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Thinking about smoking: A novel approach to describing cognitive style profiles

Lynsey J. Brown [a], Malcolm J. Bond [b,*]

[a] General Practice, School of Medicine, Flinders University, GPO Box 2100, Adelaide 5001, Australia
[b] Health Professional Education, School of Medicine, Flinders University, GPO Box 2100, Adelaide 5001, Australia

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ABSTRACT

Cognitive-Experiential Self-Theory (CEST) emphasizes the dual roles of rational and experiential thinking, with individuals having varying preferences for each style. This study explored the relationship between these constructs, illustrating the value of the derived model in addictive behavior, as illustrated by smoking. Data were extracted from a study of the predictors of men's health behavior. Participants comprised 212 Australian men (aged 25–65 years) who completed a self-report questionnaire which assessed thinking styles and recorded smoking status. Rational and experiential data were subjected to cluster analysis and median splits to identify logical subgroups based on participants' dual responses. The four derived clusters were more representative of smoking status than groups defined by median splits. In general, both smokers and ex-smokers preferred experiential thinking and non-smokers preferred rational thinking. There was a strong tendency for smokers to report both low rational and high experiential thinking. The use of cluster analysis advanced the evaluation of the interactive nature of rational and experiential thinking by allowing an empirical test of their potential relationship. The thinking profiles reported represent an advance in the assessment of CEST which may provide a useful model for applications in fields both related to, and beyond, addiction.

1. Introduction

Cognitive-Experiential Self-Theory (CEST; Epstein, 1973, 1994, 2003) is a dual processing model of reasoning and decision-making based on cognitive styles known as 'need for cognition' (rational thinking) and 'faith in intuition' (experiential thinking). Rational thinking refers to an analytical and logical style characterized by the desire to seek, appraise and apply information. It demands high levels of cognitive resources and is considered to be reflective and deliberate (Cacioppo, Petty, Feinstein, & Jarvis, 1996). Experiential thinking is more intuitive, innate and adaptive, relying on past experiences in problem solving, such as those related to the experience of affect, leading to the avoidance of negative, and facilitation of positive, emotions (Cacioppo et al., 1996; Epstein, Pacini, Denes-Raj, & Heier, 1996). A key tenet of CEST is that the world is interpreted through the simultaneous operation of these two thinking styles, with the relative dominance of either determined by situational (environmental) and dispositional (individual) factors. The former may include the social, economic, administrative or organizational contexts in which reasoning occurs, while the latter embrace psychosocial characteristics such as attitudes, values, affect, knowledge, and skills (Burns & D'Zurilla, 1999; Kahneman, 2003; Sinclair & Ashkanasy, 2005).

Research concerning the relative roles of the two thinking styles has reviewed an eclectic mix of variables. For example, the preference for rational thinking has been associated with aspects of personality and psychological adjustment, mathematical and verbal abilities, academic performance, lower depression and state-trait anxiety, less stress among college students, and lower perceived anthrax poisoning risk and apprehension (Berger, Johnson, & Lee, 2003; Epstein et al., 1996); whereas higher experiential thinking has been associated with less clinical guideline concordant behaviors among doctors with respect to treating acute coronary syndromes, but with a higher observed hand hygiene compliance rate (Sladek, Bond, Huynh, Chew, & Phillips, 2008; Sladek, Bond, & Phillips, 2008). Further, both lower rational thinking and higher experiential thinking have been associated with creativity, a more positive attitude towards organic foods, less positive attitudes toward genetically modified foods, paranormal beliefs and more positive attitudes toward, and use of, complementary and alternative medicines (Lindeman & Aarnio, 2006; Raidl & Lubart, 2000/2001; Saher, Lindeman, & Hursti, 2006; Wheeler & Hyland, 2005).

* Corresponding author. Tel.: +61 8 7221 8503.
E-mail addresses: lynsey.brown@flinders.edu.au (L.J. Brown), malcolm.bond@flinders.edu.au (M.J. Bond).

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Importantly, this growing body of research has consistently supported the assertion that rational and experiential thinking styles are independent, albeit interactive, constructs, rather than the two extremes of a single continuum (Epstein, 2003; Handley, Newstead, & Wright, 2000; Newstead, Handley, Harley, Wright, & Farrelly, 2004). That is, CEST assumes that both styles are used, with individuals having a varying degree of preference for each. Indeed, behavior is assumed to be the product of the two styles, which interact both simultaneously and sequentially (Epstein, 2003). The experiential style can influence the rational by making quick cognitions that are incorrect or biased (impulsive thoughts or behavior). Yet it also offers the rational style access to novel information (e.g., creative ideas). Conversely, the rational style is able to moderate the experiential system and also be taught to understand potential biases inherent in the experiential system (e.g., understanding that impulsive behavior may be counterproductive and thus resisting it). However, through repetition, rational style activities may become proceduralized (habitualized), with their control then shifted to the experiential style.

Notwithstanding these hypothesized mechanisms of interaction between rational and experiential styles, as stated earlier, they are viewed as independent constructs. Therefore, analysis can either literally treat them as such, as illustrated by de Stadelhofen, Rossier, Rigozzi, Zimmerman, and Berthoud (2004) and Marks, O'Neill, and Hine (2008), for example, or accommodate possible associations between them. The most common such strategy is to apply median splits to classify participants as high or low on rational and experiential thinking, respectively (Edmond & Marmurek, 2010; Pacini & Epstein, 1999; Shiloh, Salton, & Sharabi, 2002). While this procedure allows for four thinking style 'profiles', cut-points are relatively arbitrary, and do not allow scores close to the median to be meaningfully interpreted. The empirical alternative presented in the current paper is the application of 2-step cluster analysis to rational and experiential scores. The goal was to identify unique subgroups of participants, characterized by low within group variance and high between group variance, that might provide a better representation of thinking style profiles than traditional median splits. To that end, the desired outcome was a novel measurement strategy leading to a more informed interpretation of the components of CEST.

To evaluate the obtained clusters, their utility in describing the thinking style profiles of smokers, ex-smokers and non-smokers was examined. This enquiry is particularly relevant given the contemporary focus on implicit cognition as a key enabler of addictions and addictive behaviors (Fazio & Olson, 2003; Robinson & Berridge, 2001; Strack & Deutsch, 2004; Wiers & de Jong, 2006; Wiers & Stacy, 2006). While explicit cognitions refer to conscious, deliberate mental processes, implicit cognitions are influences on behavior such as knowledge, perception or memory that occur without conscious awareness (Stacy & Wiers, 2006). In short, implicit cognitive processing is hypothesized to increase the salience of addiction-related cues which in turn facilitate addictive behaviors. For the smoker, cravings are proposed to be initiated by automatic unconscious triggers, followed by associated cognitions concerning methods to regain the positive feeling associated with smoking (Bernheim & Rangel, 2004; Glautier, 2004).

Despite the acknowledged overlap between implicit cognitions and experiential thinking, and explicit cognitions and rational thinking (Evans, 2008; Rooke, Hine, & Thorsteinsson, 2008), few studies have directly applied CEST. That is, limited research has tested whether addicted, as opposed to non-addicted, individuals have a greater preference for experiential thinking and/or a lesser preference for rational thinking. There is, for example, little data pertaining to smoking, although two studies are illustrative. de Stadelhofen et al. (2004) noted that smokers reported significantly higher experiential thinking than non-smokers. There was also a trend toward non-smokers reporting higher levels of rational thinking. Further, Marks et al. (2008) reported that experiential thinking (but not rational thinking) was a significant predictor of smoking, in conjunction with automatic affective evaluations of smoking.

Smoking status (current smokers, ex-smokers and non-smokers) was used as the exemplar to demonstrate the derived cognitive style profiles in the current research. Ex-smokers have not previously been considered, yet given that CEST is a model of reasoning, and may therefore be used as a framework to understand decision-making, the fact that these individuals have implemented change (smoking cessation) is of particular interest, with their cognitive style potentially differing from other participants. In summary, smoking status comparisons were used as an initial commentary on the validity of the obtained clusters.

2. Materials and methods

2.1. Participants and procedure

The data reported were extracted from a study of predictors of men's health behaviors (Brown & Bond, 2008). Based on the stereotypical belief that men are reluctant to engage in appropriate health behaviour (Australian Bureau of Statistics [ABS], 2006; Courtenay, 2000a, 2000b), this previous research explored the potential influence of health status, masculinity, social support, and somatic awareness on help-seeking and health promotion behaviours. Neither smoking status nor thinking styles were reported. Approval for the study was provided by the authors' institutional Research Ethics Committee. Data were available from 212 Australian men aged between 25 and 65 years, all of whom had sufficient command of English to complete a self-report questionnaire. Volunteers were recruited from community groups based on sport, special interests, leisure and occupation. They were sourced during meetings of such groups to which the researchers were invited. Consenting attendees were provided with information about the study, the questionnaire and a reply-paid envelope for its confidential return. The mean age of the sample was 45.5 years (SD = 10.8). Most participants (83.6%) were married and employed full-time (89.9%). While 45.3% had been educated to tertiary level, a further 32.7% held a trade certificate.

2.2. Measures

2.2.1. Thinking styles

The 24-item version of the Rational-Experiential Inventory (REI; Pacini & Epstein, 1999) was used. Two scales, defined as Rational (e.g., 'I enjoy intellectual challenges') and Experiential thinking (e.g., 'I believe in trusting my hunches') are measured using 12 items each. Respondents use a 5-point scale (*definitely false* to *definitely true*), with total scores ranging from 12 to 60 for each thinking style. Higher Rational scores suggest a tendency to enjoy cognitive activities such as critical thinking, while higher Experiential scores relate to a preference for intuitive activities. Internal reliability coefficients (α) with the current sample were .85 for Rational thinking and .83 for Experiential thinking. The obtained correlation between the scales (r = .09, p > .05) supports the claim that they operationalize two independent information processing systems (Epstein, 1994).

2.2.2. Smoking status

Embedded in an assessment of common health behaviors was a single item that sought smoking status (smoke currently, smoked but have ceased, have never smoked).