



Metacognition and motivation: Links between confidence, self-protection and self-enhancement



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ABSTRACT

Following the Metacognitive Affective Model of SRL (MASRL; Efklides, 2011), this study sought to investigate the contribution of self-protection and self-enhancement motivations to individual differences in confidence, an on-task metacognitive experience, along with links to anxiety. Participants ($N = 197$) completed self-report measures of motivation, metacognitive beliefs and anxiety, along with three cognitive tests incorporating confidence judgments. Exploratory Factor Analyses suggested two distinct motivational tendencies: Self-protection and Self-enhancement. Metacognitive Beliefs, performance Accuracy and Confidence latent factors were also established. Path analysis suggested that Self-protection and Self-enhancement tendencies had respective negative and positive predictions to Metacognitive Beliefs, which in turn positively predicted Confidence. Furthermore, Self-protection positively predicted anxiety levels. This study is the first to establish the link between self-protection and self-enhancement motivations and on-task metacognitive confidence, along with highlighting links to anxiety. In doing so, the findings provide support for the MASRL model.

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1. Introduction

Self-regulated learning (SRL) has traditionally been defined in terms of agentic processes by which a learner regulates their behaviour in accordance with their personal goals, and essentially involves self-evaluation and metacognition (Boekaerts, 1999). However, increasing attention has been directed to the multiple interactive components that are involved in SRL, with particular emphasis on metacognition and affect such as in Efklides (2011) Metacognitive Affective Model of SRL (MASRL). The MASRL brings together both top-down person-driven influences and bottom-up task specific metacognitive and affective experiences that interactively contribute to SRL. Within this framework, the primary aim of the present study was to examine the contribution of person-oriented characteristics of motivation and metacognitive knowledge to on-task metacognitive experiences of *confidence*, which are subjective judgments of performance certainty whilst completing a task. In particular, we focus on links between individual differences in the motivational tendencies of self-protection and self-enhancement, metacognitive beliefs about ones' own abilities, and on-task confidence judgments. An additional goal was to consider the broader links that the motivational and metacognitive variables might have with general anxiety as an index of psychological well-being.

1.1. The MASRL model

The MASRL model proposed by Efklides (2011) describes the interaction between the metacognitive, motivational and affective components of SRL in terms of two levels of functioning. The first, called "*Person*," is a generalised macro-level that encompasses interactions between trait-like characteristics such as cognitive ability, motivation, metacognitive knowledge and skills, trait affect, and volition. These variables constitute top-down influences on self-regulation. The second, called *Task × Person*, refers to the micro level where task-specific processes serve as bottom-up influences on SRL. These processes may include subjective metacognitive, affective, cognitive and physiological experiences. The following sections will describe the metacognitive experience of confidence situated at the *Task × Person* level, as well as the *Person* level influences of motivation, metacognitive knowledge and trait anxiety, which form the foci of the present study.

1.2. Confidence

Confidence refers to a subjective metacognitive experience that arises from making judgments of certainty regarding one's performance. It is an important construct to study as it is closely tied with self-regulatory processes during learning and decision making (e.g., Allwood & Granhag, 1999; Efklides, 2006; Flavell, 1979; Gluga, Kay, Lister, Simon, & Kleitman, 2013; Jackson & Kleitman, 2014). The key aspect of confidence judgments is that they are made *in vivo* during a cognitive task, thus prompting immediate reflection on current

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performance. Within a task, these judgments usually exhibit high internal consistency (see Stankov, Kleitman, & Jackson, 2014, for a review). Across different cognitive tasks, confidence judgments are positively intercorrelated and when factor analytic techniques are employed, they define a robust and broad Confidence factor that is distinct from cognitive ability factors (e.g., Kleitman, 2008; Kleitman & Costa, 2014; Kleitman, Stankov, Allwood, Young, & Mak, 2013; Morony, Kleitman, Lee, & Stankov, 2013; Schraw, Dunkle, Bendixen, & Roedel, 1995; Stankov & Crawford, 1997; Stankov & Lee, 2008).

1.3. Metacognitive beliefs and confidence

One known group of predictors to on-task confidence is metacognitive beliefs, which are beliefs that one has about their own skills and abilities that are relevant to task performance (Schraw & Dennison, 1994). Relevant to the present study are a related set of metacognitive beliefs: academic self-efficacy, academic self-concept and perceived memory and reasoning competence. *Academic self-efficacy* refers to a person's belief in their capacity to bring about specific achievement outcomes (Schunk & Pajares, 2005). In contrast, *academic self-concept* refers to more general self-appraisals regarding one's academic skills and abilities across time and settings (Marsh & Craven, 1997). Finally, *perceived memory* and *reasoning competence* are constructs rooted in self-concept and refer to an individual's generalised evaluation of their memory and reasoning skills respectively (Kleitman & Stankov, 2007).

Beliefs about one's cognitive ability arguably serve as “top-down” cues to performance self-evaluation where “bottom-up” cues from task performance itself are insufficient (Critcher & Dunning, 2009). This distinction is in line with Efklides' (2011) MASRL model that situates the metacognitive experience of confidence at the Task × Person level, while metacognitive beliefs provide top-down influence as a relatively stable and generalised Person factor. Research has evidenced that confidence judgments are positively and directly predicted by academic and problem solving self-concept (Efklides & Tsiora, 2002; Kröner & Biermann, 2007), self-efficacy (Stankov, Lee, Luo, & Hogan, 2012), perceived memory and reasoning competence (Kleitman & Stankov, 2007), and by a broad Metacognitive Beliefs factor defined by these constructs (Kleitman & Gibson, 2011; Kleitman et al., 2013; Morony et al., 2013). In the present study, it was hypothesised that a Metacognitive Beliefs factor indexed by all four constructs—academic self-efficacy, academic self-concept, and perceived memory and reasoning competence—would positively and directly predict confidence.

1.4. Self-protection and self-enhancement motivational tendencies

Efklides' (2011) MASRL model recognises the top-down influence of motivation on Task × Person processes such as metacognitive experiences. In view of this, this study aimed to examine the influence of self-protection and self-enhancement motivational tendencies on on-task confidence.

1.4.1. Self-protection tendencies

Firstly, some individuals engage in self-protection tendencies, whereby they are motivated to protect their self-esteem from negative evaluative implications of potential poor performance via the adoption of strategies such as self-handicapping and/or defensive pessimism (Covington, 1992; Schunk & Pajares, 2005). *Self-handicapping* involves the use of performance obstacles or “handicaps” such as procrastination, alcohol, feigned illness and other self-sabotaging behaviour, to which poor performance may be attributed (Jones & Berglas, 1978). In contrast, *defensive pessimism* is primarily a cognitive strategy characterised by thinking through and expecting worst-case scenarios, and thus enabling the individual to harness their anxiety for current performance and psychologically prepare for possible failure (Martin, Marsh, & Debus, 2001; Norem & Cantor, 1986a,b).

While differing in the details of their execution, the self-protective strategies are used by individuals with heightened sensitivity to negative evaluation in order to shield their low self-esteem (Garcia & Pintrich, 1994; Martin et al., 2001).¹ Previous research has found moderate–strong positive correlations between defensive pessimism and self-handicapping (Elliot & Church, 2003; Eronen, Nurmi, & Salmela-Aro, 1998; Martin et al., 2001), and consistent associations between these behaviours and low self-esteem (e.g., Elliot & Church, 2003; Jones & Berglas, 1978; Langford & Clance, 1993; Martin et al., 2001; Norem, 2001). Thus, in this study, self-handicapping and defensive pessimism were expected to have robust, positive intercorrelations with each other and negative correlations with self-esteem, converging to form a Self-protection latent factor.

1.4.2. Self-enhancement tendencies

Much research attests to a tendency for people to actively enhance their self-esteem (e.g., Greenwald, 1980; Hepper, Gramzow, & Sedikides, 2010; Taylor & Brown, 1988). This may be achieved via a wide variety of cognitive and behavioural strategies such as having self-enhancing performance attributions (Norem & Cantor, 1986a; Taylor & Brown, 1988), positive views of oneself (e.g., Miller & Ross, 1975; Taylor & Brown, 1988) and unrealistic optimism (Taylor & Brown, 1988).

After conducting a systematic literature review, Hepper et al. (2010) devised an integrative measure of the various self-enhancement strategies and found that the strategies could be classified into two groups: positivity embracement and favourable construals.² *Positivity embracement* reflected a mixture of cognitive and behavioural strategies that involved seeking out positive feedback and capitalising on it; whilst *favourable construals* consisted of cognitive strategies where a person frames a situation to flatter themselves, including comparative optimism, construals of ambiguous or negative feedback, and presenting a positive self-view. These two scales were adopted in the present study.

Whilst the tendency to self-enhance is considered normative, high self-esteem persons have been found to engage in more self-enhancing behaviours than those with low self-esteem (Baumeister, 1982; Brown, 1986; Miller & Ross, 1975). Therefore, in this study, positivity embracement, favourable construals and self-esteem were hypothesised to be positively intercorrelated and index a latent Self-enhancement factor, which is expected to be distinct from the Self-protection factor.

1.5. Motivational tendencies, metacognitive beliefs and confidence

The MASRL model suggests that motivation and metacognitive beliefs are both person characteristics that exert top-down influence on immediate on-task metacognitive experiences such as confidence (Efklides, 2011). Few studies have examined the association between motivation, self-esteem and confidence. Across two studies, self-handicapping was associated with lower metacognitive beliefs, which in turn predicted lower confidence levels (Kleitman & Gibson, 2011; Kleitman et al., 2013). No research has looked at links between defensive pessimism, positivity embracement, and favourable construals, and confidence. With regards to global self-esteem, studies have failed to find a direct link with confidence (Kröner & Biermann, 2007; Stankov & Crawford, 1997). While this may seem surprising, confidence appears to be more strongly and immediately predicted by metacognitive beliefs, that is, self-appraisals of abilities directly relevant to task performance (Efklides & Tsiora, 2002; Kleitman & Stankov, 2007; Kröner &

¹ The use of self-handicapping and defensive pessimism maps onto Elliot's (1999) construct of performance-avoidance goal where the focus is on avoiding perceived incompetence. However, the former constructs may be regarded as behavioural strategies that may be adopted as an outcome of having a performance-avoidance goal.

² A third factor, Self-affirming Reflections, tapped self-enhancing intrapersonal responses to threats not relevant to the learning context and was thus disregarded in the present research.

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