloy, 2009).

In sport there is a paucity of research examining rumination and because little is known about whether it is a type of thinking that athletes engage in, the function of such a cognitive strategy is somewhat speculative. There is literature to suggest that rumination is related to emotional avoidance strategies (e.g., alcohol misuse). Further, individuals who engage in post-event processing tend to avoid social situations that are similar to the one that initiated rumination (Mellings and Alden, 2000; Rachman et al., 2000). Extrapolating from these observations, Smith and Alloy (2009) contend that rumination may impede more adaptive experiencing of negative affect.

In summary, literature on rumination highlights the frequency and repetitiveness of thoughts as being implicated in both adaptive (e.g., problem-solving) and maladaptive (e.g., depression) outcomes. From this perspective it is not just the content of individuals’ thoughts that are important in facilitating an understanding of the constructive reflection on defeat but the manner in which these thoughts occur (frequency, persistence etc).

Conclusions

As alluded to earlier, the four types of cognition reviewed above have distinct precursors and foci and tell us something a little different about the how the thoughts that athletes may exhibit in response to a defeat influence emotions, expectancies and behaviour for example. On the one hand much may be gained by examining the minutiae of each construct separately, developing understanding of the processes and mechanisms associated with each (cf., Hagger, 2009). On the other, developments in understanding how athletes’ thoughts influence their response to adversity, might be achieved by consideration of these constructs collectively. The promise of such integration lies not only in the reduction of complexity and elimination of redundancy, but in providing a more complete understanding of behaviour in response to adversity and the underlying processes (cf., Hagger, 2009). Clearly, delineation of such a theory is outside the scope and remit of this review. Yet the integration of salient components of theories in an effort to develop a more complete or holistic theory has been advocated in relation to health behaviour change (Nigg et al., 2002; Nigg and Jordan, 2005); a sentiment that we would contend is applicable to the understanding of the functionality of athletes’ post-event cognitions.

To illustrate, a judoka may experience the thought that she “should have won”, “didn’t perform very well” or “must have had an off day”; sentiments that may be accompanied by feelings of disappointment and regret. With regard to “I should have won”, literature on attributions, at least in part, suggests a need to examine the dimensions underlying the reasons given for the loss. Acknowledging the suggestion to understand attributions from the athlete’s perspective it *may* be that the athlete is endorsing an explanation for the loss that is internal, and to some extent controllable. Literature on appraisal suggests that the disappointment stems not from how one explains the event but how one evaluates the outcome in relations to one’s goals. From this perspective, appraisals of controllability may need to be considered alongside appraisals of

blame/credit, future expectancy in shaping this athlete's emotional response. Alternatively, "I should have won" also embraces a counterfactual statement (Sanna et al., 2003) insofar as it implicates an outcome (winning) that is contrary to "fact" (losing). The processes theoretically responsible for the disappointment are somewhat different from appraisal and attribution (e.g., an evaluative as opposed to reflective stance to elicit a contrast effect). Moreover literature on rumination, would lend itself to the assertion that it's important to examine the frequency and persistence of such thoughts in shaping the affective and behavioural outcomes. Collectively, there appear to be a number of facets (manner or style of thinking), the content of what is thought, and "regularity and persistence" of thoughts that influence the outcomes attained.

A focus on both the verbal/written manifestation and the cognitive content of such thoughts, may help to elucidate not just what the retrospective cognitions of athletes are, but also what they accomplish. To this end, theorising and research is likely to embrace alternative paradigms such as discourse analysis (cf. Faulkner and Finlay, 2005) and cognitive linguistics (Evans and Green, 2006). Examining athletes' thoughts as they occur more naturally, or as they are verbally expressed, is likely to expose some difficulties and challenges, as illustrated in the above example. In overcoming such challenges, the promise is that by reducing redundancy, theory and research highlights the essential psychological processes and variables that do "most of the work" in explaining behaviour and accordingly will translate more readily into practical recommendations that have real effects on real people in the real world (cf. Michie et al., 2007; Hagger, 2009).

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Key points

- Please provide 3-5 bullet points of the paper.
- Little is known about how athletes psychologically manage adversity, a key component of mental toughness.
- There is a great deal of conceptual overlap between four types of retrospective cognition (appraisal, attribution, rumination and counterfactual thinking) athletes may exhibit after defeat.
- Rather than continue to examine these retrospective cognitions in isolation, there appears to be value in consideration of these constructs collectively to enhance theoretical parsimony.

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