SELF-PERSUASION STRATEGIES TO RESIST TEMPTATION

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LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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SUMMARY

The main aim of this thesis is to understand how people use cognition to resist tempting objects, and behaviours. Applying the Epistemic and Teleologic Model of Deliberate Self-Persuasion to temptation, the impact of motivation on the use of self-persuasion strategies was explored. Four experimental studies were conducted in three diverse contexts: teenagers' consumption of beverages, restrained eaters' consumption of chocolate, and dating students' attraction to alternative partners. Overall, the pattern of results indicated that motivated people use epistemic self-persuasion strategies to derogate the tempting object as a way to resist temptation. This process of deliberate self-persuasion had effects on subsequent evaluation and behaviour towards the tempting object, in particular by the creation of new negative information regarding that object. Discussion focuses on relevant theoretical and practical implications in the domains of attitude-change, cognitive therapy, and social intervention.

INTRODUCTION

Temptation is an intriguing phenomenon in cultural, religious, moral, and psychological terms. We are frequently exposed to temptations, from eating unhealthily, to alcohol abuse, smoking, and several other activities that can be simultaneously appealing and damaging. Evidence suggests that abuse of tempting substances is increasing dramatically. For example, in the UK, 17% of 15-year-old adolescents are obese and 31% are overweight (Reilly & Dorosty, 1999); 27% of young men and 17% of women aged 16 exceed the recommended limits of alcohol intake (DHUK, 2004); 42% of young adults frequently abuse cannabis, 9% abuse cocaine; 18% abuse amphetamines, and 12% abuse ecstasy (EMCDDA, 2003). In this context, the matter of resisting temptation goes beyond a mere theoretical abstraction.

At the individual level, the main challenge is to understand how the human mind deals with objects or behaviours that are both attractive and goal deviant. More importantly, what strategies are used to resist temptation? Some people may prefer to exert control over their own tempting objects and behaviours; others might prefer to persuade themselves that the object or behaviour is not beneficial. Either way, people may use mental processes to resist and reduce the discomfort of a tempting situation. There is some research on resistance of temptation (discussed below), but the cognitive processes underlying temptation (i.e., what happens in people's minds when being tempted) have been largely overlooked.

The present thesis attempts to address this scientific lacuna by applying the Epistemic-Teleologic Model of Deliberate Self-Persuasion (ETSP) to temptation. In this model, Maio and Thomas (2005) propose a set of cognitive strategies that may help people to change an attitude that they abhor. The ETSP model was devised by its authors to account for the phenomena of forgiveness, describing some of the strategies that might help the victims of an offence to forgive, by changing their negative attitude toward the offender. I became interested in using the same model to analyse the opposite pattern of attitude change (i.e., situations in which people feel very positive

regarding an attitudinal object and wish to feel more negative). This pattern of attitude change is characteristic of resistance to temptation. In the context of temptation people might wish to change their positive attitude towards the tempting object into a more negative attitude. The current research intends to explore which cognitive strategies people use to achieve this transformation and the impact of those strategies on the subsequent evaluation of the tempting object and the behaviour towards it. Four studies were designed in order to apply for the first time the ETSP model to different contexts of temptation. Within each chapter, a study is described and specific hypotheses are tested. Chapter 2 explores the use of deliberate self-persuasion strategies by teenagers resisting the temptation to drink a refreshing beverage. Chapter 3 examines restrained eaters' efforts to resist the temptation to eat chocolate. Chapter 4 switches to an interpersonal relationship context, with dating people and attractive alternative partners. Finally, Chapter 5 looks at the strategies that people spontaneously activate when faced with different situations of temptation, and at the helpfulness of the epistemic and teleologic deliberate self-persuasion strategies in diverse contexts.

Every chapter begins with an introduction, in which the theoretical framework is presented and discussed. Therefore, the purpose of this first introduction is not to elaborate on the rationale that guides each specific study, but to introduce the concept of temptation, discuss the relevant theory and research, present the Epistemic-Teleologic Model of Deliberate Self-Persuasion, clarify some general methodological issues, and elaborate on the main objectives of the thesis.

Conceptualisation of Temptation

The word *temptation*, from the Latin *temptationem*, first appeared in the English language during the 13th century, and usually refers to the *desire to do or have something, which you know you should not do or have* (Cambridge Dictionary). Few definitions of temptation can be found in the academic literature – two exceptions are

temptation as "an acute rise in urge" (Shiffman & Waters, 2004, p. 194), and as "a situation wherein momentary allurements threaten to thwart the attainment of important long-term objectives (Fishbach, Friedman & Kruglanski, 2003, p. 297). In this thesis, temptation is conceptualised as the desire to have an object, person, or perform a behaviour that is seen as attractive but at the same time goal-deviant. For example, a person might feel that eating a delicious cheesecake would be inconsistent with the goal of losing weight.

In the aphorism, "the only way to get rid of a temptation is to yield to it", Oscar Wilde plays with a core feature of temptation: the difficulty of resisting it. This may be related to the fact that people often discount the value of long-term benefits (e.g., positive health outcomes) in favour of more immediate ones (e.g., sensory gratification) (Ainslie, 1992). In spite of the arduousness of resisting temptation, people do manage to do it. An important issue is how this feat is accomplished in psychological terms.

Theory and Research on Cognitive Strategies to Resist Temptation

In the literature, resisting temptation is often associated with prevention and treatment of addictive behaviours, such as addiction to drugs, alcohol, smoking, and food. The consequences of such behaviours are clearly damaging to the addicted person (e.g., health problems, financial costs), as well as to society as a whole (e.g., criminal risks; see Wilkinson & Marmot, 1998). Extensive work has explored the predictors of submission to temptation after treatment or relapse (e.g., Hanson & Bussière, 1998; Latimer et al., 2000; Safer et al., 2002), the consequences of relapse for peoples' physical and psychological well-being (e.g., Wills & Hirky, 1996), strategies for coping with temptation (e.g., Gossop et al., 2002; Grilo, Shiffman & Wing, 1989; Moser & Annis, 1996; Wagner, Myers & McInnch, 1999), and interventions to prevent relapse (Curry & McBride, 1994; Irvin et al., 1999; Schmidt et al., 1994).

However, temptation is not always related with addiction. People may not be addicted, but still desire to avoid or reduce the consumption of attractive substances or behaviours that are known to be pernicious. We could simply talk about tempting distractions that push ordinary people away from their goals, such as having your favourite team playing in a cup final when they have to finish an urgent and important piece of work. The literature lacks systematic knowledge and empirical evidence of the cognitive processes that ground successful resistance to temptation in its broader sense. Two different lines of research exploring how the mind can overcome temptation will be discussed in the next section.

Mental Control

In order to do any ordinary task, we must have some sort of control over our own thoughts and behaviours. This effort, made by the self to control the self, is named *self-control*. In resisting temptation, people may use self-control to refrain from acquiring an object or performing a behaviour. Perhaps counter-intuitively, this resistance may require more effort than performing the behaviour itself. There is empirical evidence that after self-control efforts, subsequent attempts at self-control are more likely to fail – this is known as the *ego depletion effect* (see Baumeister et al., 1998; Baumeister, Muraven & Tice, 2000; Muraven & Baumeister, 2000; Muraven, Collins & Nienhaus, 2002; Muraven, Tice & Baumeister, 1998).

The main purpose of this thesis is to understand which cognitive processes underlie the effective use of self-control to resist temptations. In other words, how does the mind work to control thoughts in order to achieve a desired outcome of resistance? William James held that "effort of attention is the essential phenomenon of will" (1890, p. 562 as cited in Wegner, 1988). In a situation of temptation, an attention effort is possibly crucial for resistance. For example, in order to resist a tempting object, people might try to deviate their attention from it (suppression) or focus their attention on something else (distraction or concentration). Suppression, distraction and

concentration are examples of effort of attention (i.e., mental control processes). These processes imply "a motivated attempt to influence one's own psychological contents and processes, particularly through the activation and deactivation of attention mechanisms according to priorities reflected in conscious thoughts" (Wegner & Pennebaker, 1993).

Such processes have been examined in detail over the 20th century (e.g., Bruner, 1957; Freud, 1966). Recent studies on mental control have focused on the suppression of unwanted thoughts. The intentional attempt to keep unwanted thoughts from conscious awareness is a common form of mental control, reported both by normal individuals (Wegner & Zanakos, 1994) and by those experiencing negative mood and depression (Wenzlaff & Bates, 1998), anxiety and worry (Borkovec et al., 1983), obsessions and compulsions (Reed, 1985), posttraumatic stress (Tait & Silver, 1989), and obesity (Polivy, 1990). However, current research suggests that suppression, as a mental control strategy, may be more of a problem than a solution when people's cognitive resources are consumed. Participants instructed to suppress a particular thought while mentally busy on an alternate task (e.g., rehearsing a number sequence) end up mentioning higher occurrence of that thought (Wegner et al., 1987; Wegner, 1992).

This result has been explained using a dual process model of suppression (Wegner & Erber, 1992; Wegner, 1994). Wegner's theory on ironic processes of mental control suggests that the exercise of control over the mind requires two processes: an intentional, controlled operating process and an ironic, automatic monitoring process. During thought suppression, the operating process searches for distracters, while the monitoring process searches for the unwanted thought. These two processes work simultaneously. If the unwanted thought is found, the search for distracters is reinstated. The operating process requires more effort, but is also more effective than the monitoring process.

The model explains how suppression can work without the presence of distraction, but not during distraction. For example, Wegner, Erber and Zanakos (1993)

asked participants to remember a sad or happy event of their lives, and then asked them to try not to be sad or happy. The instructions produced the intended effects. Participants who were asked to suppress a sad mood subsequently became less sad, whereas those who were asked to suppress a positive mood subsequently became less happy. However, in the condition where participants had to perform an irrelevant cognitive task (e.g., rehearsing a 9-digit number sequence), they failed to control their mood. Similar effects have been shown with people's attempts to control behaviour (Wegner, Ansfield & Pilloff, 1998). These studies draw attention to the difficulty people may have intentionally avoiding or suppressing specific thoughts, feelings or behaviours when their cognitive resources are depleted. Mental load can undermine the operating process, while the relatively less effortful monitoring process continues to function. Ironically, this mismatch between processes seems to elicit an increased accessibility of precisely those unwanted thoughts, feelings or behaviours (see Wenzlaff & Luxton, 2003; Wenzlaff & Wegner, 2000 for a review).

Apparently, the ironic effects of thought suppression are transferable even to dreams (Hajek & Belcher, 1991; Mellman et al., 2001; Reid & Simeon, 2001). That is, people report to dream with objects that they tried to suppress. People often suppress thoughts of traumatic events and such events are often reflected in dreams (Mellman et al., 2001). Similarly, people who engaged in self-control often have dreams with the controlled item. Abstaining smokers report dreams of smoking (Hajek & Belcher, 1991), and crack-cocaine users report dreaming of drug use during abstinence as well (Reid & Simeon, 2001). Wegner, Wenzlaff, and Kozak (2004) discuss possible interpretations of this finding and suggest that the rebound of suppressed thoughts in dreams may be caused by changes in brain activation during REM sleep on mental control processes. During dreaming, certain prefrontal areas associated with executive control are deactivated (Braun et al., 1997; Hobson et al., 2000; Muzur, Pace-Schott & Hobson, 2002). This deactivation could weaken the effectiveness of the suppression operating process and, consequently, leads to an increase in the frequency of unwanted thoughts.

Concentrating on desirable thoughts seems to be more effective than trying to suppress unwanted material. Recently, Wenzlaff and Bates (2000) found that concentration evaded the problems associated with thought suppression, providing reliable means of inhibiting unwanted thoughts. Participants were asked to avoid forming any negative statements (suppression condition) or to form only positive statements (concentration condition). The imposition of a cognitive load (i.e., rehearsing a six-digit number) sensitised participants to the thoughts that they were trying to suppress, leading participants to form a much higher percentage of negative statements. In contrast, in the concentration condition, the low rate of negative statements was unaffected by cognitive load. A possible explanation for these findings, consistent with the ironic process theory, is that suppression involves a monitoring process that is exclusively focused on concepts directly opposite to the unwanted thoughts. In contrast, concentration invokes a wider range of monitored thoughts that are less likely to undermine mental control.

The different processes of mental control are relevant to Higgins' (1994, 1997) models of regulatory focus, which can explain how these processes are linked with personality and situational conditions. Higgins' theory proposes two distinct self-regulation mechanisms: promotion and prevention. The underlying idea is that people can try to achieve a desired end state by either (a) approaching the presence of desired outcomes and avoiding the absence of desired outcomes (promotion focus), or (b) approaching the absence of undesired outcomes and avoiding the presence of undesired outcomes (prevention focus). Promotion focus is centred on the eagerness to approach matches to desired states (e.g., concentration), while the prevention focus highlights the vigilance to avoid mismatches to desired states (e.g., suppression and distraction strategies). Research has shown that a concerted effort to approach matches to desired end states (promotion focus) is strongly associated with *ideal* self-regulation, which is a regulation centred in hopes and aspirations (Higgins et al., 1994). In contrast, the avoidance of mismatches to the desired end state (prevention focus) is

linked with an *ought* self-regulation, which is a self-regulation centred in duties and responsibilities (Higgins et al., 1994).

Some evidence suggests that a prevention focus is more effective in the context of resisting-temptation behaviours. Patterson and Mischel (1976), in one of the first experiments on temptation, motivated children to work on a repetitive task in the face of a tempting distraction: the presence of Mr. Clown Box. Children received different instructions on how to resist Mr. Clown: direct their attention away from him (temptation-inhibiting plan), direct their attention towards the repetitive task (task-facilitating plan), or use both strategies (combined plan). In this experiment, the effect of the temptation-inhibiting plan on the children's performance did not differ from the effect of the combined plan. However, both plans were significantly more effective in facilitating children's self control than the task-facilitating plan or no instruction plan at all (control group). The authors concluded that the crucial cognitive activity underlying child's ability to sustain goal-oriented work in the face of tempting distractions was the active suppression of attention to the temptation rather than the direction to the task per se. In other words, children supplied with a prevention focus strategy for dealing with distraction ("I'm not going to look at Mr. Clown Box") staved off the distracting Mr. Clown and attended to their work more effectively than those children equipped with a promotion focus strategy ("I'm going to look at my work").

Similarly, Schaal (1993, *cit. in* Gollwitzer, 1996) showed that college students with prevention intentions were more successful at completing a mathematics problem while attractive commercials were on television, than students provided with promotion intentions. More recently, Freitas, Liberman and Higgins (2000) asked participants to solve mathematics problems when exposed to attractive distracting video clips, and found that the prevention-focused group not only outperformed the promotion-focused group, but also reported greater task enjoyment. The opposite effect was found under non-distraction conditions. These experiments suggest that people are less susceptible to tempting distractions if they use a prevention focus to deal with the distractions. Of interest, this pattern is consistent with Higgins' regulatory fit hypothesis, which

proposes that goal performance increases when individuals pursue the goal in a manner that sustains their own self-regulatory orientation, whether this orientation is chronic or momentarily induced by the task (see Higgins, 2000, 2002). Because temptation involves resisting something that is goal-deviant, it fits better with a prevention focus than a promotion focus. Therefore, prevention-focused individuals should be more likely to succeed at resisting temptation.

Another individual differences variable important to consider in the context of mental control strategies is action-state orientation (Kuhl, 1994). This construct was developed by the German psychologist Julius Kuhl and refers to the ability to make timely decisions, initiate and commit to a course of action, avoid procrastination, handle multiple competing demands, maintain challenging goals, and persist despite failures or setbacks (see Kuhl, 1985; Kuhl & Beckmann, 1994). Kuhl's theory of *action control* predicts that people who lack initiative and self-motivation (i.e., state-oriented individuals) will find it more difficult to succeed in resisting temptation, and recent research suggests that they benefit from externally controlled instructions to achieve this goal (see Baumann & Kuhl, 2005).

Attitude Change

Attitude change is another potentially relevant way the mind can resist temptation. Instead of using mental control, by either directing the attention away from the tempting object or by focusing on an unrelated task, people can still change how they feel about the object. Attitude change is potentially powerful because it reduces the attraction towards the object in the first place, eliminating the need to exercise mental control.

The concept of attitude has been central to the Social Psychology of the 20th century. As Gordon Allport stated in the first edition of the *Handbook of Social Psychology*, "the concept of attitude is probably the most distinctive and indispensable concept in contemporary American social psychology" (1935, p. 798). Attitudes can be defined as an overall favourable or unfavourable evaluation (subsuming beliefs, feelings, and behaviours) of an object (Eagly & Chaiken, 1993; Krech, Crutchfield & Ballachy, 1962 *cit. in* Greenwald, 1989; Olson & Maio, 2003; Rosenberg & Rovland, 1960; Zanna & Rempel, 1988). An attitude is therefore an evaluative response towards any object of thought, concrete or abstract (e.g., chocolate, racism, or even oneself). Attitudes are multi-functional entities (see Maio & Olson 2000 for a review), having the ultimate function of facilitating human adaptation to the environment (Eagly & Chaiken 1998). They help to summarize knowledge about an object, express personal values, protect self-esteem, and conform to social norms (e.g., Ajzen, 2001; Katz, 1960).

The interest in the concept of attitude is due partly to the assumption that attitudes can predict behaviour. Although early research yielded equivocal evidence supporting an effect of attitudes on behaviour, it is now clear that attitudes are strong predictors of behaviour (see Eagly & Chaiken, 1998; Kraus, 1995). People tend to approach and acquire things that they like, and avoid and reject things they dislike. This tendency is the key reason why attitudes provide a potential vehicle for resisting

temptation: if the attitude towards a tempting object can be made more negative, the odds of approaching and acquiring the object should be significantly reduced.

Many models have examined the dynamics of attitude change (e.g., ELM, HSM, and Unimodel - Chaiken, Duckworth & Darke, 1999; Chaiken, Liberman & Eagly, 1899; Chen & Chaiken, 1999; Kruglanski & Thompson, 1999; Petty & Cacioppo, 1986; Petty & Wegener, 1999; Petty, Wheeler & Bizer, 1999). Though distinct from each other in several aspects (for discussion see Kruglanski et al., 2004), these models share several significant features. Both Petty and Cacioppo's Elaboration Likelihood Model (ELM) and Chaiken and Eagly's Heuristic Systematic Model (HSM) propose two qualitatively distinct routes to attitude change or persuasion, depending on the degree of motivation and cognitive ability to process. When motivation and ability are plentiful, persuasion is accomplished via the *central* (in the ELM) or *systematic* (in the HSM) route. This route relies on extensive elaborative processing of relevant information. In contrast, when motivation and ability are scarce, persuasion is accomplished via the *peripheral* (ELM) or the *heuristic* (HSM) route, consisting of a brief and effortless processing of information that relies on easy to use cues (e.g., attractive source, contextual stimuli). Recently, a one-process alternative – the Unimodel – was proposed by Kruglanski and his colleagues. In the Unimodel, the qualitative distinction between the two routes is denied and a continuum of processing difficulty is emphasized. In this model, cognitive and motivational resources enhance scrutiny of any attitude-relevant information, with no distinction between relevant information and cues. The Unimodel seems to present a more flexible view of persuasion (e.g., removing the constraints of information contents inherent to dual mode persuasion models) and to explain better current findings in the domain of, for example, impression formation and causal reasoning (for a discussion see Erb et al., 2003).

However, these models have, at best, limited applicability to the induction of attitude change as a means of resisting temptation. Temptation often requires self-initiated defence: people must convince themselves to feel that way. For example, a person who loves chocolate but wants to lose weight might wish to feel differently

about chocolate and engage in a process of generating arguments against that specific fattening food. If this argumentation is successful, the change in attitude does not occur as a result of external communication, but is the result of the thoughts, ideas, and arguments that are self-generated. This effort at self-directed attitude change can be defined as *deliberate self-persuasion* (Maio & Thomas, 2005; Petty & Cacioppo, 1996). Theoretical approaches to deliberate self-persuasion are based on the common assumption that a person's self-generated thoughts or cognitions, which emerge from an inner dialogue, are a more powerful determinant of persuasion than most external communications per se (Greenwald, 1968; Janis & King, 1954; Petty, Ostrom & Brock, 1981; Tesser, 1978; see also Petty & Cacioppo, 1996 for a review).

Nonetheless, inner cognitions are sometimes inconsistent. Cognitive Dissonance is a very important concept in attitude change theory, introduced by Leon Festinger for the first time in his book *A Theory of Cognitive Dissonance* (1957). The author introduces this concept by saying that "two elements are in dissonant relationship if, considering these two alone, the observe of one element would follow from the other" (p. 13). Festinger held in his theory that the recognition of the inconsistency between two or more cognitions, or cognition and behaviour, would place a person in an uncomfortable state of psychological tension – *dissonance*. As with other psychologically uncomfortable states (e.g., hunger or thirst), people are motivated to reduce this discomfort. Festinger proposed three possible routes to dissonance reduction: change of cognition, change of the perceived importance of the cognition, or behaviour change (Festinger & Carlsmith, 1959). Since it is difficult to deny having performed a behaviour, changes in cognition and its perceived importance are more likely responses to cognition-behaviour inconsistencies. An example of dissonance reduction (attitude change) is illustrated in a Scott Adams cartoon (see Figure 1). In this example, the employee with the help of the consultant recognized the inconsistency between cognitions *job is bad* and *I'm still working here*, and consequently, experienced dissonance.

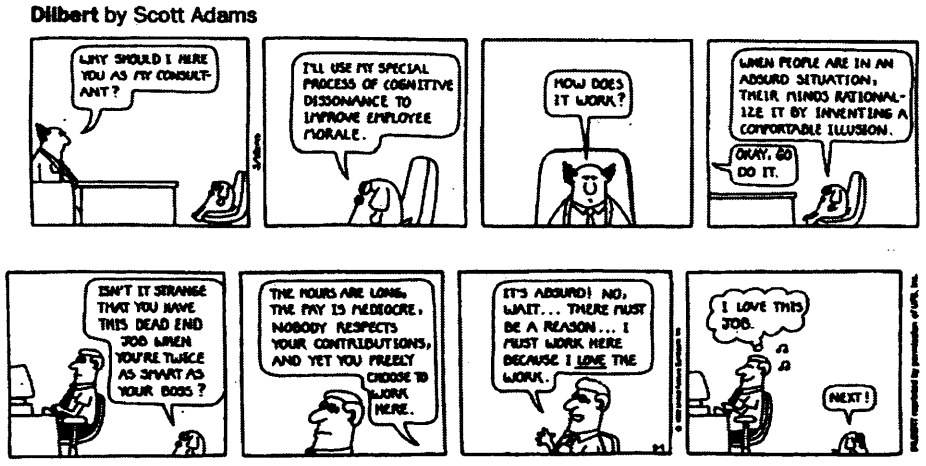

Figure 1. An example of dissonance reduction

In order to reduce this psychological tension, the employee generates a justification to himself and others for continuing working at that place. Therefore, the employee reaches the comfortable conclusion that he actually *loved the job*. The example also gives emphasis to the role of choice in cognitive dissonance using the phase "nobody respects your contributions and yet you freely choose to work here". This way, any external responsibility is taken out of the equation and the individual is personally responsible for the conflict situation in which he/she lives, increasing cognitive dissonance. Abundant research has supported the view of choice as a stressor of cognitive dissonance (see Brehm & Cohen, 1962; Harmon-Jones & Mills, 1999 for a review) and cognitive dissonance as a motivator of attitude change (e.g., Zanna & Cooper, 1974; Zanna, Higgins & Taves, 1976).

Despite such claims for the power of deliberate self-persuasion (Maio & Thomas, 2005), there is (to my knowledge) no past evidence of research examining the use of this method to resist temptation. Changing a favourable attitude towards a tempting object by self-generation of arguments against that object might be an effective way of resisting temptation, and there may be many ways to achieve such change. Recently, Maio and Thomas (2005) reviewed the psychological research on

deliberate self-persuasion and proposed an integrative model of diverse cognitive strategies that might help people change their attitudes towards an object. The major purpose of this thesis is to use this model to provide the first examination of methods of deliberate self-persuasion as means of resisting temptation. Thus, to lay the foundation for understanding the present research, the Epistemic and Teleologic Model of Deliberate self-Persuasion is discussed in detail below.

Epistemic and Teleologic Model of Deliberate Self-Persuasion

The Epistemic-Teleologic Model of Deliberate Self-Persuasion (ETSP; Maio and Thomas, 2005) aims to describe the various mental strategies that people can use to achieve deliberate self-persuasion. Before describing the model, it is important to clarify some of the main concepts involved. Subsequently, I will describe the model's predictions about (1) pre-requisites to deliberate self-persuasion, (2) epistemic strategies to deliberate self-persuasion, (3) teleologic strategies to deliberate self-persuasion, and (4) determinants of which strategies are pursued.

Main Concepts

Firstly, is important to understand how the concept of deliberate self-persuasion (i.e., deliberate self-induced attitude change) is distinct from other concepts in the literature such as persuasion, motivated social cognition, self-regulation or self-control. Deliberate self-persuasion is clearly different from persuasion because it involves the self as the main agent of change. In a typical persuasion context (e.g. Hovland, Janis, & Kelley, 1953; see also Petty & Cacioppo, 1996), a communicator has the responsibility to convince the individual that his or her attitude should be changed by providing information that facilitates the change. In a self-persuasion context, it is the individual (and not a communicator) that desires the change and manipulates information in order to sustain it. Deliberate self-persuasion is also distinct from

motivated cognition. Although the process of motivated cognition shares the emphasis on the self as an agent of change (Dunning, 1999; Kunda & Sinclair, 1999; Murray, 1999), it does not focus on a conscious recognition of the desire to change and of the process to seek that change (Manstead & Fischer, 2000). Deliberate self-persuasion occurs when people consciously experience an undesired attitude, and this undesired attitude triggers the cycle of change. Deliberate self-persuasion is also different from self-regulation or self-control. Models of self-regulation and self-control (Baumeister & Heatherton, 1996; Fuhrman & Kuhl, 1998) focus on the volitional regulatory processes that predate a given behaviour. In contrast, deliberate self-persuasion focuses on altering an attitude more than the overt behaviour to which it leads. As it will be discussed below, this attitude change relies on the alteration of cognitions and feelings, and not just specific behaviours.

Second, the concepts of actual and desired attitudes are central to the model. With the term *actual attitude*, the authors refer to the evaluation that currently dominates the phenomenological experience of a person. The term *desired attitude* refers to the evaluation that the individual would like to experience, together with any cognitions, emotions or behaviours that may support the evaluation. The deliberate self-persuasion model describes the process through which people might attempt to replace their actual attitude with their desired one, and describes different cognitive strategies to achieve that goal. People often long to change their attitudes. Individuals with low self-esteem wish they could like themselves more; unhappy employees desire to like their jobs; offended romantic partners wish they could forgive their partners; dieters may want to feel less positively about fattening food. When applying this model to a situation of temptation (such as the one of the examples cited above), it is important to notice that the actual attitude towards the tempting object is predominantly favourable and the desired attitude is mainly unfavourable or at least neutral. Therefore, successful deliberate self-persuasion in a temptation context would imply an attitude change from an actual favourable attitude to a desired unfavourable attitude.

Pre-requisites

The model postulates two main pre-requisites to deliberate self-persuasion: self-recognition of an attitudinal discrepancy and the presence of ability and motivation. First, "people must consciously recognise a discrepancy between how they actually evaluate an object and how they would like to evaluate that object" (Maio & Thomas, 2005, p. 10). The recognition of the gap between the actual and the desired attitudinal state is what initiates deliberate self-persuasion. Therefore, during deliberate self-persuasion, people must be self-aware of the attitudinal discrepancy and of the desire for attitude change. Despite the emphasis on a conscious recognition of the attitudinal discrepancy, the model allows for the possibility that non-conscious processes could span the gap between actual and desired attitudes whenever a deliberate self-persuasion route has become highly practiced and automatic for the individual.

The second pre-requisite was elaborated in more detail. Specifically, the model predicts that people must be able and motivated to reduce such discrepancy. Consistent with numerous process models in social psychology (e.g., Chaiken, Liberman & Eagly, 1989; Fazio, 1990; Petty & Cacioppo, 1986; Kruglanski, Thompson, & Spiegel, 1999), the ETSP model highlights the importance of ability in deliberate self-persuasion, while also making a distinction between objective and subjective ability. Although people experience a discrepancy between how they actually evaluate an object and how they would like to evaluate that object, people may often decide to accept the discrepancies and abandon the desired attitude, because they do not feel able to engage in the attitude change process. Of importance, people's subjective perceptions of ability may differ from their objective ability. People should perform deliberate self-persuasion when they believe that they can succeed, even if this belief does not match their objective ability to succeed. Discrepancy size and availability of information to support the actual and desired attitude should determine people's objective ability. However, the success of deliberate self-persuasion depends on the person's objective ability to sustain it. Other variables can affect objective ability by

influencing the availability of cognitive resources to use as a basis for attitude change. Some examples include distraction, time constraints, and arousal.

With regard to the role of motivation, the model predicts that the effect of motivation in deliberate self-persuasion depends partly on the motives that underlie the actual and desired attitudes. Different types of motivation may encourage people to self-persuade such as (a) preservation of the self-concept, (b) enhancement of social relationships with others, and (c) affirmation of personal values (Katz, 1960; Maio & Olson, 2000). When the desired attitude represents stronger and more varied motivations than the actual attitude, people should engage in deliberate self-persuasion. The model also assumes that a sincere deliberate self-persuasion process takes place when the motivation to adopt the desired attitude is the expression of a personal wish, rather than instigated by rules or wishes of others. When the motives relevant to the actual and desired attitudes are equally strong and varied (which could be named *motivational ambivalence*), people will have trouble in engaging in deliberate self-persuasion.

The ETSP model distinguishes two principal routes or two main types of cognitive strategies for attaining deliberate self-persuasion: epistemic and teleologic. These two types of strategies differ in their underlying processes and are discussed in detail below.

Epistemic Strategies

The epistemic strategies use reasoning processes "to understand the (a) actual attitude in some way that weakens its perceived validity or (b) desired attitude in some way that strengthens its perceived validity" (Maio & Thomas, 2005, p. 16). In other words, people use the epistemic route whenever they try to find arguments to devalue the actual attitude and support their desired one, making their attitude change justifiable. Therefore, epistemic strategies involve achieving not only a desired attitude, but also a desired attitude that is valid in reality (i.e., accurate attitude). Based on contemporary models of motivated social cognition (Dunning, 1999; Kunda & Sinclair,

1999; Murray, 1999; Tesser, 1988), Maio and Thomas (2005) identified six different epistemic strategies: reinterpretation, reintegration, reattribution, retesting, change of comparators and change of dimensions. The first four strategies intend to reach the desired attitude by changing the mental representation of the object. The final two strategies try to do so by changing the standards used to evaluate the object. A description of each strategy is presented below. In addition, examples of how each strategy is applied to temptation are provided, using a tempting cake as the attitude object.

Reinterpretation. The reinterpretation strategy involves giving new meaning to the attributes of an object in the direction of the desired view. In a temptation scenario, people would try to label the positive attributes of the attitude object in a more negative way. An example of reinterpretation is the use of the following expression after feeling tempted by a cake, "this cake is not simply sweet, it's high in sugar".

Reintegration. People use reintegration by placing the actual attributes of the attitude object in a broader context. The actual attribute is acknowledged, but its impact is minimized when the attribute is linked with desired ones. In using deliberate self-persuasion to resist temptation, the actual attributes of the tempting object are linked with more negative attributes. In the example of a person resisting a tempting cake, reintegration could be manifested by saying "yes, the cake seems delicious, but it is also fattening".

Reattribution. Whenever people try to discount the actual characteristics of the object by attributing them to desired ones, they are using reattribution. Again the actual attribute is considered, but its impact is minimized when it is explained by a desirable cause. In a temptation scenario, people would try to discount the positive characteristics of the object by attributing them to negative ones. In the cake example, reattribution would be "the cake only seems beautiful because of the artificial colouring".

Retesting. In retesting, people test the actual attributes of the attitude object by doubting that the object really has the characteristics. People wish to test the hypothesis that the actual attributes of the object are not valid and look for evidence to support these doubts. In a temptation scenario, people would doubt that the positive characteristics of the object are indeed true. In the cake example, retesting would be something like, "the cake is not as delicious as they claim".

Change of comparators. This strategy elicits the desired attitude by choosing standards of comparison that fit the desired mental representation of the object. In situations where the salient comparator evokes the undesirable attitude towards the object, people may try to find another comparator to fit the desired goal. In a temptation scenario, people would try to find a comparator that seems better than the object, in order to devalue its positive representation. For example, a person resisting a delicious chocolate cake could say, "lemon cakes are much better than this cake".

Change of dimensions. People might also achieve the desired attitude by changing the perceived self-relevance of the actual attributes of the object. When the salient dimension of comparison evokes the actual attitude towards the object, people may try to discount the importance of this dimension in order to fit the desired goal. In a temptation scenario, people would try to argue that the positive characteristics of the attitude object are not so relevant. An example of change of dimensions would be, "taste is not as important as nutritional value".

In conclusion, the ETSP model describes six epistemic strategies for changing from the actual attitude to the desired attitude. Some of the strategies involve changing the mental representation of the attitude object (reinterpretation, reintegrating, reattribution, and retesting). Others entail changing the comparators or dimensions used to evaluate the object (change of comparators and change of dimensions). All of these processes are considered epistemic, because they involve reasoning, argumentation, and an attempt to find evidence that supports the validity of the desired view.

Teleologic Strategies

Teleologic strategies attempt to achieve the desired state using mental control processes, instead of reasoning processes. People try to activate the desired cognitions, emotions and behaviours, or to inhibit the actual cognitions, emotions and behaviours. Drawing on current models of self-regulation (Carver & Scheier, 1990, 1998; Higgins, 1994, 1997; Higgins & Spiegel, 2004) and cognitive focus (Wegner, 1994), Maio and Thomas (2005) propose four distinct teleological routes to deliberate self-persuasion: suppression, distraction, concentration, and preemption.

Suppression. To achieve the desired attitude, people may try to avoid the activation of the actual undesired attitude. In a temptation scenario, people using suppression would try not to think about the positive characteristics of the attitude object. For example, a person who is trying to suppress the idea of the tempting cake would say, "I will not think about how nicely this cake tastes".

Distraction. People may also try to seek the absence of the actual undesired attitude. In a temptation scenario, people using distraction would try to focus on things that are not associated with the positive qualities of the attitude object. For example, a person who seeks distraction from a tempting cake could say, "I will think about my boyfriend instead of how lovely this cake tastes".

Concentration. This strategy attempts to achieve the desired attitude by seeking and focusing on thoughts, feelings, and behaviours that support it. In a temptation scenario, people can make use of concentration by focusing their minds on the negative qualities of the attitude object. An example of concentration regarding a tempting cake would be, "I will think about how fattening this cake is".

Preemption. A person exercising this strategy would avoid the absence of the desired attitude in order to guarantee the achievement of the desired attitude. Any thoughts, feelings, or behaviours that might lead to the absence of the desired attitude should be monitored and avoided. In a temptation scenario, preemption would involve avoiding things that are associated with the positive qualities of the attitude object. In

the cake example, preemption could be manifested in the sentence, "I will not think about food at all".

In summary, the ETSP model outlines four teleologic strategies for changing an actual attitude to a desired attitude. Two of these strategies attempt to keep the actual attitude outside of awareness (suppression, distraction); the other two try to keep the desired attitude in awareness (concentration, preemption). Every one of these processes is teleological because they seek to maintain particular content more or less accessible as an end in itself. There is no attempt to use reasoning or argumentation.

Summary of Epistemic and Teleologic Differences

The differences between the epistemic and teleologic routes are varied. The most important differences are presented in Table 1. The epistemic route involves achieving a desired and accurate attitude, while the teleologic route focuses on achieving a desired attitude independently of epistemic validity. The mental processes underlying the two routes also differ. The epistemic route uses a more elaborate mental process than the teleological route. Reasoning involves comprehension and manipulation of information, while mental control relies on attention processes. Consequently, the epistemic route should need more cognitive resources and be more affected by cognitive load than the teleologic route. Therefore, the epistemic route should be more effortful and not so easy to use.

Table 1. Main Characteristics of the Epistemic and Teleologic Routes

Dimensions	Epistemic	Teleologic
Attitudinal Objectives	Desired and Accurate Attitude	Desired Attitude
Mental Process	Reasoning (comprehension)	Mental control (attention)
Need of Cognitive Resources	Higher need	Lower need

Determinants of the Use of Strategies

Maio and Thomas (2005) propose that epistemic strategies should be preferred over the teleologic ones, because epistemic strategies can reach two goals at the same time. Contrary to the teleologic strategies, the epistemic route satisfies the goals of achieving a desired and accurate attitude. Nonetheless, if the epistemic route is insufficient and fails (e.g., when people believe that epistemic validity is unattainable or when constructive reasoning is vulnerable to undesired conclusions), the teleological route can be pursued. I would add that the amount of cognitive resources necessary for the epistemic route should also be acknowledged. From this point of view, the teleologic route should be preferred in situations of high cognitive load.

The authors also suggest that the chosen epistemic route depends on the extent to which the individual is disposed to effortful reasoning. Epistemic strategies vary in the amount of cognitive effort and complexity required. Substantial cognitive effort is needed to reinterpret actual attributes, to reattribute the actual attributes to desirable factors, to reintegrate actual and desired attributes and to retest the validity of the actual dominant attributes. In contrast, some other epistemic strategies may be less demanding of cognitive resources, such as changing the comparators or the dimensions in which the judgment is based. Therefore, Maio and Thomas (2005) conclude that arduous epistemic strategies would be preferred only by people whose dispositions and situations motivate them to be more thoughtful (e.g., high in need for cognition; personal relevance of the attitude change).

The chosen teleologic route, however, partially depends on the extent to which the individual or the situation evokes prevention *versus* promotion goals. In fact, teleologic strategies can be interpreted using the Higgins' (1997) distinction between prevention and promotion goals. Suppression and preemption involve prevention goals, because they both focus on avoidance of attitudinal elements. Concentration and distraction involve promotion goals, because they focus on approach of attitudinal elements. Therefore, Maio & Thomas (2005) suggested that, on the one hand, the

preventive teleologic strategies should be pursued when the individual's personality or situation leads him or her to define the desired attitude as something that *ought* to be pursued (i.e., duty). On the other hand, the promotion teleologic strategies should be chosen when the individual's personality or situation tends to frame the desired attitude as something that he or she *wants* to achieve (i.e., aspiration).

Overview of the Model

A schematic illustration of the Epistemic Teleologic Model of Deliberate Self-Persuasion is proposed in Figure 2. The model will be described having as an application a situation of temptation.

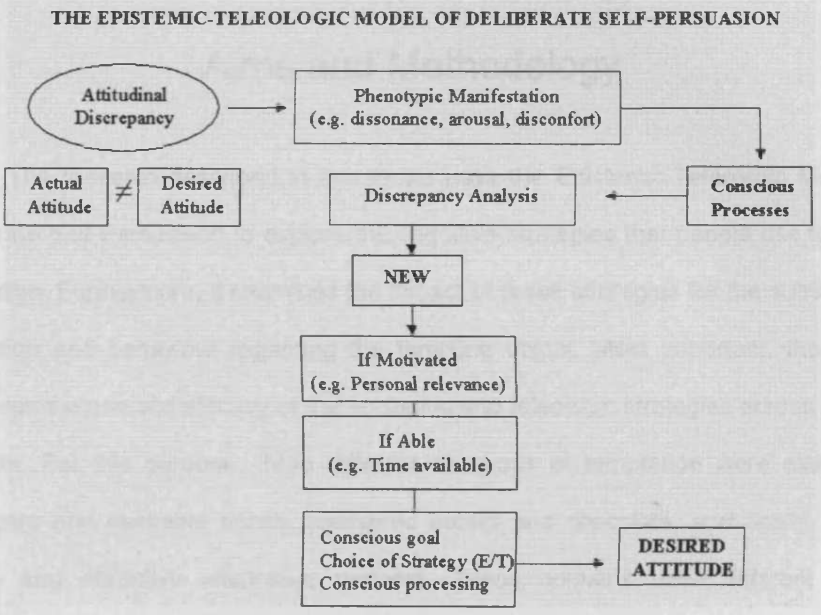

Figure 2. An illustration of the Epistemic and Teleologic Model of Deliberate Self-Persuasion

Temptation is by definition something that is seen as attractive but at the same time goal-deviant. As a result, temptation involves an attitudinal discrepancy. This attitudinal discrepancy should have a phenotypic manifestation (e.g., dissonance,

arousal or discomfort), which may trigger the conscious processes. At this point, the attitudinal discrepancy is analysed by the conscious processes and recognised as a new or old discrepancy. The term *new attitudinal discrepancy* (i.e., non-processed attitudinal discrepancy) refers to any discrepancy that never occurred before in a given context. An *old discrepancy* (i.e., processed discrepancy) refers to any discrepancy that was processed in the past in a specific context. Imagine that, in the present situation, the attitudinal discrepancy was analysed and categorized as a new discrepancy. Then, if the individual is sufficiently motivated and able, his/her conscious processes initiate a self-persuasion process by setting the goal, choosing the strategy (i.e., epistemic or teleologic) and monitoring the process until the desired attitude is achieved.

Aims and Methodology

The research described in this thesis uses the Epistemic-Teleologic Model of Deliberate Self-Persuasion to explore the cognitive strategies that people use to resist temptation. Furthermore, it examines the impact of these strategies for the subsequent evaluation and behaviour regarding the tempting object. Most important, the thesis compares the use and efficacy of the epistemic and teleologic strategies across distinct contexts. For this purpose, three different situations of temptation were examined: teenagers and desirable drinks, restrained eaters and chocolate, and finally, dating people and attractive alternative partners. These domains used different target populations and different tempting objects. Moreover, they were chosen because of their relevance to applied issues (e.g., healthy behaviour change) and to extant theoretical issues (e.g., effects of relationship commitment on derogation of alternative partners).

This research can be categorised as experimental social psychology because of the research questions it intends to address and the methodology that it employs. Floyd Allport (1924), one of the most influential proponents of social psychology as an

experimental branch of science, argued that the aim of the field is to study "the behaviour of the individual in so far as his behaviour stimulates other individuals or is itself a reaction to this behaviour" (p. 12, *cit. in* Geen, 1995). In Allport's perspective, social psychology is the science of behaviour, and the individual is the ultimate behaving agent. For this reason, Graumman (1986) considers Allport the main architect of the *individualisation of the social.* However, the special interest in cognition as mediator of social behaviour, more specifically the cognitive processes underlining resisting temptation behaviour, gives a cognitive signature to this thesis. This emphasis is partly influenced by the "cognitive revolution" that social psychology has experienced in recent years, with the growing interest in the cognitive processes and structures of the individual and their influence on behaviour (see Fiske & Taylor, 1991).

Four studies were conducted in the laboratory. They all entail a randomised experimental design, which is a well-established method in social psychology that is considered by many as the best suited to testing theory, rather than merely describing the world as it is (e.g., Aronson, Brewer & Carlsmith, 1985; Mitchell & Jolley, 2000). This method permits experimenters to test specific hypotheses with a great deal of control over possible random variation, and it allows research participants to be randomly assigned to experimental conditions. In the first three experiments, situations of temptation were created in the laboratory, and it was important to guarantee that the participant did not suspect our intention to tempt him or her. For this reason, deception or withholding of information regarding the purpose of the study took place by means of a cover story. However, all studies followed the standard regulations on the protection of human participants (e.g., appropriate debriefing, see *Code of Conduct, Ethical Principles and Guidelines,* BPS, 2000, p. 7). The issue of deception was not so relevant in the fourth study because, although experimental, the study had a descriptive aim and the topic of temptation was exposed by the use of vignettes in 'everyday' tempting situations.

General Hypotheses

According to the ETSP, deliberate self-persuasion is successful when the desired attitude replaces the actual attitude in people's phenomenological experience. Adapting this idea to the context of temptation, it can be argued that *deliberate self-persuasion to resist temptation is successful when the desired negative attitude towards the tempting object replaces the actual positive attitude in people's phenomenological experience.* If the desired negative attitude overwrites the actual positive one, then it should be expected that those who self-persuade express a higher amount of unfavourable cognitions, emotions, and behaviours regarding the tempting object. Having in mind both this statement and the pre-requisites of the ETSP model, some general issues can be deduced, particularly regarding the role of motivation in the process of deliberate self-persuasion and the impact of deliberate self-persuasion on the subsequent judgments and behaviour. Several research questions drove the present investigation. What is the impact of motivation on the use of deliberate self-persuasion strategies? What is the impact of the use of deliberate self-persuasion strategies on subsequent judgment and behaviour towards the tempting object? Which of the epistemic and teleologic strategies do people find more helpful to resist temptation?

It is important to clarify that the present research focuses mainly on epistemic deliberate self-persuasion. The success of epistemic deliberate self-persuasion was measured by people's cognitive responses to a tempting object. That is, success was operationalized as the amount of negative self-generated thoughts or ideas regarding the tempting object. Using this approach, I expected that participants would generate more negative information about the tempting object when they are more motivated to deliberatively self-persuade – *Hypothesis 1.* I also expected that the negative information generated about the tempting object would mediate the effect of motivation on subsequent evaluation and/or behaviour towards the tempting object – *Hypothesis 2.* Moreover, epistemic strategies should be preferred to teleologic strategies –

Hypothesis 3. In addition, preventive teleologic strategies (suppression and preemption) should be preferred more by people with a tendency to preventive regulatory focus, whereas promotion teleologic strategies (concentration and distraction) should be preferred more by people with a tendency to promotion regulatory focus – *Hypothesis 4.* Finally, I expected epistemic strategies to be preferred in a situation of long-term exposure to the tempting object, whereas teleologic strategies to be preferred in a situation of short-term exposure to the tempting object – Hypothesis *5.* More detail about these hypotheses will be provided in the following chapters.

STUDY 1

Introduction

This study was designed to test some of the fundamental assumptions of the Epistemic Teleologic Deliberate Self-Persuasion (ETSP) model in the context of resistance to temptation. More specifically, this study provided for the first time a test of the effect of motivation on the use of self-persuasion strategies to resist temptation, and the impact of the use of those strategies on subsequent evaluation and behaviour.

The resistance of temptation can be a difficult task but some people do accomplish this feat. Robert is a man who decided to give up his beloved coffee due to stomach problems. During his lunch break, he goes with his friend Mary to a sandwich bar. As they finish eating their sandwiches, Mary orders a coffee and Robert feels the immediate desire to have one, although he knows he should not. This example illustrates a common situation of temptation. How does Robert resist the temptation to drink coffee? One approach is to change the positive way he feels and thinks about coffee in order to prevent this desire from happening. Maio and Thomas's (2005) ETSP proposes a set of cognitive strategies that might help people change their attitude towards an object, when they wish to do so. However, consistent with numerous process models in social psychology (e.g., Petty & Cacioppo, 1986; Chaiken, Liberman & Eagly, 1989; Fazio, 1990; Kruglanski, Thompson, & Spiegel, 1999), the ETSP model postulates that people attempt deliberate self-persuasion when they are both able and motivated to their change attitude. Therefore, motivation and ability are crucial determinants of the degree of engagement with the deliberate self-persuasion process.

To explain the rationale of Study 1, it is necessary to first provide an overview of the procedure and then to explain how specific aspects relate to the ETSP model and to past research. In Study 1, teenagers were induced to feel favourably towards an attractive beverage, but were asked not to drink the beverage due to a lack of supplies.

This imposed conflict between personal attraction regarding the tempting object and instruction of avoidance (i.e., "I want it, but I should not have it") guaranteed that participants were exposed to a tempting situation. The ETSP model considers that people engage in deliberate self-persuasion when the desired attitude represents stronger and more varied motivations than the actual attitude. In this study, a strong motivational support for the desired attitude (unfavourable attitude regarding the tempting object) was encouraged in all participants through a request made by the experimenter to avoid the beverage ("I would prefer if you do not drink it"). This request was justified by the lack of supplies of the beverage ("we are almost running out of supplies and I don't think we have enough for the next session"). Because participants usually intend to comply with the experimenter's instructions (see Eagly & Chaiken, 1993), it was assumed that the motivation to comply with the experimenter's request was stronger than the motivation to have the drink. Crucially however, the model also predicts that this external wish must be personally adopted if deliberate self-persuasion is to be performed. Therefore, the personification of the motive to achieve the desired unfavourable attitude regarding the tempting object was manipulated using choice. Along with the experimenter's recommendation to avoid the beverage, participants in one condition were reminded of their freedom to decide if they wanted to drink the beverage or not (high-choice condition); in the other condition, no reference to choice was made (low-choice condition). Increasing choice salience makes the participant's decision to resist the drink a personal decision. As a result, participants should feel personally motivated to achieve the desired unfavourable attitude and to initiate the deliberate self-persuasion process. The hypothesis regarding motivation is that participants in the high-choice condition would be more personally motivated to engage in the deliberate self-persuasion process and would therefore generate more negative thoughts regarding the tempting object than participants in the low-choice condition. It is also expected that the negative information generated about the tempting object will mediate the effect of motivation on subsequent evaluation and/or behaviour regarding the tempting object.

This general approach is supported by past research examining the effects of behaviour-induced attitude change and intrinsic motivation. Behaviour-induced attitude change effects are more likely to occur when people have freely chosen to perform the counter-attitudinal behaviours, with or without foreseeable aversive consequences (Cooper & Fazio, 1984; Cooper & Scher, 1994; Johnson, Kelly & LeBlanc, 1995, Harmon-Jones, 2000; Harmon-Jones et al., 1996; Maio & Olson, 1998; Prislin & Pool, 1996). These effects have been interpreted in the light of cognitive dissonance theory. This theory holds that, in the absence of an external explanation for the counter-attitudinal behaviour, the individual experiences a state of tension that prompts a shift in the relevant attitude, to realign it with the behaviour. When a person perceives him or herself to be personally responsible for acting in the inconsistent manner, dissonance and attitude change are more likely to occur. Quoting Festinger, "in order for dissonance to be large enough to exist there has to be minimal pressure on the person to do what the person does. If there is too much pressure, there is too much justification for having done it and it is all consonant with having done it, there is no dissonance" (Festinger, 1987, p. 383). Choice allows for that minimal pressure to exist because it promotes personal accountability (e.g., Wicklund & Brehm, 1976; Tafarodi *et al.*, 2002) and prevents a situation of too much justification, (e.g., "there was no choice but to act as I did" – Linder, Cooper & Jones, 1967; Sherman, 1970).

Nonetheless, it is important to note that the present paradigm examining resistance to temptation is different from the behaviour-induced attitude change paradigm in three aspects. First, instead of being asked to perform counter-attitudinal behaviours (e.g., put the tempting object in the rubbish bin), participants were asked *not* to perform the pro-actual-attitude behaviour (e.g., not taste the tempting object). Past research suggests that action has a more powerful effect on emotions than inaction. For example, Landman (1988) found that people felt greater regret following an action that resulted in an unfavourable outcome than a non-action that resulted in a similar unfavourable outcome. Second, in behaviour-induced attitude change studies, the actual attitude towards the object is normally clearly favourable or unfavourable.

However, in the case of temptation, the attitude regarding the tempting object is somewhat ambivalent. By definition, temptation is associated with positive and negative cognitions (e.g., "looks delicious but is fattening"). Therefore, there is some support for performing the counter-attitudinal behaviour or not performing the pro-actual-attitude behaviour, which may weaken the need for attitude change (Cooper & Fazio, 1984). Third, although aversive negative consequences are not necessary to produce negative affect and attitude change (Harmon-Jones, 2000), the absence of aversive consequences in our paradigm may potentially weaken this effect. For the reasons mentioned above, it is even more interesting to test if, in the present paradigm, the effect of choice on attitude change is found, and if this effect is mediated by self-persuasion.

In addition, a variety of researchers found that the provision of choice increases intrinsic motivation, reflected by greater task persistence, cognitive engagement with the task, and performance (Deci & Ryan, 1985; Dember, Galinsky & Warm, 1992; Mikulincer, 1988; Monty & Perlmuter, 1987; Perlmuter & Monty, 1977; Perlmuter et al., 1980; Swann & Pittman, 1977; Zuckerman et al., 1978).

The ETSP model also postulates that in order to engage in deliberate self-persuasion processes, people need to feel they are able to do it. Objective ability depends mainly on the size of the discrepancy between actual and desired attitudes. Smaller discrepancies are associated with higher ability to deliberately self-persuade. In order to explore how the effects of motivation would be constrained by ability, this factor was manipulated by varying the valence of information regarding the tempting object. Having in mind that the actual attitude regarding the tempting object is favourable and that the desired attitude is unfavourable, positive information about the attitude object would be highly consistent with the actual attitude and highly inconsistent with the desired one. Thus, presenting positive information about the tempting object would make the discrepancy between the actual and desired attitudes larger than giving participants mixed (positive and negative) information. In one condition, this information was only positive (i.e., large actual-desired attitude

discrepancy), in the other condition, mixed information (positive and negative) was given (i.e., small actual-desired attitude discrepancy). It is expected that motivation (choice) will have an increased effect on deliberate self-persuasion under high-ability (i.e., mixed information) than low-ability (i.e., positive information) conditions.

To recapitulate, Study 1 was designed to explore the effect of motivation on the use of epistemic self-persuasion strategies (i.e., amount of negative information generated regarding the tempting object), and the impact of the use of those strategies in subsequent evaluation and behaviour with the object. A pictorial representation of this study is presented in Figure 3.

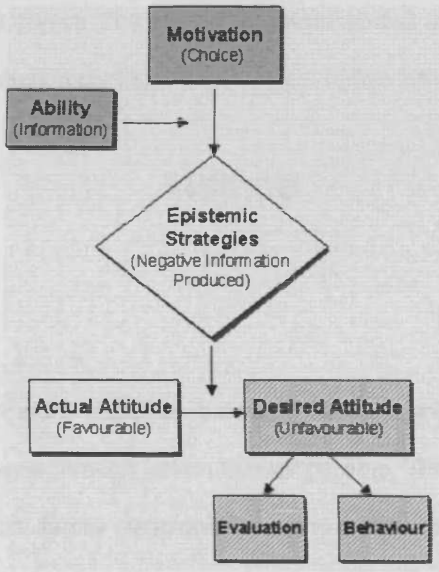

Figure 3. Experimental schema of Study 1

A scenario of temptation was created in the laboratory causing teenagers to feel extremely favourable towards a drink, and to simultaneously believe that they should not have that drink. The chosen attitude object was intentionally unfamiliar to the participants, so they could form an attitude towards this object during the experiment. Teenagers between 12 and 14 years old were chosen as the target population, due to their good cognitive flexibility and their increasing independence towards rules (e.g.,

Weissberg-Benchell & Antisdel, 2000). These two factors of normal adolescent development make this group particularly interesting to study in relation to deliberate self-persuasion to resisting temptation. On the one hand, we would expect teenagers to be quite sensitive to the experimentally induced conflict between personal attraction towards the tempting object and instruction of avoidance. On the other hand, their cognitive flexibility allows them to extensively use the deliberate self-persuasion strategies. Two independent variables were manipulated: a motivational factor (low-choice vs. high-choice to have the object) and an ability factor (positive vs. mixed information about the tempting object). The epistemic use of deliberate self-persuasion was manifested in the number of negative thoughts or ideas participants generated regarding the tempting object. The predictions were tested using a between-subjects analysis. Overall, this study tests hypotheses 1 and 2 (see Introduction).

Method

Participants

Sixty teenagers were recruited between January and May 2002, from High Schools in the Cardiff area through letters to their parents. This experiment was part of a series of studies on family relationships, and each family was paid £35 for participating. The teenagers completed the experiment while their parents were doing an unrelated study in the same building. From the sixty participants tested, six cases were excluded from the analysis. Five were excluded because they were not able to resist and drank the beverage during the experiment, and one was excluded because the participant was not able to eat crisps due to allergy concerns. Participants' behaviour was recorded by a hidden video camera, disguised as a lamp in the laboratory. The final sample included 54 teenagers (26 boys, 28 girls; mean age=13.2 yrs.) from families with diverse social and economic backgrounds.

Design

Two independent variables were manipulated: a motivational factor (low-choice vs. high-choice to have the object) and an ability factor (positive vs. mixed information about the tempting object). A two-way between-subjects factorial design was implemented and participants were randomly assigned to one of the four groups. The main dependent variable was the number of negative attributes participants generated regarding the tempting object. Other dependent variables were considered such as the evaluation and behaviour towards the tempting object.

Procedure

Upon arrival, the teenagers and their families were greeted by two experimenters, and the teenager was invited to follow one of the experimenters to the laboratory. Participants were then introduced to the aim of the study (i.e., to gauge their opinion about some commercial products), and briefly told what was going to happen in the following one hour.

The experimental procedure can be divided into four phases. In Phase 1 (thirst induction), participants were invited to eat crisps of different brands and report their preference. In Phase 2 (exposure to temptation), participants received information about a drink and were exposed to it. In this phase, both ability and motivation manipulations took place. In Phase 3 (epistemic period), participants were asked to give their opinion about the drink by completing a questionnaire. The questionnaire invited the participant to use the epistemic strategies of the ETSP model. In Phase 4 (post-epistemic period), the cognitive and behavioural consequences of epistemic self-persuasion were evaluated. Participants were left alone in the laboratory to watch a film of adverts and participants' behaviour towards the tempting object (and alternative objects present in the room) was videotaped surreptitiously. Participants were also asked to evaluate the tempting object using different measures such as a lexical decision task and an attitude scale.

Phase 1 (Thirst Induction). During this phase, participants were asked to taste salty potato crisps and report their preference. Two bowls with 85 grams of crisps (equivalent to two small standard packs) of the same flavour (salt and vinegar) but from different manufactures (which were not revealed) were located on the table in front of the participant. Participants were asked to eat as many crisps as possible in ten minutes in order to tell which brand they preferred most. This thirst-inducting procedure was adapted from Changizi and Hall (2001), who asked participants to eat 35 grams of salty crisps, and found that thirst modulated perceptions of water transparency. After eating the crisps, participants answered several filler questions regarding their preference and feelings, including a relevant item enquiring about their thirst. The level of thirst was assessed with a 10-point scale from 1 (not at all thirsty) to 10 (extremely thirsty). The amount of crisps consumed was recorded by weighing the remaining crisps.

Phase 2 (Exposure to Temptation). After participants finished the crisps evaluation, the key product was introduced. The name (Quench) and the colour (cherry red) of the drink were chosen to be attractive to a young consumer. Before the participants saw the drink, a typed description of the same drink was provided. At this moment, the ability manipulation took place. Participants in the positive information condition received a description with only positive information about the drink:

We are doing market research on this new type of drink called Quench. We have tested this drink with over one hundred teenagers. Without fail, everyone we have tested liked it very much. In particular, people have described Quench as very tasty, incredibly refreshing, revitalising (because of the amount of vitamins B and C), with a cool exotic aroma, and really thirst quenching.

Participants in the mixed information condition received a description with the same positive information, but also negative information about the drink:

We are doing market research on this new type of drink called Quench. We have tested this drink with over one hundred teenagers. Without fail, everyone we have tested liked it very much. In particular, people have described Quench as very tasty, incredibly refreshing, revitalising (because of the amount of vitamins B and C), with a cool exotic aroma, and really thirst quenching. However, laboratory tests have shown that drinking Quench three times a day for a period of six years is associated with slight tooth decay and the development of cavities. This might be caused by the high level of sugar that Quench has. It has also been found that QUENCH could cause nausea and headaches.

Just before participants started reading the typed description of the beverage, the drink was taken out of a fridge and placed on the desk in front of them, partly blocking the participant's view of the TV screen (see position of the drink in Figure 4). The drink was contained inside a transparent jug covered with cling film to prevent easy access.

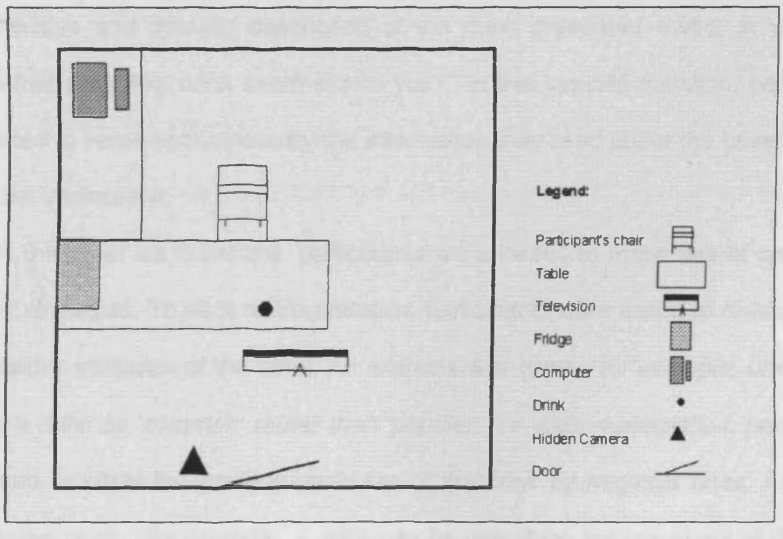

Figure 4. A scheme of the laboratory layout in Study 1.

While the drink was being placed on the table, the motivation manipulation was implemented. Participants in the low-choice condition were told that the drink supply was virtually gone and that participants should not taste it because it had to be saved for future experiments. Participants in the high-choice condition were also asked to not taste the drink, but were told that the final choice was left to them:

> *We are almost running out of supplies and we may not have enough to last for the next experiments before our next shipment, so I would prefer if you don't drink it. Nonetheless, the choice is yours.*

Phase 3 (Epistemic Period). Participants were then given a booklet with questions about the drink. They were told that we were interested in their perception of that particular commercial product. The purpose of this booklet was to explore the type of information that participants would recall and create about the tempting drink, both spontaneously and within epistemic influence. The booklet also included a measure of the confidence participants had in their own reported thoughts (see Appendix 1).

The first of these questions was a general open question: "Give a comprehensive and detailed description of the drink presented earlier in your own words. What does this drink seem like to you?" In this specific question, participants were invited to recall spontaneously the information they read about the beverage and create new information.

In the other six questions, participants were invited to make use of one of the epistemic strategies. To elicit *reinterpretation*, participants were asked to re-label some of the positive attributes of the drink. An example was given: *"for example, one person may see a drink as 'common' rather than 'popular'*. To elicit *reintegration*, participants were asked to offset the positive attributes of the drink by negative ones. Again, an example was given: *"for example, a drink can be refreshing but too sweet at the same time"*. To elicit *reattribution*, participants were asked to say how positive attributes of the drink are partly a result of more negative ones: *"for example, a drink can be tasty*

because it has a very high sugar content". To elicit *change of comparators*, participants were asked to describe how the drink compared to other beverages. To elicit *change of dimensions*, participants were asked to describe the attributes that most strongly influenced the way they felt about the drink. Finally, to elicit *retesting*, participants were invited to reconsider whether the drink possessed those positive attributes.

The answers to the general description and the strategy-specific questions were coded by counting the number of negative and positive attributes recalled or created about the drink, and the number of trait repetitions. In the change of comparators, the number of comparators named by the participants was also coded. To test the reliability of the epistemic coding, five booklets were randomly selected and given to an independent researcher. This researcher counted the number of negative drink attributes, the number of positive attributes, the number of repetitions, and the number of comparators. The inter-judge reliability across the dimensions under evaluation was considered very good (r=.92). Following the last question of the booklet (retesting), two questions regarding thought confidence were included. Recently, Petty, Briñol and Tormala (2002) argued that the degree of confidence people have in their own thoughts has a strong impact on persuasion processes. This type of measure has also the advantage of examining if participants were really convinced of the veracity of their thoughts, rather than just performing a task. The level of confidence in the drink's positive and negative attributes was evaluated with a 10-point scale from 1 (not confident at all) to 10 (completely confident). When participants finished answering the booklet, the experimenter thanked them for their participation, and stated that he or she needed to check whether the participant could pass to another room in order to start another study (in which the parents were participating). The experimenter left the room and returned after a very brief period (around 30 seconds) telling participants that they had to wait five minutes. This 'waiting time' corresponds to the beginning of the fourth and final phase of Study 1.

Phase 4 (Post-Epistemic Period). During this phase, participants' behaviour regarding the tempting drink and other objects present in the room was monitored by a

hidden camera. While waiting, the experimenter encouraged participants to watch a video of "funny" adverts. In the experimenter's words:

I have to leave to prepare the room for the next study. Please feel free to do whatever you want. I won't be long. In the meantime, you can watch a video of awarded TV adverts that we used once for another experiment. OK?

The tape incorporated a continuous sequence of 12 adverts. The first half contained non-drink-related neutral adverts, whereas the second half contained only drink-related adverts. Each group of adverts had approximately the same duration (total duration of neutral adverts = 236 sec.; total duration of drink-related adverts =288 sec.). Half of the adverts were extracted from a tape of 1998 television winning adverts and the other half were contemporary adverts recorded from television channels (see composition of the tape in Table 2). The tape was used to trigger specific behaviours, such as potential indicators of distraction and suppression.

Table 2. Composition of the Tape of Advertisements (Study 1)

Type of Advert	Product	Duration (sec.)
Neutral (awards)	Tennis	60
Neutral (awards)	Deodorant	40
Neutral (TV)	Insurance	30
Neutral (awards)	Phone Directory	46
Neutral (TV)	Mobile Phone	30
Neutral (TV)	Vacuum Cleaner	30
Drink-related (awards)	Ginger Ale	60
Drink-related (awards)	Water	31
Drink-related (TV)	Fizzy Lemonade	27
Drink-related (TV)	Coke	60
Drink-related (awards)	Milk	60
Drink-related (TV)	Fizzy Orange Juice	50

The neutral adverts played the role of a control factor and a distracter. The time participants spent watching the neutral adverts could be an indicator of their intention to distract from the drink and drink-related thoughts. In addition, immediately after starting the neutral adverts and before leaving the room, the experimenter said to the participants, *"If you want, you can move the jug aside"*, as the jug carrying the drink was partly blocking the participant's view of the TV screen (see Figure 4). The purpose of this suggestion was to measure how far away participants would place the jug. This distance (measured in centimetres from the initial position) can be interpreted as a behavioural manifestation of participants' conscious intention to avoid the drink.

While the last neutral advert was playing, the experimenter returned to the experimental laboratory and offered some magazines to the participants: "*I brought you some magazines, feel free to have a look if you want while you are waiting*", and left the laboratory again. The magazines served as potential distracters from the drink itself and from the drink-related adverts that were about to start at this point of the study. While the drink-related adverts were on, the hidden camera monitored participants' reactions. The time participants spent watching neutral adverts and the time participants spent reading the magazines during the drink-related adverts were playing were calculated post-experiment by observation of the videotapes.

At the end of the video, the experimenter returned to the laboratory saying that she had forgotten to ask the participant to perform a task on the computer. Participants were invited to sit in front of the computer to perform a lexical decision task adapted from Aarts, Dijksterhuis and De Vries (2001). The task instructions were as follows:

You are going to see some words in the screen that are going to be presented one by one. Some of these words are real words, some are nonsense words. Your task is to decide as quickly and as accurately as possible whether the word that appears is a real word or not. If you think that it is a real word, press the YES key on the keyboard. If you think that it is not a real word, press NO key on the keyboard. When you are ready you can begin by pressing the ENTER key.

In this task, participants responded to 32 words, 16 of which were existing words, and 16 were nonsense words (e.g., cantol, lil, tupa, sotovar). The task was preceded by four practice trials. The words were presented in a random order. The length of the different types of words was very similar ($M_{\text{drink words}}$= 4.6 letters; $M_{\text{furniture words}}$= 5.0 letters). Among the existing words, eight were drinking-related (Quench, jug, liquid, glass, cup, water, soda, juice). The other eight words were related to furniture present in the experimental room, and these words were presumed not to be associated with thirst and drinking (chair, table, lamp, vase, bin, desk, picture, cupboard). To assess the accessibility of drink-related thoughts, the difference between the time that participants took to recognize a drink-related word as a real word, and the time participants took to recognize a furniture word was calculated. According to the work on thought suppression discussed in the General Introduction, it is plausible to hypothesise that participants who were trying harder to suppress the tempting drink would be quicker in recognizing a drink-related word as a real word, due to the ironic effects of suppression.

After completing the lexical task, participants were given another booklet with questions to answer. This new booklet included an adapted version of the Wegner's White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994), an attitude measure regarding Quench, and some manipulation check questions. The WBSI measure of suppression to drink-related thoughts was adapted, using 9 of the original 13 items (see Appendix 2). Examples of the items are "*I would prefer not to think about drinking or drinks*", "*Thoughts of the drink kept jumping into my head*", and "*I tried not to have drink-thoughts*". The items expressed manifestations of trying to suppress drink or drinking related thoughts, and participants were asked to rate their agreement with each of the items using a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Ratings on the different items were highly intercorrelated (α=.86) and were thus averaged to create a composite Drink-Thought Suppression Index (DTSI).

Participants' attitudes towards Quench were assessed using a series of five 6-point (-3 to 3) semantic differential scales (i.e., negative-positive, unfavourable-favourable, dislikeable-likable, bad-good, awful-nice). Ratings on the different scales were also highly intercorrelated (α=.84) and were thus averaged to create a composite attitude index.

In the final questions of the booklet, participants were asked (a) to rate how appealing was the colour of the drink in a 10-point scale from 1 (not at all) to 10 (extremely), (b) to choose between a glass of water or a glass of Quench if offered, (c) to evaluate the certainty of their choice (using a 4-point scale: 1 - definitely no; 2 - maybe no; 3 - maybe yes; 4 - definitely yes), and (d) to report to the extent to which they were trying to avoid drinking Quench, using a 10-point scale from 1 (not at all) to 10 (extremely).

The experimenter then accompanied the participant to the laboratory to start the study in which the parents were participating.

Ethical Considerations

The experimental situation of Study 1 was designed to tempt teenagers with an attractive drink. To fulfil the study purpose, it was crucial to guarantee that participants did not suspect this intention. For this reason, deception or withholding of information regarding the purpose of the study was used by means of a cover story. Moreover, thirst induction and surreptitious videotaping also took place. Ethical concerns arise in experimentation with human participants whenever children, deception or any form of risk is involved. These concerns were overcome following the ethical principles recommended by the British Psychological Society (BPS, 2000). Parents were informed of the true purpose of the study and its procedure, including the fact that their children would be asked to consume salty crisps and could eventually consume the drink. The Parents' consent regarding the study, including thirst induction and the undercover videotaping was obtained prior to the study. At the onset of the study, participants were informed about the anonymity of the answers and of their right to

withdraw from the research at any time. At the end of the study, participants were appropriately debriefed, receiving information about the nature of the study, the research hypothesis, and the methods used for collecting the data. The debriefing was conducted in the presence of the entire family. They were informed about the videotaping and told that no one had yet viewed the tape and that they could request deletion of it (without anyone seeing it). The experimenter explained that they were not informed about the videotaping prior to the study because such knowledge might have led them to behave in an unnatural or atypical way. Participants also had the opportunity to express how they felt during the experiment and to ask further questions, which allow the monitoring of any unforeseen negative effects or misconceptions regarding the study. Both parents and teenagers were then asked to give their informed consent for the participant's videotape to be released for research purposes. Five participants requested that their tapes be deleted, and their observational data could not be included in the analysis. All data was treated confidentially according to the Data Protection Act.

Results

Manipulation Check

Attraction to the drink was induced by making participants thirsty through eating salty crisps. Participants ate a considerable amount of salty crisps (M=53.70 grams, SD=23.74 grams), and the self-report measure of thirst confirms the idea that the level of thirst was high (M=7.36, SD=1.97) independently of the experimental group (see Table 3). Using a 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVA, no significant differences were found in the level of thirst or in amount of crisps eaten between groups.

Table 3. Means and Standard Deviations of Thirst and Crisps Eaten

Type of Question	Experimental Groups				Total
	Positive Low-choice *n*=13	Positive High-choice *n*=14	Mixed Low-choice *n*=14	Mixed High-choice *n*=13	*N=54*
Self-perceived Thirst	7.46 (2.11)	6.93 (2.20)	7.50 (1.69)	7.58(2.02)	7.36 (1.97)
Crisps Eaten (g)	53.54(26.43)	56.93(26.91)	45.86(22.95)	58.85(17.98)	53.70(23.74)

Epistemic Self-persuasion

The dependent measures regarding epistemic self-persuasion include (1) the negative attributes generated about the drink, (2) the positive attributes generated about the drink, and (3) the number of comparators participants mentioned, when answering both the general and the strategy-specific questions. The confidence in the veracity of the drink's negative and positive attributes was also considered.

Negative Information. Table 4 presents the number of negative drink attributes that participants reported both in the general description and in the epistemic strategy-specific questions. The epistemic strategies that elicit the production of a higher total number of negative attributes about the tempting object are reintegration, reattribution, and change of comparators.

Table 4. Means and Standard Deviations of the Negative Attributes Generated

Task/Strategies	Experimental Groups				Total
	Positive Low-choice *n*=13	Positive High-choice *n*=14	Mixed Low-choice *n*=14	Mixed High-choice *n*=13	*N*=54
General Description	0.15 (0.38)	0.79 (1.31)	0.86 (1.46)	1.69 (1.75)	0.87 (1.40)
Reinterpretation	0.46 (0.88)	1.07 (1.54)	0.71 (0.99)	1.38 (1.26)	0.91 (1.22)
Reintegration	2.15 (1.77)	3.00 (2.94)	2.21 (1.76)	3.54 (2.03)	2.72 (2.20)
Reattribution	1.69 (1.93)	1.07 (1.21)	1.36 (1.45)	1.62 (1.66)	1.43 (1.55)
Retesting	0.38 (1.12)	0.64 (0.93)	0.71 (1.07)	0.77 (1.09)	0.63 (1.03)
Change of comparators	0.69 (0.95)	1.07 (1.07)	1.71 (1.77)	1.46 (1.13)	1.24 (1.30)
Change of dimensions	0.69 (1.49)	0.64 (1.01)	1.14 (1.29)	1.08 (1.55)	0.89 (1.33)

To test hypothesis 1, several 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVAs were conducted, with the number of negative attributes generated in both the general description and epistemic strategy-specific questions serving as dependent variables. Results are presented in Table 5.

Table 5. *F* Ratios and Levels of Significance of the Main and Interaction Effects of Choice and Information on the Negative Information Generated

Task/Strategies	Choice		Information		Interaction	
	F	Sig.	*F*	Sig.	*F*	Sig.
General Description	4.10	.05	4.93	.03	0.08	.78
Reinterpretation	3.83	.05	0.75	.39	0.01	.93
Reintegration	3.32	.07	0.25	.62	0.16	.69
Reattribution	0.18	.67	0.06	.81	1.05	.31
Retesting	0.30	.59	0.63	.43	0.13	.72
Change of Comparators	0.03	.86	4.11	.05	0.82	.37
Change of Dimensions	0.02	.88	1.46	.23	0.00	.98

Regarding the *general description*, a main effect of choice was found, $F(1,54)=4.10$, $p=.05$, suggesting that high-choice participants generated more negative attributes regarding the beverage ($M=1.22$, $SD=1.57$) than did low-choice participants ($M=.52$, $SD=1.12$). Furthermore, a main effect of information given was also found, $F(1,54)=4.93$, $p=.03$, such that participants in the mixed information condition mentioned more negative attributes regarding the drink ($M=1.26$, $SD=1.63$) than did participants in the positive information condition ($M=0.48$, $SD=1.01$). These results support the hypothesis that participants in the high-choice condition were more motivated to engage in deliberate self-persuasion by producing a higher amount of negative attributes about Quench.

A similar effect of choice was found in the analysis of *reinterpretation*, $F(1,54)=3.83$, $p=.05$. Participants in the high-choice condition generated more negative

attributes regarding the beverage (M=1.22, SD=1.39) than did the participants in the low-choice condition (M=0.59, SD=0.93).

A marginal effect of choice was found for *reintegration*, $F(1,54)=3.32$, $p=.07$, such that participants in the high-choice condition generated more negative attributes regarding the beverage (M=3.26, SD=2.50) than did the participants in the low-choice condition (M=2.19, SD=1.73).

The analyses regarding *change of comparators* showed evidence of a main effect of information given, $F(1,54)=4.11$, $p=.05$, such that participants in the mixed information condition generated more negative attributes (M=1.59, SD=1.47) than in the positive information condition (M=0.89, SD=1.01). Moreover, no significant group differences were found in *reattribution*, *retesting* and *change of dimensions*.

Controlling for negative information repetition. The number of times participants repeated the negative attributes across questions was also counted in order to control for the effect of repetition. First, the repetition of negative attributes was entered as the dependent variable into the same 2 (high vs. low choice) x 2 (positive vs. mixed information) ANOVA. A main effect of information was found, $F(1,54)=4.83$, $p=.03$, suggesting that participants in the mixed information condition repeated more negative attributes regarding the drink (M=3.07, SD=3.13) than did participants in the positive information condition (M=1.48, SD=1.94). Second, and more importantly, the total number of negative attributes (i.e., generated both in the general description and across all epistemic strategy-specific questions) was subjected to a 2 (high vs. low choice) x 2 (positive vs. mixed information) between participants ANCOVA, with the repetition of negative attributes as a covariate. This time, only a main effect of choice appeared, $F(1,54)=5.98$, $p=.02$. Participants in the high choice condition mentioned more negative attributes regarding the drink (M=1.43, SD=0.89) than did participants in the low choice condition (M=1.06, SD=0.83). Neither the main effect of information nor the interaction choice x information was significant. This result indicates that when the number of times participants repeat the negative attributes is controlled, the effect of information stops being significant and only choice accounts for the variability.

Positive Information. The same ANOVA analysis was performed using the number of positive attributes generated in both the general and epistemic strategy-specific questions as the dependent variable. An opposite pattern of results was expected, but no significant effects were found between experimental groups.

Number of Comparators. The number of comparators generated was also entered into a 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVA. The analysis revealed a main effect of choice, $F(1,54)=7.05$, $p=.01$, with participants in the high-choice condition generating more comparators ($M=2.24$, $SD=1.64$) than participants in the low-choice condition ($M=1.30$, $SD=.82$). Neither the main effect of information nor the choice x information interaction was significant.

Epistemic Confidence. The confidence in both the negative and positive thoughts raised through epistemic reasoning was entered into a 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVA. Participants' confidence in the truthfulness of the negative drink attributes generated by them did not reveal any significant difference between groups. All groups seem to refer to the mid-point of the scale, reporting on average slightly more confidence that the negative drink attributes are truthful than the opposite ($M=5.80$, $SD=2.30$). Similarly, no significant effects were found regarding the confidence in the generated positive drink attributes.

Cognitive and Behavioural Consequences

The cognitive and behavioural consequences of epistemic self-persuasion were evaluated using a variety of different measures. The behavioural measures included: (1) length of jug shift, (2) time watching neutral adverts, and (3) time reading magazines. The cognitive measures included: (1) attitude towards Quench, (2) Quench's colour appeal, (3) accessibility of drink-related thoughts, (4) DTSI score and (5) perceived effort avoiding Quench. To test the effect of motivation on the cognitive and behavioural consequences of epistemic self-persuasion and to test how this effect

is constrained by ability, these measures were entered into a 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVA. Results are summarized in Table 6.

Table 6. *F* Ratios and Levels of Significance of the Main and Interaction Effects of Choice and Information on the Cognitive and Behavioural Measures

Measures	Choice		Information		Interaction	
	F	Sig.	*F*	Sig.	*F*	Sig.
Behavioural						
Length Jug shift	0.00	.97	1.16	.29	11.68	.01
Time watching neutral adv.	0.60	.44	4.33	.04	1.08	.31
Time reading magazines	2.23	.15	3.39	.07	0.26	.61
Cognitive						
Attitude towards Quench	0.23	.63	0.08	.77	0.02	.90
Quench's colour appeal	1.87	.18	1.12	.29	1.03	.32
Accessibility of drink thoughts	2.03	.16	3.12	.08	1.45	.23
DTSI score	0.94	.34	1.64	.21	2.20	.15
Avoid drinking	0.37	.54	4.14	.05	0.30	.59

Length of jug shift. Results regarding the *length of the jug's shift* from its original proximal position revealed a significant interaction between choice and information given, $F(1,50)=11.67$, $p<.01$. Participants in the low-choice condition with mixed information moved the jug less (kept it closer, $M=22.04$, $SD=16.43$) than those with positive information ($M=32.82$, $SD=11.64$); whereas in the high-choice condition, participants with mixed information moved the jug more (further away, $M=37.96$, $SD=19.94$) than those in the positive information condition ($M=17.29$, $SD=14.87$). Note that it was predicted that participants in the high-choice-mixed-information condition would not need to avoid the drink as much because they had already generated more negative information during the prior epistemic phase. Contrary to this prediction, the high-choice-mixed-information participants manifested more behavioural avoidance by moving the jug further away. High-choice-positive-information participants moved the drink to a lesser extent, expressing a lower necessity to avoid the tempting object.

Time watching neutral adverts. As regards the time participants spent watching neutral adverts, a main effect of information was found, $F(1,39)=4.33$, $p=.04$. Participants in the mixed information condition spent more time watching neutral adverts ($M=3.40$, $SD=0.05$) than participants in the positive information condition ($M=3.25$, $SD=0.30$). These results may suggest that mixed information participants were trying harder to distract themselves from the drink than positive information participants. [1]

Time reading magazines. Regarding the time participants spent reading the magazines, only a marginally significant effect of information was found, $F(1,39)=3.38$, $p=.07$. Participants in the mixed information condition seem to spend less time reading the magazines ($M=116.11$, $SD=96.01$) than participants in the positive information condition ($M=166.61$, $SD=82.19$). These results suggest that in the most eliciting part of the film, mixed information participants used less distraction from drink-related adverts than positive information choice participants.

Accessibility of drink-related thoughts. The accessibility of drink-related thoughts was measured by computing the difference between the time that participants took to recognize a drink-related word and the time participants took to recognize a furniture-related word as real words. The ANOVA revealed a marginally significant main effect of information, $F(1,49)=3.12$, $p=.08$. Participants in the mixed information

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[1] The number of times participants looked at the drink while neutral and drink-related adverts were playing was counted as an exploratory measure of the difficulty to resist temptation (it was not possible to ensure an accurate measure of eye direction by the quality and zoom level of the videotapes). These measures were analysed in the same ANOVA, but no between groups differences were found. However, considering the overall sample, participants looked more at the drink in the first part of the film (neutral adverts) than in the second part (drink-related adverts), $t(36)=4.48$, $p<.01$. This seems to confirm that the second part of the film was more attention eliciting than the first part.

condition are quicker at recognizing a drink-related word as a real word in comparison with furniture-related words (*M*=47.21, *SD*=233.82) than participants in the positive information condition (*M*=-60.63, *SD=168.98*). This result suggests that drink-related words are more accessible to mixed information participants than positive information participants. Moreover, a t-test was conducted to assess the difference between the two reaction times, but differences were not significant.

Drink-thought suppression (DTSI). No differences were found in relation to the *drink-thought suppression* score. The four experimental groups reported a score of 2.51, which reveals an almost neutral position between disagreement and agreement with the suppression items.

Attitude towards Quench. Regarding the attitude towards the beverage, no differences between groups were found, and there was no significant correlation between the amount of negative information generated and the attitudinal scores. All groups expressed a slightly positive attitude regarding Quench (*M*=1.17, *SD*=0.95).

Quench's colour appeal. No significant differences were found on how appealing participants rated the colour, which was evaluated as quite appealing (*M*=7.02, *SD*=2.60).

Perceived effort avoiding Quench. Finally, results regarding *perceived effort to avoid drinking* Quench revealed a main effect of information, $F(1,54)=4.14$, $p=.05$. Participants in the mixed information condition reported avoiding the beverage to a greater extent (*M*=5.33, *SD*=2.88) than participants in the positive information condition (*M*=3.78, *SD*=2.59).

Choice between water or Quench. A Chi-square test was performed to evaluate the difference between conditions regarding the decision in favour of a glass of water and a glass of Quench. The difference was not significant. In addition, the level of certainty regarding the choice was entered into a 2 (high vs. low-choice) x 2 (mixed vs. positive information) ANOVA, but no significant results were found. All groups reported to be quite certain (*M*=3.37, *SD*=0.73) of their decisions.

Test of Self-Creation Hypothesis

As hypothesised, high-choice groups produced more negative descriptions of the drink than low-choice groups. However, the effect of choice did not coherently transfer into the cognitive and behavioural measures. The choice effect emerged for only one behavioural task (i.e., length of jug shift), and for the group expected to be less good at deliberate self-persuasion. Focusing on the first measure, high-choice-mixed-information participants moved the drink further away (manifesting a stronger inclination to avoid the drink), while the high-choice-positive-information participants moved the jug less. The opposite pattern of results would be expected, as the high-choice mixed group was the one that epistemically produced more negative descriptions. According to the ETSP model, this should prevent the necessity to avoid the drink. A possible interpretation for the apparently inconsistent results is discussed and tested below.

It could be argued that this unexpected finding regarding the length of jug shift can be explained by two different points of view. The first, the *attraction hypothesis*, would argue that high-choice-positive-information participants place the jug closer to them because they see the object as more attractive. In contrast, the high-choice-mixed-information participants move the jug further away because, by generating more negative attributes, they are not so attracted to it. This view is consistent with the widely accepted hedonic principle that people approach attractive and avoid unattractive things. However, this explanation is difficult to integrate with the fact that the mixed group reported to have tried avoiding Quench to a greater extent, and were concentrating more on the adverts while they were left alone in the room with the drink.

The second alternative explanation is that high-choice-positive-information participants placed the jug closer to them because the negativity generated by the positive group was self-created, being therefore a more powerful tool to reduce temptation – *self-creation hypothesis*. The positive group only received positive information about the tempting object. However, when choice was made salient,

participants did generate negative information, which was self-created. To test the self-creation hypothesis, the number of self-created negative attributes (i.e., different from the given ones) participants generated in the epistemic measures was counted (see Table 7). The analysis of group differences for the general description revealed that the amount of self-created negative information was higher in the high-choice-positive-information group than in the low-choice-mixed group (Tukey HSD p=.06); no other significant group differences were found. Faced with a highly positive object and with the choice to have it, participants in the high-choice-positive-information condition had to find a plausible justification for not drinking Quench, such as trying to discover a potential negative side of the beverage. This implication of the self in the creation of negative information may be powerful enough to make these participants less attracted by the beverage and, consequently, to decrease the need to place the object in a distant position. On the other hand, participants in the mixed information condition simply elaborated on the information given, which may not be equally helpful to devalue the object. For this reason, they may have avoided the beverage by placing it further away.

Table 7. Means and Standard Deviations of the Self-Created Negative Attributes

Task/Strategies	**Experimental Groups**				**Total**
	Positive Low-choice n=13	Positive High-choice n=13	Mixed Low-choice n=13	Mixed High-choice n=13	N=54
General Description	0.15 (0.38)	0.79 (1.31)	0.07 (0.27)	0.15 (0.38)	0.30 (0.79)
Reinterpretation	0.46 (0.88)	0.86 (1.51)	0.57 (0.94)	0.54 (0.78)	0.61 (1.05)
Reintegration	1.54 (1.05)	2.36 (2.31)	1.07 (0.83)	1.38 (1.39)	1.59 (1.55)
Reattribution	1.00 (1.29)	0.43 (0.51)	0.79 (1.12)	0.69 (1.18)	0.72 (1.05)
Retesting	0.08 (0.28)	0.36 (0.63)	0.36 (0.63)	0.08 (0.28)	0.22 (0.50)
Change of comparators	0.54 (0.78)	0.71 (0.91)	0.57 (1.22)	0.77 (1.01)	0.65 (0.97)
Change of dimensions	0.38 (0.77)	0.29 (0.47)	0.14 (0.36)	0.31 (0.63)	0.28 (0.56)

The self-creation hypothesis would be plausible as an explanation if the negative adjectives generated in the epistemic task would predict the subsequent length of jug shift in the positive information condition but not in the mixed one. Two sets of analyses were conducted to test this hypothesis further and to demystify these findings. First, the number of self-created negative attributes reported in the general description was subjected to a 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVA. The results revealed a marginal main effect of choice, $F(1,54)=3.22$, $p=.08$, such that participants in the high-choice condition generated more self-created negative attributes regarding the beverage ($M=0.48$, $SD=1.01$) than participants in the low-choice condition ($M=0.11$, $SD=0.32$). Moreover, a main effect of information was also found, $F(1,54)=3.22$, $p=.08$, suggesting that participants in the positive information condition generated a higher amount of new negative attributes regarding the drink ($M=0.48$, $SD=1.01$) than participants in the mixed information condition ($M=0.11$, $SD=.32$). These results support the self-creation hypothesis. Second, a mediation analysis was conducted to test the effect of choice in the length of jug shift, by entering the number of creative negative attributes as a mediator. Mediation is fully supported if the mediation models satisfy the following conditions (see Baron & Kenny, 1986): (a) the predictor variable significantly predicts both the mediating and the dependent variables; (b) the path between the predictor variable and the dependent variable drops to non-significant levels (and as close to zero as possible) when the mediating variable is controlled for; and (c) the path from the mediating variable to the dependent variable is significant when the predictor variable is controlled. As shown in Table 8, the effect of choice on jug shift, $\beta=-.52$, $p=.01$, and on creative negative attributes, $\beta=.35$, $p=.05$, were only significant for the positive information condition. When choice and creative negative attributes were included as simultaneous predictors of jug shift, the effect of creative negative attributes on jug shift was significant, $\beta=-.39$, $p=.05$, whereas the effect of choice on jug shift was reduced, but still remained significant, $\beta=-.38$, $p=.05$. The results of the regression analysis

suggest that the effect of choice on jug shift was partially mediated by the amount of creative negative attributes generated in the positive information condition. However, following the recommendations of Preacher and Hayes (2004), Sobel tests were performed and results indicated that the reduction of the total effect of choice on jug shift was not significantly reduced upon the addition of the creative negative attributes as mediator (*Sobel value*=4.03, p=.21). In contrast, no mediation was found in the mixed information condition.

Table 8. Mediation Analysis for Jug Shift (DV) With Choice as a Predictor (P) and Number of Creative Negative Attributes as a Mediator (M)

Condition	*r* P-DV	*r* P-M	*r* M-DV	β_{St} M-DV	β_{St} P-DV	Sobel Value	n
Positive	-.52**	.35*	-.52**	-. 39*	-.38*	4.03	23
Mixed	.41*	.13	-.03	-.09	.43*	.47	27

Note: ** p≤.01, * p≤.05

The self-creation hypothesis is also consistent with other findings. It explains why the positive group was slower than the mixed one in recognizing a drink-related word as a real word in the lexicon-decision task, and reported less avoidance of Quench.

Discussion

The Epistemic and Teleologic Model of Deliberate Self-persuasion highlights the importance of motivation for deliberate self-persuasion. There is evidence to support hypothesis 1. People with higher motivation (i.e., high-choice) performed better in deliberate epistemic self-persuasion by generating a higher amount of negative attributes about the tempting object. Results indicated that choice is an important motivational factor of deliberate self-persuasion. This is consistent with the robust

effects of choice in the literature on intrinsic motivation and on behaviour-induced attitude change. When people freely choose to perform a task, they engage cognitively to a greater extent in the task and perform better (e.g., Monty & Perlmuter, 1987). If the task is a counter-attitudinal behaviour, attitude change is more likely to occur (e.g. Harmon-Jones, 2000).

The effect of choice on deliberate epistemic self-persuasion did not have a coherent impact on the subsequent cognitive and behavioural measures. Choice effects emerged for only one measure, and for the group that was expected to be less good at deliberate self-persuasion. The high-choice-positive-information group kept the drink closer. It was expected that the effect of choice on deliberate self-persuasion would be more salient in the high-ability group (i.e., mixed information). Consistent with the expectations, the mixed-information group tended to generate a higher amount of negative drink attributes than the positive-information group. However, there is some evidence that the positive-information group produced a greater amount of creative negative drink attributes than the mixed group, and that this self-generated negative information partly mediates the effect of choice on behaviour (i.e., length of jug shift) only for the positive group. This last result provides some support for hypothesis 2.

The ETSP model postulates that if deliberate self-persuasion to resist temptation is successful, the desired negative attitude towards the tempting object should replace the actual positive attitude in people's phenomenological and behavioural experience. Overall, results suggest that choice has an important impact on the success of deliberate self-persuasion, and that the high-choice-positive-information group may be more successful in this attitude-behavioural change. The interesting question is why this happens. A possible explanation may be found in cognitive dissonance theory. Arguably, the high-choice-positive-information participants should be the ones feeling greater dissonance regarding Quench. This group of participants faced a highly dissonant and threatening situation. They were presented with a very positive drink, and had the choice to have it. Yet, they decided not to consume the beverage. According to cognitive dissonance theory, when inconsistency

between the cognitions was recognised, participants in this group felt dissonant, and in order to reduce this tension, they tried to find a plausible justification for not having the beverage. Therefore, even if only positive information about Quench was provided, they actively generated possible negative attributes about the beverage. The effortful creation of a new negative desired reality that did not previously exist in participants' minds may have had a powerful effect. Hence, this theoretical account could explain the results regarding the behavioural consequences of epistemic self-persuasion.

Limitations

The present study has several limitations. First, temptation was induced in the laboratory and it can be argued that this is not a real-life situation of temptation. In particular, the idea that the tempting object is goal-deviant is provided by an external source (the experimenter) and not by the participants themselves. This limitation was overcome in Study 2 by applying a similar experimental paradigm to a more personally relevant situation of temptation.

Second, this study was also limited in the identification of the epistemic strategies that people spontaneously choose to use. Participants were asked to make use of all six epistemic strategies when answering the booklet of questions about the drink. With this type of technique it is only possible to find out which epistemic strategies elicit the production of higher number of negative attributes about the tempting object, which in itself is a valid but limited result. However, in Study 2, this limitation was overcome by providing participants with the opportunity and freedom to choose which of the different types of epistemic strategies they prefer to use.

Third, choice did not have an effect on attitudinal change. This null effect might be due to the present design, in which participants were asked not to perform a pro-actual-attitudinal behaviour, when the actual attitude was somewhat ambivalent and no aversive consequences were involved (as discussed in the introduction of this study). Nevertheless, the attitudinal measure was included at the end of the study, which might have undermined the likelihood of revealing an effect. In particular, the film may have

distracted participants from their goal of derogating the drink and blurred the differences between groups. Indeed, studies on post-dissonance and induced compliance have found that distraction (i.e., in this case adverts by other drinks) inhibits the formation of the desired attitude (Allen, 1965; Ebbesen et al., 1975; Zanna & Aziza, 1976, *cit. in* Maio & Thomas, 2005). To address this limitation, in Study 2, the same attitudinal measure was included straight after the epistemic measures.

Fourth, the role of cognitive dissonance in the deliberate self-persuasion processes was not directly tested. In Study 2, a measure of dissonance or negative affect is included to analyse the relationship between choice, epistemic self-persuasion and dissonance.

Finally, this study did not include a clear measure of behavioural resistance. The measures considered were somewhat indirect measures of resistance (e.g., length of jug shift and self-reported preference for Quench over water). In Study 2, a clearer behavioural measure of resistance was included, which consisted of offering participants a real opportunity to taste the tempting object.

Conclusions

In conclusion, after being exposed to temptation, high-choice participants tend to engage more in deliberate epistemic self-persuasion than low-choice participants by producing more negative and self-created negative attributes regarding the tempting object. Positive information participants generated more self-created negative descriptions of the drink when choice was salient. The epistemic self-created negative information may be a key factor for the success of deliberate self-persuasion to resist temptation. Nevertheless, further research is needed to test the reliability of these conclusions.

STUDY 2

Introduction

This study aims to overcome some of the limitations of the Study 1 by applying the ETSP model to a temptation context of higher personal relevance: restrained eaters and chocolate. Concerns with healthy eating and diets are common, in part because obesity is rising and food-related health problems seem to be more frequent. In the United Kingdom, the level of obesity has doubled in the past 20 years, mostly among children (Reilly & Dorosty, 1999). The frequency of overweight children ranges from 22% at 6 years to 31% at 15 years of age, and obesity frequency ranges from 10% at 6 years to 17% at 15 years of age. These statistics are alarming because overweight and obesity increases the risk of several health problems, such as diabetes, heart disease, certain cancers, infertility, and depression.

In spite of such disquieting evidence, resisting unhealthy food continues to be difficult, often because unhealthy foods can be very tempting. Chocolate in particular has been found to be the most commonly preferred food in response to craving episodes in Western cultures (Lafay et al., 2001; Weingarten & Elston, 1990), and it is often considered to be the forbidden fruit in weight-loss diets (Knight & Boland, 1989). Dieters or restrained eaters would perhaps wish they had a more negative attitude towards chocolate to prevent unhealthy behaviours. The cognitive strategies in the ETSP model may help restrained eaters to change to a more negative attitude regarding chocolate.

In Study 2, restrained eaters were exposed to a set of attractive chocolate bon-bons and, at the same time, were asked not to eat them due to a lack of supplies. By definition, restrained eaters are people who chronically restrict their food intake in order to prevent weight gain (Herman & Polivy, 1980). They were chosen as the target population because of their wish to prevent weight gain, which makes the motive to

resist temptation personal and justifiable. The resulting conflict between personal attraction towards the tempting object and the personal desire to avoid it guarantees that participants are exposed to a tempting situation. After participants recognise the discrepancy between the actual favourable attitude and the desired unfavourable one, they may try to reduce it by deliberate self-persuasion.

According to the ETSP model, motivation determines the likelihood that people will attempt deliberate self-persuasion. As in Study 1, the degree of personal motivation was experimentally manipulated among participants by varying the salience of their freedom to choose whether or not to consume the tempting object. Increasing choice salience reinforces the participants' personal decision to resist the tempting chocolates and perform deliberate self-persuasion process. Ability is also an important determinant in deliberate self-persuasion. As in Study 1, ability was manipulated by varying the valence of information regarding the tempting object, in order to retest how the effects of motivation are constrained by ability.

The process of deliberate self-persuasion was investigated further by examining the epistemic strategies that people spontaneously use to resist temptation. The potential effects of manipulations of motivation and ability on the subjective experience of cognitive dissonance were also examined. Abundant research has supported the role of dissonance as a motivator of attitude change (Zanna & Cooper, 1974; Zanna, Higgins & Taves, 1976). By applying Festinger's (1957) cognitive dissonance theory to deliberate self-persuasion, it is plausible that cognitive dissonance is also a motivator of deliberate self-persuasion. The recognition of the inconsistency between actual and desired attitude could induce cognitive dissonance. In order to reduce dissonance, people may engage in deliberate self-persuasion by transforming the actual undesired attitude into a new attitude that matches the desired one. In other words, dissonance may mediate the effects of motivation and ability on attitude-change.

To recapitulate, Study 2 was designed to explore, in the context of temptation with restrained eaters and chocolate, the effect of motivation on the use of epistemic self-persuasion strategies (i.e., amount of negative information generated regarding the

tempting object), and the impact of the use of those strategies in subsequent dissonance, evaluation, and behaviour regarding the object. A schematic representation of Study 2 is presented in Figure 5.

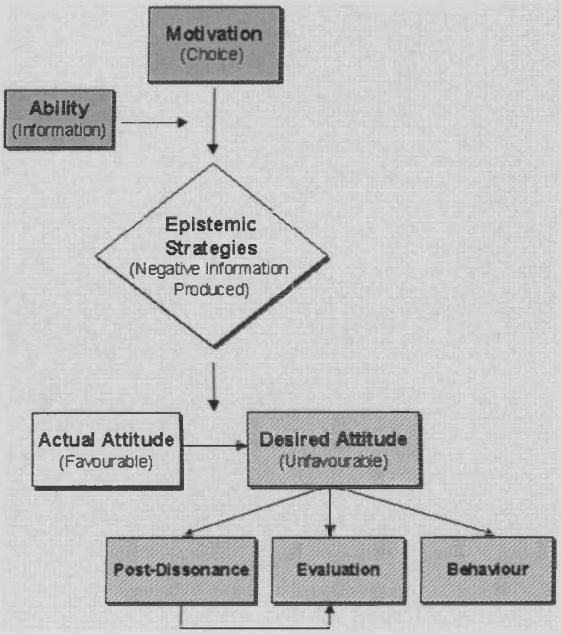

Figure 5. Experimental schema of Study 2

As in Study 1, two independent variables were manipulated: a motivational factor (low-choice vs. high-choice to have the object) and an ability factor (positive vs. mixed information about the tempting object). The epistemic use of deliberate self-persuasion was measured by the amount of negative thoughts or ideas participants generated regarding the tempting chocolates. Between- and within-subjects analyses were used to test hypotheses 1 and 2 (see Introduction).

Method

Participants

Pre-test. Participants were recruited using two different methods to guarantee a satisfactory sample size. The first method involved a pre-test session with first-year psychology students at Cardiff University. The second method offered Cardiff University students free entrance into a lottery to win £75. All potential participants were tested for eating tendencies using the widely used Herman and Polivy Restraint Scale (1980). This scale was included in a booklet among other personality measures (e.g., Maximising/Minimising Scale by Schwartz et al., 2002; Delusions Inventory by Peters et al., 2004) in order to minimize participants' attention to its content. The Herman and Polivy Restraint Scale consists of 10 self-reported items assessing attitudes toward eating, frequency of dieting, and weight fluctuations (see Appendix 3).

In October 2003, all first-year psychology students were recruited for a pre-test session. One hundred and ninety four students attended the session (160 females and 34 males; mean age= 18.9 yrs.), of whom 88 (45.4%) were diagnosed as restrained eaters according to the recommended cut-off score of 13 (Herman & Polivy, 1980; Herman et al., 1987).

In January and April 2004, two contests to win £75 took place at the Cardiff University Students Union entrance. Students had the chance to win this prize by filling a 15-minute questionnaire, which included the restraint scale. In total one hundred and ninety-eight students participated in both contests. Seven participants were excluded from the final sample because they did not complete the scale and, from the remaining 191 participants, 83 (41.9%) were diagnosed as restrained eaters.

Selected Sample. Across both recruitment methods, a total of 197 students were identified as restrained eaters. These students were invited to participate in the main study and were offered £5 for a 30-minute experimental session. From the 88

restrained eaters identified in the pre-test session at the School of Psychology, 28 returned to the lab, and from the 83 restrained eaters identified in the Students Union contests, 19 returned to the lab. In total, 47 restrained eaters (42 females and 5 males; mean age=20.2 yrs.) participated in the experiment.

Design

This study used a between-subjects factorial design. Similar to Study 1, two experimental factors were manipulated: an ability factor (positive vs. mixed information about the tempting object) and a motivational factor (low-choice vs. high-choice to have the object). Participants were randomly assigned to one of the four groups. The main dependent variable was the number of negative attributes that participants generated for the tempting object. Other dependent variables were considered, such as the level of dissonance, and indicators of evaluation and behaviour towards the tempting object.

Procedure

Upon arrival at the laboratory, participants were greeted by a female experimenter, invited to sit in a chair, and briefly told about the aim of the study and what was going to happen in the following hour. The experimenter claimed that the purpose of the study was to gauge their opinion about some commercial products, and that the product involved in their session was a new type of chocolate.

The experimental procedure was similar to Study 1 and can be divided into four phases. In Phase 1 (exposure to temptation), participants were welcomed to the laboratory and received information about the chocolates, being exposed to the product. In this phase, both the ability and motivation manipulations took place. There was not a hunger induction, since it was assumed that a person who is trying to restrain food intake would be attracted to food in general and chocolate in particular. In Phase 2 (epistemic period), participants were asked to give their opinion about the product both in oral and written forms. The epistemic strategies were given to participants at this phase in order to help them perform the written task. Post-epistemic

dissonance was also measured. In Phase 3 (post-epistemic period), the cognitive and behavioural consequences of epistemic self-persuasion were evaluated. Participants were left alone in the laboratory to watch a film of adverts, and participants' behaviour towards the tempting object and alternative objects present in the room was unobtrusively videotaped. After the film had finished, participants completed some final questions, and were offered the opportunity to actually eat the chocolate bon-bons.

Phase 1 (Exposure to Temptation). During this phase, participants' general attitude towards chocolate was assessed using a series of five 6-point (-3 to 3) semantic differential scales (i.e., negative-positive, unfavourable-favourable, dislikeable-likable, bad-good, awful-nice). Ratings on the different scales were highly intercorrelated (α=.79), and were averaged to create a composite attitude index. Then, participants were exposed to the chocolates. The name (Smooth) and the luxurious appearance of the chocolates were chosen to be attractive to a young adult consumer. Before the chocolates were presented, participants received a typed description of the chocolates. At this time, the ability manipulation took place. Participants in the positive information condition only received a description with positive information about the chocolates:

We are doing market research on a new type of chocolate called Smooth. We have tested these chocolates with over one hundred people. Without fail, everyone we have asked liked them very much. In particular, people have described Smooth as being deliciously rich, with a unique exotic taste, incredibly smooth, healthy (being natural carob, which is low in carbohydrate and fat, but high in protein), and with the ability to satisfy your cravings.

Participants in the mixed information condition received a description with both the same positive information and also negative information:

We are doing market research on a new type of chocolate called Smooth. We have tested these chocolates with over one hundred people. Without fail, everyone we have asked liked them very much. In particular, people have described Smooth as being deliciously rich, with a unique exotic taste, incredibly smooth, healthy (being natural carob, which is low in carbohydrate and fat, but high in protein), and with the ability to satisfy your cravings. However, product evaluators predict that eating Smooth three times a day for a period of six years may cause tooth decay and the development of cavities. This might be caused by the high percentage of carbohydrate from dextrose (a form of sugar) that Smooth has. It was also found that Smooth could cause nausea and headaches.

Immediately before participants started reading the typed description of the chocolates, a plate of Smooth bon-bons was taken out of a fridge and placed on the desk in front of the participants, partly blocking their view of the TV screen (see Figure 6). The plate that carried the chocolates was white and was covered with cling film to prevent easy access.

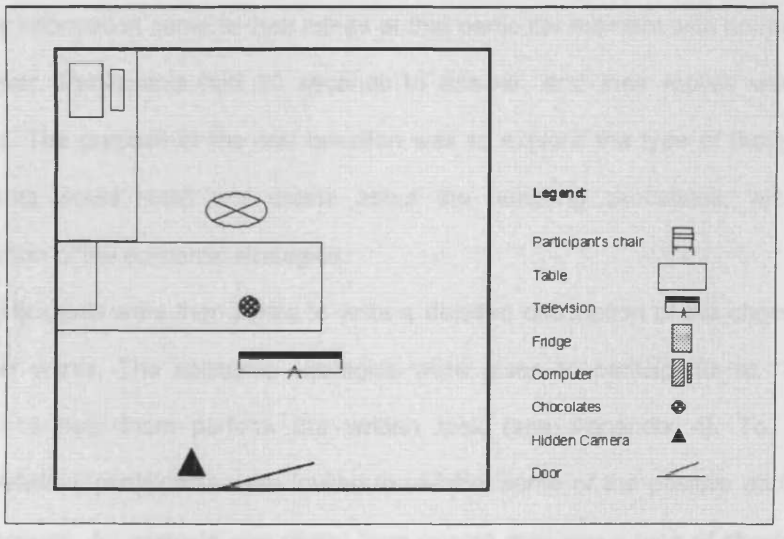

Figure 6. A scheme of the laboratory layout in Study 2

While the chocolates were being placed on the table, the motivation manipulation was implemented. The experimenter told participants in the low-choice condition that the chocolate supplies were virtually gone and that participants should not sample the product because it had to be saved for future experiments. The experimenter's prescription to not taste the chocolate bon-bons was the same for participants in the high-choice condition, except that she added that the choice was up to each participant:

> *We are almost running out of supplies and we may not have enough to last for the next experiments before our next shipment, so I would prefer if you don't eat them. Nonetheless, the choice is yours.*

Phase 2 (Epistemic Period). Participants were then asked to give their opinion about the product in oral and written forms. First, a general question about the chocolates was presented orally - *'What comes first to your mind when you think about Smooth?'* Participants were instructed to reply using the free association method (Pope, 1978). Following this method, participants were instructed to report orally whatever information came to their minds at that particular moment with no restrictions whatsoever. Participants had 30 seconds to answer, and their replies were audio recorded. The purpose of the oral question was to explore the type of thoughts that participants would recall and create about the tempting chocolates, without the presentation of the epistemic strategies.

Participants were then asked to write a detailed description of the chocolates in their own words. The epistemic strategies were given to participants as "ideas of thought" to help them perform the written task (see Appendix 4). To illustrate *reinterpretation*, participants were invited to re-label some of the positive attributes of the chocolates. An example was given: *"one person may see a type of chocolates as popular but another sees it as common"*. To illustrate *reintegration*, participants were invited to offset the positive attributes of the chocolates by the negative ones. Again, an

example was given: *"for example, a chocolate can be tasty but too sweet at the same time"*. To illustrate *reattribution*, participants were presented with the idea of how the positive attributes of the chocolates are related with (or partly a result of) more negative ones; *"for example, a chocolate can taste exotic because of its artificial flavourings"*. To illustrate *retesting*, participants were invited to reconsider whether the chocolates really possessed those positive attributes. To illustrate change of comparators, participants were informed that they could describe how the chocolates could be compared to others. To illustrate change of dimensions, participants were invited to reflect on to which extent the chocolates' attributes were important to them.

The epistemic written task was designed this way in order to explore the type of Smooth-associated thoughts that participants would recall and generate with the epistemic influence, and to test which of the given epistemic strategies would be more frequently used. When participants finished reading the instruction sheet of this task, the piece of paper was collected and participants were given a new blank sheet to write their thoughts about Smooth. Both oral and written Smooth descriptions were coded by counting the number of negative and positive attributes (recalled or self-created) about the chocolates. As in Study 1, it is important to distinguish between recalled and self-created attributes.

The coding of the epistemic strategies was performed in the same manner as in Study 1. To test the reliability of the coding, copies of the oral and written answers of ten participants were randomly selected and given to an independent researcher. This researcher coded the number of negative smooth attributes (recalled and self-created), the number of positive smooth attributes (recalled and self-created), and the frequency of each epistemic strategy. The inter-judge reliability across all of the dimensions under evaluation was high (r=.91).

Phase 3 (Post-Epistemic Period). Following the written task, participants were asked to complete three additional scales assessing epistemic confidence, dissonance, and their attitude regarding Smooth. The level of confidence participants had in their own thoughts, and the participants' attitude regarding the chocolates were

measured in the same way as Study 1. The attitudinal scale was again highly reliable (α=.89).

Dissonance was measured using the Psychological Discomfort Measure of Elliot and Devine (1994). This measure of affect comprises the items, *uncomfortable*, *uneasy,* and *bothered* along with 21 other filler items (see Appendix 5). Participants were instructed to indicate how they were feeling at that particular moment by circling numbers in a series of 7-point scales, ranging from 1 (this feeling does not apply at all) to 7 (this feeling applies very much). The reliability of the scale was satisfactory (α=.70). A post-epistemic dissonance index was composed by averaging participants' responses to these three items.

When participants finished answering these measures, they were told that they would have a small interval to rest, and would later restart the study. During this phase, participants' behaviour was monitored with a hidden camera. At this point, participants were instructed as follows:

Now we will have an interval to rest and then we will continue the study. I will leave you during this time and return when the interval is finished. Please feel free to do whatever you want. I won't be long. In the meantime, you can watch a video of winning TV adverts that we used once for another experiment. Is this ok?

This tape incorporated a continuous sequence of 10 adverts. The first half contained neutral adverts (the same adverts used in Study 1), whereas the second half contained only chocolate-related adverts. The total duration of the neutral adverts was longer (235 sec.) than the total duration of chocolate-related adverts (120 sec.) (the composition of the tape is presented in Table 9). Again, the tape was used to trigger specific behaviours, such as potential indicators of distraction and suppression.

Table 9. Composition of the Tape of Advertisements (Study 2)

Type of Advert	Product	Duration (sec.)
Neutral (awards)	Tennis	60
Neutral (awards)	Deodorant	40
Neutral (TV)	Insurance	30
Neutral (awards)	Phone Directory	45
Neutral (TV)	Mobile	30
Neutral (TV)	Hoover	30
Chocolate-related (TV)	Chocolate Bar	30
Chocolate-related (TV)	Chocolate Ice-cream	20
Chocolate-related (TV)	Chocolate Bar	30
Chocolate-related (TV)	Chocolate Cereals	30
Chocolate-related (awards)	Chocolate Snack	30

Similarly to Study 1, immediately after starting the video and before leaving the room, the experimenter said to the participants - *"If you want, you can move the chocolates aside* – as the plate with the chocolates was positioned between the participants and the TV. The purpose of this instruction was to measure how far away participants would move the plate with the Smooth bon-bons. This distance (measured in centimetres from the marked starting position) is interpreted as a behavioural manifestation of participants' conscious or unconscious intention to avoid Smooth. However, this measure did not succeed because very few participants moved the plate aside. This low variance may have arisen because the plate with the chocolates was shorter than the jug with the drink, and did not actually block the participants' view of the television, as it happened in Study 1. Therefore, this measure was excluded from the analysis.

At the end of the video, the experimenter returned to the laboratory carrying a brown box. This box was described as being a new shipment of Smooth. The experimenter placed the box in a distant position from the participant and stated that it was time to continue the experiment. At this point, participants were asked to complete some other scales.

First, they received a sheet with some questions about the video, regarding the likeability, duration, and number of chocolate-related adverts. The perceived length of the video and the number of chocolate-related adverts that participants remembered can be indicators of suppression. Vohs and Schmeichel (2003) showed that participants who regulated their emotions while viewing a film clip perceived the film as having lasted longer than participants who did not regulate their emotions. Moreover, Wegner's theory on ironic processes of mental control would predict that those who want to suppress chocolate-related content would remember a higher number of chocolate-related adverts than those who are not trying to suppress such information.

Second, participants were asked to complete again the Psychological Discomfort Measure and the Smooth Attitude Scale. The reliability of the re-administered discomfort measure was good (α=.80), and ratings on the different attitude scales were also good (α=.92).

After completing the Smooth attitudinal scale, participants received another sheet with three manipulation check questions. Participants were asked to rate how appealing they perceived Smooth to be (1 – not at all appealing; 10 – extremely appealing), the extent that they avoided eating Smooth (1 – not at all; 10 – extremely) and how much choice they had to eat or not to eat Smooth (1 – no choice at all; 10 – all choice).

Subsequently, participants were asked to imagine that they worked in the marketing team of the company promoting Smooth. Their task was to create a slogan to advertise the product. Immediately after they started the slogan task, the experimenter told participants some "good news": a new shipment of Smooth had arrived. Then, while removing the cling film that was covering the plate with the chocolates bon-bons, the experimenter said, *"Go ahead and have as much (Smooth) as you want"*. Without the cling film, participants could easily smell the intense aroma of chocolate. The intention was to increase the threat at the end of the study, and have a behavioural measure of the success in resisting temptation to eat the chocolate. The

number of chocolates that participants ate was the last dependent variable in this study.

After finishing the slogan, the debriefing was conducted. Finally, participants were thanked and paid.

Ethical Considerations

The participation in the recruitment sessions, both pre-test and contests, was voluntary and participants were informed of their right to withdraw from completing the questionnaires at any time. In the pre-test session, the anonymity of participants was guaranteed using a keycode system. Each student was given a numerical keycode and this was the only identifying information used to enter the data. After the data was analysed, the list of keycodes associated with restrained eaters was exposed in the experiment's board and students whose keycodes were on the list would voluntarily sign-up to do the experiment. In the two contests at the Students Union, participants were asked to give their contact details (email or mobile) in order to be contacted in case they were the winners of the £75 prize. Those participants who were identified as restrained eaters and ticked a box indicating their "interested in receiving information on how to participate in paid experiments in the School of Psychology", were later contacted and invited to participate in the study. Henceforth, they were identifiable only by keycode number. The procedure in the main session was very similar to the previous study, following the ethical principles and guidelines of the BPS (2000). All participants completed the experiment to the end and gave permission to use data in the analysis. The data was treated confidentially according to the Data Protection Act.

Results

Manipulation Check

General Attitude towards Chocolate. Attraction to the chocolates was not experimentally induced in this study as in Study 1, because chocolate is seen as very attractive in Western cultures, particularly to restrained eaters (Knight & Boland, 1989; Lafay et al., 2001; Weingarten & Elston, 1990). However, in order to guarantee that all participants were quite favourable towards chocolate, an attitude scale regarding chocolate was included in the beginning of the study. As expected, participants were very fond of chocolate (M=1.61, SD=0.86; on a scale ranging from –3 to 3); no participant expressed a negative attitude, and there were no differences between experimental groups.

Restraint Level. In the studied sample, participants possessed a wide range of restraint levels (minimum=13 and maximum=29; M=18.19, SD=4.51). However, using a 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVA, no differences were found regarding levels of restraint. Of interest, restraint level was a significant predictor of attitude towards chocolate, β=-.34, p=.02, and the more restrained participants were, the more negative was their attitude towards chocolate.

Perceived Choice. A 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVA was conducted on participants' reports of their degree of choice to eat the chocolates. As expected, only a main effect of choice was found, $F(1, 47)=16.00$, $p<.001$. High-choice participants reported having more choice to eat the chocolates (M=5.15, SD=2.78) than participants in the low-choice condition (M=2.33, SD=1.65).

Epistemic Self-Persuasion

The dependent measures regarding epistemic self-persuasion included (1) the negative attributes generated about the chocolates, and (2) the positive attributes generated about the chocolates both in the oral and written description. The use of epistemic strategies, and the level of epistemic confidence were also considered.

Negative Information. The number of negative chocolate attributes participants generated both in the oral and written descriptions are presented in Table 10. Participants generated a higher amount of negative attributes in the written task (M=4.30, SD=2.74) than in the oral one (M=0.89, SD=1.48), $t(45)$=-8.13, p<.001, which is understandable because they only had 30 seconds to give a response in the oral task. No fixed time was given in the written task.

Table 10. Means and Standard Deviations of the Negative Attributes Generated

Task/Attributes		Experimental Groups				Total
		Positive Low-choice n=11	Positive High-choice n=13	Mixed Low-choice n=11	Mixed High-choice n=14	N=49
Oral						
	Total	0.20 (0.42)	0.42 (0.79)	1.40 (1.95)	1.43 (1.78)	0.89 (1.48)
	Self-created	0.20 (0.42)	0.33 (0.79)	0.50 (0.97)	0.93 (1.00)	0.52 (0.86)
Written						
	Total	3.91 (2.17)	3.25 (2.34)	5.50 (2.99)	4.64 (3.13)	4.30 (2.74)
	Self-created	3.73 (2.15)	3.00 (2.04)	3.00 (3.56)	2.79 (2.04)	3.11 (2.10)
Total		4.10 (2.47)	3.67 (2.74)	6.90 (3.72)	6.07 (3.73)	5.20 (3.41)

To test the principal hypotheses, several 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVAs were conducted, with the number of negative attributes generated both in the oral and written descriptions of the Smooth chocolates as dependent variables.

The analysis regarding the oral description revealed a main effect of information on the number of negative attributes generated, $F(1,46)$=6.87, p<.01, and a marginal

main effect of information on the number of self-created negative attributes, $F(1,46)=3.19$, $p=.08$, (see Table 11). Participants in the mixed information condition tended to generate more negative attributes and more self-created negative attributes ($M=1.42$, $SD=1.82$; and $M=0.75$, $SD=0.99$) than did participants in the positive information condition ($M=0.32$, $SD=0.65$; and $M=0.27$, $SD=0.63$). Although there was no significant effect of choice, the descriptive results were in the expected direction, with slightly more self-created negative attributes in the high-choice group ($M=0.65$, $SD=0.94$) than in the low-choice group ($M=0.35$, $SD=0.74$).

Table 11. *F* Ratios and Levels of Significance of the Main and Interaction Effects of Choice and Information on the Negative Information Generated

Task/Attributes	Choice		Information		Interaction	
	F	Sig.	*F*	Sig.	*F*	Sig.
Oral						
Negative	0.08	.77	6.87	<.01	0.05	.82
Self-created Negative	1.26	.27	3.20	.08	0.35	.56
Written						
Negative	0.91	.35	3.52	.07	0.02	.90
Self-created Negative	0.56	.46	0.56	.46	0.17	.69
Total	0.43	.52	7.23	.01	0.04	.84

Results regarding the written task revealed only a marginally significant main effect of information on the number of negative attributes generated, $F(1,46)=3.52$, $p=.07$. Participants in the mixed information condition generated more negative attributes regarding Smooth ($M=5.00$, $SD=3.05$) than did participants in the positive information condition ($M=3.57$, $SD=2.23$). Contrary to expectation, there was no main effect of choice.

When comparing the effect of choice and information on the total number of negative attributes generated on the oral and written descriptions, the effect of ability was as expected. Overall, participants in the mixed information condition generated a

larger amount of negative attributes (*M*=6.42, *SD*=3.67) than participants in the positive information condition (*M*=3.86, *SD*=2.57). Surprisingly, motivation did not have a significant impact on the information generated by participants regarding the tempting object.

Positive Information. Several 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVAs were conducted on the number of positive attributes generated both in the oral and written descriptions as dependent variables. Results are presented in Table 12.

Regarding the oral description, the analysis revealed a main effect of information on the number of positive attributes generated, $F(1,46)=4.60$, $p=.04$, and a marginally significant main effect of information on the self-created positive attributes, $F(1,46)=3.41$, $p=.07$. Participants in the positive information condition tended to mention more positive attributes and more self-created positive attributes regarding the chocolates (*M*=5.60, *SD*=2.11; and *M*=2.95, *SD*=1.65) than did participants in the mixed information condition (*M*=4.12, *SD*=2.39; and *M*=2.17, *SD*=1.61). No effect of choice was found.

Table 12. *F* Value and Level of Significance of the Main and Interaction Effects of Choice and Information on the Positive Information Generated

Task/Attributes	Choice		Information		Interaction	
	F	Sig.	*F*	Sig.	*F*	Sig.
Oral						
Positive	0.80	.37	4.60	.04	0.04	.84
Self-created Positive	0.58	.45	3.41	.07	2.97	.09
Written						
Positive	0.19	.66	2.02	.16	3.16	.08
Self-created Positive	0.00	.98	1.31	.26	1.08	.31
Total	0.61	.44	4.74	.04	1.49	.23

Regarding the written description, results revealed a marginal interaction between choice and information, $F(1,46)=3.16$, $p=.08$, and no main effects. Given the results of Study 1 and the *a priori* hypotheses, planned contrasts were conducted in order to interpret the interaction. This interaction indicated that when choice was made salient, participants generated a higher amount of positive attributes in the positive information condition ($M=7.50$, $SD=3.03$) than in the mixed information condition ($M=4.57$, $SD=2.93$), $t(24)=-2.50$, $p=.02$. However, when choice was not salient, participants in the positive information condition did not generate more positive attributes; if anything, they generated fewer positive attributes in the positive information condition ($M=6.27$, $SD=3.38$) than in the mixed information ($M=6.60$, $SD=3.17$), $t(19)=.23$, $p=.82$. Regarding self-creative positive attributes, no significant results were found.

When comparing the effect of choice and information on the total number of positive attributes generated on the oral and written descriptions, the effect of ability was as expected (see Table 12). Overall, participants in the mixed information condition generated a smaller amount of positive attributes ($M=9.54$, $SD=4.03$) than participants in the positive information condition ($M=12.50$, $SD=4.39$). Surprisingly, motivation did not have a significant impact on the information generated by participants regarding the tempting object.

Use of Epistemic Strategies. The epistemic strategies used both in the oral and written descriptions are presented in Table 13. It is interesting to note that reintegration (i.e., reasoning that apart from positive attributes, Smooth also has negative attributes) and retesting (i.e., generation of doubts about the veracity of Smooth's positive attributes) were the only strategies used spontaneously (i.e. in the oral description). These two epistemic strategies were also the most frequently used in the written description. The use of retesting did not differ from the use of reintegration, $t(46)=-1.51$, $p=.14$, which in turn did not differ from the use of reinterpretation, $t(46)= -1.64$, $p=.11$. However, these three strategies were used more often than the other (see Table 13).

Table 13. Means and Standard Deviations of the Use of Epistemic Strategies

Task / Strategies	Experimental Groups				Total
	Positive Low-choice n=11	Positive High-choice n=13	Mixed Low-choice n=11	Mixed High-choice n=14	N=49
Oral					
Reintegration (a)	0.00 (0.00)	0.08 (0.29)	0.40 (0.70)	0.36 (0.63)	0.21 (0.51)[a]
Retesting (b)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.14 (0.54)	0.04 (0.29)[b]
Written					
Reinterpretation (c)	0.45 (0.93)	0.25 (0.45)	0.40 (0.97)	0.23 (0.60)	0.33 (0.73)[fh]
Reintegration (d)	0.73 (0.65)	0.42 (0.79)	1.20 (1.32)	0.21 (0.43)	0.60 (0.88)[egh]
Reattribution (e)	0.00 (0.00)	0.17 (0.58)	0.10 (0.32)	0.07 (0.27)	0.09 (0.35)[df]
Retesting (f)	1.36 (1.12)	1.25 (1.54)	0.50 (0.85)	0.57 (0.94)	0.91 (1.18)[cegh]
Comparators (g)	0.09 (0.30)	0.42 (0.52)	0.10 (0.32)	0.21 (0.58)	0.21 (0.46)[dfh]
Dimensions (h)	0.00 (0.00)	0.08 (0.29)	0.00 (0.00)	0.07 (0.27)	0.04 (0.20)[cdef]
Total	2.64 (1.43)	2.58 (1.73)	2.30 (1.83)	1.31 (1.49)	2.17 (1.66)

Note: in the right most column, each strategy total mean differs significantly (p<.05) from the strategies indicated by the letter in superscript.

Several 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVAs were conducted on the number of times participants used each of the specific epistemic strategies. Results are presented in Table 14. Regarding the oral task, the analysis revealed a main effect of information for reintegration, $F(1,46)=5.36$, $p=.03$.[2] Participants in the mixed information condition used more reintegration (M=0.37, SD=0.65) than participants in the positive information condition (M=0.04, SD=0.21). Regarding the written task, results revealed a main effect of choice for reintegration, $F(1,46)=7.19$, $p=.01$, and a main effect of information for retesting, $F(1,46)=5.22$, $p=.03$. Contrary to expectation, participants in the high-choice condition made less use of reintegration (M=0.31, SD=0.62) than participants in the low-choice condition (M=0.95, SD=1.02). Participants in the positive information condition used more retesting (M=1.30, SD=1.33) than did participants in the mixed information condition (M=0.54, SD=0.88).

[2] The use of the strategy retesting in the oral task was not submitted to the ANOVA due to lack of variability.

Table 14. *F* Ratios and Levels of Significance of the Main and Interaction Effects of Choice and Information on the Use of Epistemic Strategies

Task / Strategies	Choice		Information		Interaction	
	F	Sig.	*F*	Sig.	*F*	Sig.
Oral						
Reintegration	0.02	.89	5.36	.03	0.19	.67
Written						
Reinterpretation	0.71	.41	0.03	.87	0.01	.94
Reintegration	7.19	<.01	0.31	.58	1.95	.17
Reattribution	0.43	.51	0.01	.98	0.86	.36
Retesting	0.01	.95	5.22	.03	0.08	.79
Comparators	2.65	.11	0.51	.48	0.61	.44
Dimensions	1.61	.21	0.01	.92	0.01	.92

The total number of times participants made use of an epistemic strategy in the written description was entered in the 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVA. The analysis revealed a main effect of information, $F(1, 48)=3.90$, $p=.05$, suggesting that participants in the positive information condition made more use of the epistemic strategies ($M=2.63$, $SD=1.53$) than participants in the mixed information condition ($M=1.67$, $SD=1.68$).

Epistemic Confidence. The level of confidence in the veracity of the negative and positive attributes of Smooth was entered into the 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVA. Participants' confidence in the truthfulness of the negative chocolate attributes did not reveal any significant differences between conditions. Independently of choice or information, participants on average trusted in the veracity of the negative attributes of smooth ($M=6.50$, $SD=1.74$).

Analyses of participants' confidence in the truthfulness of the positive chocolate attributes revealed a marginal interaction, $F(1,47)=3.46$, $p=.07$. When choice was made salient, participants in the positive information condition reported more confidence in the positive attributes ($M=6.42$, $SD=1.51$) than participants in the mixed information condition ($M=4.50$, $SD=2.24$), $t(24)=-2.51$, $p=.02$. However, when choice was not made

salient, participants in the positive information condition did not report more confidence in the positive attributes of Smooth. If anything, participants reported less confidence (M=5.09, SD=2.26) than participants in the mixed information condition (M=5.44, SD=1.67), t(18)=.39, p=.70.

Cognitive and Behavioural Consequences

The cognitive and behavioural consequences of epistemic self-persuasion were evaluated using a variety of different measures. The cognitive measures included: (1) post-epistemic attitude towards Smooth, (2) post-epistemic dissonance, (3) video length estimates, (4) number of recalled chocolate-related adverts, and (5) perceived effort to avoid Smooth. The behavioural measures included only the number of chocolates eaten at the end of the study. To test the effect of motivation on these cognitive and behavioural consequences of epistemic self-persuasion and to test if this effect is constrained by ability, a series of 2 (high vs. low-choice) x 2 (positive vs. mixed information) ANOVAs were conducted with these measures as dependent variables. Results are summarised in Table 15.

Table 15. *F* Ratios and Levels of Significance of the Main and Interaction Effects of Choice and Information on the Cognitive and Behavioural Measures

Measures	Choice		Information		Interaction	
	F	Sig.	*F*	Sig.	*F*	Sig.
Cognitive						
Post-epistemic attitude	0.63	.43	0.44	.51	1.24	.27
Post-epistemic dissonance	0.13	.72	0.03	.86	2.40	.13
Video length estimative	0.02	.89	5.53	.02	0.06	.81
Choc-related adverts	0.02	.88	0.49	.49	2.24	.14
Smooth's appeal	0.51	.48	0.80	.38	0.01	.99
Avoid eating Smooth	2.78	.10	1.63	.21	0.31	.58
Behavioural						
N° Chocolates eaten	7.32	<.01	1.24	.27	0.28	.60

Post-Epistemic Attitude. Results indicated no significant effects of motivation or ability on post-epistemic attitude towards Smooth chocolates. Participants reported a weak positive attitude towards Smooth (M=0.93, SD=1.02). Although there was no effect of choice or ability on post-epistemic attitude, the negative attributes generated by epistemic self-persuasion were negatively associated with the attitude regarding the tempting object. As shown in Table 16, higher amounts of negative information predicted a more negative attitude regarding Smooth chocolates.

Table 16. Correlations Between Negative Attributes and Post-Epistemic Attitude

Task/Attributes		Post-Epistemic Attitude	
		r	Sig.
Oral			
	Negative attributes	-.36	.01
	Creative Negative attributes	-.45	<.01
Written			
	Negative Attributes	-.24	.11
	Creative Negative Attributes	-.18	.24
Total		-.37	.01

Post-Epistemic Dissonance. Results indicated no significant effects of motivation or ability on post-epistemic dissonance. Participants reported little dissonance after doing the epistemic task (M=2.52, SD=1.17).

Video Length Estimates. The ANOVA revealed a main effect of information on video length estimates, $F(1, 48)=5.99$, $p=.01$. Participants in the positive information condition perceived the video as having lasted longer (M=6.93, SD=3.64) than did participants in the mixed information condition (M=4.93, SD=1.18). According to Vohs and Schmeichel (2003), emotion regulation influences the subjective experience of time. The perception of lasting longer is consistent with the hypothesis that the positive-

information participants were trying to regulate their emotions to a greater extent while the video was playing than the mixed-information participants. The groups did not significantly differ in the confidence of their video length estimates.

Number of Recalled Chocolate-Related Adverts. No significant effects of motivation or ability were found. Participants reported seeing an average of 3.68 chocolate-related adverts, which was close to the correct number (4).

Smooth's Appeal. Again, results of the ANOVA revealed no significant effects of motivation or ability on judgements of Smooth's appeal. All participants found Smooth chocolates appealing (M=7.60, SD=1.88, in a 10-point scale).

Avoiding Eating Smooth. Participants reported slight agreement that they were restraining from eating Smooth (M=6.50, SD=2.80), and no significant differences were found between groups.

Number of Chocolates Eaten. The number of chocolates that participants ate was significantly predicted by choice, $F(1,43)=7.32$, $p<.01$, such that high-choice participants ate fewer Smooth chocolates (M=0.48, SD=0.71) than low-choice participants (M=1.17, SD=0.93). Neither the main effect of information nor the interaction between choice x information was significant.

The relationships between cognitive and behavioural measures were also analysed (see Table 17). Post-epistemic attitude was directly related with Smooth appeal (r=.60, $p<.01$) and the number of chocolates eaten, r=.29, p=.06; and inversely related with post-epistemic dissonance, r=-.27, p=.06. Therefore, a more negative attitude regarding Smooth was associated with lower Smooth appeal, higher dissonance and fewer chocolates eaten at the end of the study. Note that since dissonance was measured before attitude, higher dissonance should predict lower attitude regarding Smooth and not the other way around. Moreover, post-epistemic dissonance was directly related with the number of recalled chocolate-related adverts (r=.37, p=.01).

Table 17. Correlations Between Cognitive and Behavioural Measures

	2	3	4	5	6	7
1. Post-epistemic attitude	-.27+	.14	-.04	.60**	.03	.29+
2. Post-epistemic dissonance	_	-.10	.37*	-.12	.10	-.20
3. Video length estimates		_	.01	-.05	.06	-.07
4. Choc-related adverts			_	.13	-.01	-.11
5. Smooth's appeal				_	.12	.24
6. Avoid eating Smooth					_	-.05
7. N° Chocolates eaten						_

Note: ** p≤.01, * p≤.05, + p≤.08

Test of the Mediating Role of Negative Information

To explore potential mediators of the effect of choice on number of chocolates eaten, the correlations between negative attributes and this behavioural measure were first examined. As shown in Table 18, there were no significant correlations between negative attributes and the number of chocolates eaten.

Table 18. Correlations Between Negative Attributes and Number of Chocolates Eaten

Task/Attributes	**Number of Chocolates Eaten**	
	r	Sig.
Oral		
Negative	<.01	.99
Creative Negative	-.11	.50
Written		
Negative	.05	.76
Creative Negative	.08	.62
Total	.04	.79

However, the correlations within each experimental group revealed a significant and moderate negative association between self-created negative attributes and number of chocolates eaten (r=-.55, p=.05) in the mixed-high-choice group. These

results suggest that when choice was salient, the mixed group successfully resisted temptation by creating new negative attributes about the tempting object.

Moreover, having previously shown that ability positively predicted the production of negative attributes about the tempting object and video length estimates, the correlations between negative attributes and perceived video length were also examined. As shown in Table 19, there were significant inverse correlations between negative attributes and the video length estimates.

Table 19. Correlations Between Negative Attributes and Video Length Estimates

Task/Attributes	Video Length	
	r	Sig.
Oral		
Negative	-.23	.13
Creative Negative	-.25	.09
Written		
Negative	-.36*	.01
Creative Negative	-.36*	.01
Total	-.40**	<.01

Perhaps the negative information generated about the tempting object is a mediator of the effect of ability on perceived video length. The positive information may have led to the generation of less negative attributes about the tempting object, which in turn led to higher levels of emotion regulation or suppression of chocolate-related content.

To establish full mediation, three effects must be demonstrated (see Baron & Kenny, 1986). First, the predictor variable (information) must predict both the mediating variable (negative attributes) and the dependent variable (video length). This was demonstrated above. Second, the path between the predictor variable and the dependent variable must drop to non-significant levels when the mediating variable is controlled. Third, the path from the mediating variable to the dependent variable must be significant when the predictor variable is controlled for. To examine these two last

steps, a regression analysis was conducted. The results are presented in Table 20 and suggested partial mediation. In other words, the generation of negative attributes partially mediated the effects of ability on emotion regulation. However, the reduction of the total effect of information on video length with the addition of the negative attributes was not significant (*Sobel value*=.66, *p*=.11).

Table 20. Mediation Analysis for Video Length (DV) With Ability as a Predictor (P) and Total Number of Negative Attributes as a Mediator (M)

Predictors	*r* P-DV	r P-M	*r* M-DV	β_{St} M-DV	β_{St} P-DV	Sobel Value	n
Information Given	.36**	-.38**	-.40**	-. 30*	.25	.66	46

Note: ** p≤.01, * p≤.05

This pattern of results supports the ETSP model premise that teleologic strategies are more likely to be used when epistemic strategies fail. Participants in the positive information condition engaged less in epistemic self-persuasion (i.e. producing less negative attributes regarding the tempting object), and therefore, had to regulate their emotions to a greater extent when subsequently exposed to the tempting content.

Discussion

Overall, the results of Study 2 did not provide evidence to support hypotheses 1 and 2. Surprisingly, the motivational factor (choice salience) did not have any effect on the information generated about the tempting object. Contrary to what was found in Study 1, the mixed-high-choice group generated more new negative information about the tempting object than the positive-high-choice group, which theoretically should be the group feeling more dissonant regarding the tempting object. The positive-high-choice group may have reduced dissonance by rejecting choice when choice was given, which may have prevented epistemic self-persuasion occurring in the first place. To assess this possibility, differences between the two high-choice groups regarding

perceptions of choice were tested in a supplementary analysis, but the results were non-significant, t(24)=.54, p=.60. However, in the positive-high-choice group, restraint scores were inversely associated with perceived choice, r=-.56, p=.05, while in the mixed-high-choice group no association was found, r=.14, p=.64. Therefore, when choice was made salient and positive information was received, participants who scored higher in restrained eating perceived to have less choice.

Ability did have an effect on the information generated about the tempting object. Participants who were given mixed information reported a higher amount of negative traits and a smaller number of positive traits about the tempting object. Unfortunately, this pattern of results does not by itself allow strong conclusions about the effects of ability on choice. The manipulation of ability presented different valences of information, which could directly influence reported attributes. In other words, participants could simply repeat or elaborate on the information given. Interpretations of this manipulation rely on an interaction with choice, which did not reliably occur. Unlike Study 1, choice did not elicit any significant effects on epistemic self-persuasion.

However, choice salience did have an effect on the number of chocolates that participants ate. High-choice participants were more able to resist eating the Smooth chocolates than low-choice participants. Given the results of Study 1, this effect should have been mediated by an impact of choice on the number of negative attributes, but choice did not have a significant effect on the number of negative attributes generated about the tempting object. However, within the mixed-high-choice group, self-created negative attributes predicted fewer chocolates eaten.

Limitations

The present study has several limitations, of which three are particularly salient. The first and biggest limitation was the intriguing lack of choice effects on epistemic self-persuasion, as it was found in Study 1. As discussed previously, the inverse association between restraint level and perceived choice may have accounted for this lack of effect. In addition, an oral and a new written epistemic task were introduced.

Given the variation in methodology across studies, it is difficult to reach any firm conclusions about this unpredicted result. Hence, in Study 3, the same oral and written epistemic tasks were used in order to retest for these effects.

Second, both in Study 1 and 2, the idea that participants should avoid the tempting object was partially made salient by the experimenter. In Study 1, goal deviance was experimentally induced. In Study 2, goal deviance was personally relevant due to the chronically high levels of motivation to resist the tempting object, but was also accompanied by some degree of external constraint. In contrast, in Study 3, the idea that participants should avoid temptation was not supported in any way by the experimenter, being purely internally constructed.

Third, this study was also limited in finding an effect of choice on post-epistemic evaluative measures. The evaluative measures used in Study 1 and 2 did not impose a big threat to the achievement of the desired attitude. In Study 3, evaluative measures of different levels of threat were included.

Although not a limitation, the experimental design may have benefited from including the dissonance measure closer to the motivation and ability manipulations. This methodological aspect was not investigated further because it is not vital to the main hypotheses of the study.

Conclusions

Choice did not affect epistemic self-persuasion, but did affect successful resistance to temptation, reflected in the number of chocolates eaten. There was also evidence that the epistemic generation of negative attributes about the tempting object predicted lower levels of emotion regulation in a period of subsequent exposure to tempting content.

STUDY 3

Introduction

This current study builds upon the results of the previous two studies by testing the postulates of the ETSP model in the context of romantic relationships. This particular context was chosen for two reasons. First, relationships require commitment to help protect against the threat of an attractive alternative partner. For example, around fifty percent of people in romantic relationships admit to infidelity and it is one of the most frequently cited causes of relationship dissolution (Betzig, 1989). In 2003, the number of divorces in the UK increased by 3.7 per cent to 166,700, the highest number of divorces since 1997 (Office for National Statistics, 2003). Second, although there is a growing body of research on resisting temptation in close relationships, little is known about the underlying cognitive processes of how people resist and what conditions help or hinder such restraint.

A vast amount of research on interpersonal relationships has identified commitment as one of the most important concepts for predicting the stability of romantic relationships. Interpersonal commitment is defined as the motivation to maintain and sustain one's relationship even in the face of adversity (see Rusbult & Buunk, 1993). Commitment is highly associated with the concern for the interests of the partner and the relationship (Finkel et al., 2002; Rusbult et al.; 1991; Van Lange et al., 1997).

One natural class of threats to the relationship is the availability of attractive alternative partners, and the temptation to engage in activities that will harm the current relationship. Past research suggests that committed couples engage in various cognitive and behavioural strategies to reduce threat and sustain the relationship, such as perceived superiority (Rusbult et al, 2000; Van Lange & Rusbult, 1995), accommodation (Gottman, 1998, Rusbult et al., 1991), self-sacrifice (Finkel et al.,

2002), and forgiveness (Van Lange et al., 1997). More specifically related to the phenomenon of temptation, there is evidence that committed individuals deal with tempting junctures by cognitively derogating potential alternative partners (see Johnson & Rusbult 1989). This phenomenon was labelled as *the alternatives derogation or devaluation effect*. Moreover, this defensive cognitive mechanism to hold temptation at bay appears to be a motivated process, because the association of commitment with derogation is stronger when temptation is greater (e.g., when the alternative is attractive and available, see Lydon et al., 2003). There is also evidence that committed individuals spend less time looking at alternatives, suggesting that automatic perceptual processes may also be involved (Miller, 1997).

Since the paper of Johnson and Rusbult (1989), numerous studies have endorsed the alternatives devaluation effect (e.g., Fletcher, Simpson, Thomas, & Giles, 1999; Simpson, Gangestead & Lerma, 1990; Simpson, Ickes & Blackstone, 1995). The influence of commitment on the evaluation of an alternative partner is well documented. However, the influence of commitment on behaviour towards the tempting alternative and the cognitive mechanisms underlying the derogation process has been largely overlooked. The cognitive strategies proposed in the Epistemic Teleologic Deliberate Self-persuasion Model (ETSP) may help the process of derogation or, in other words, the change to a more negative attitude regarding the tempting alternative partners. It is plausible that people engage in deliberate self-persuasion to resist a tempting alternative partner by generating negative information about that person, which in turn leads to a more unfavourable evaluation.

In Study 3, dating people are exposed to a tempting alternative partner. The fact that participants were currently involved in a romantic relationship makes the motive to resist temptation personal and more justifiable. In contrast with the earlier studies, the idea that participants should avoid temptation was purely internally constructed. However, the degree of personal motivation to achieve the desired attitude is likely to differ according to the level of commitment an individual has to the current partner. Commitment to a romantic relationship motivates individuals to

promote the relationship's long-term well-being (see Rusbult & Buunk, 1993). Therefore, commitment is a good motivational factor to take into consideration when testing the effect of motivation on deliberate self-persuasion in a close relationships context. It is hypothesised that higher commitment to the current romantic relationship will lead to greater motivation to engage in deliberate self-persuasion, as evidenced by more negative thoughts generated about a tempting alternative partner.

As discussed in the introduction of this study, there is evidence to suggest that individuals committed to a romantic relationship devalue the attractiveness of an available alternative (e.g., Johnson & Rusbult, 1989). However, the cognitive process behind the devaluation is unknown. The present study intends to test the idea that people engage in deliberate self-persuasion to resist a tempting alternative partner by generating negative information about that person. The active production of new negative information about the tempting person should mediate the effects of motivation on devaluation.

Taking into consideration the role of ability as a determinant of deliberate self-persuasion, ability was once more manipulated using different valence information regarding a tempting alternative partner. The idea was to retest how the effects of motivation on deliberate self-persuasion would be constrained by ability.

To recapitulate, Study 3 was designed to explore, in the context of dating people and alternative partners, the effect of motivation on the use of epistemic self-persuasion strategies (i.e., amount of negative information generated regarding the tempting object), and the impact of the use of those strategies in subsequent evaluation and behaviour with the object. A pictorial representation of Study 3 is presented in Figure 7. To address these issues, an experimental procedure was designed adapting a situation used by Lydon, Fitzsimons & Naidoo (2003). In the adaptation of this procedure, temptation was implicitly created in the laboratory by asking a person currently involved in a relationship to evaluate the romantic appeal of an attractive and available alternative partner.

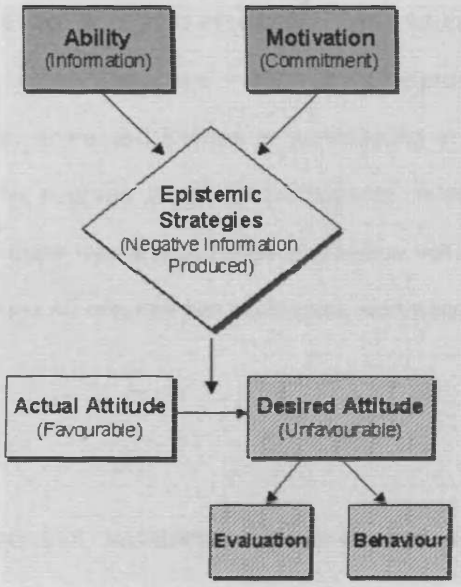

Figure 7. Experimental schema of Study 3

Two main independent variables were considered: motivation (level of commitment to the current intimate relationship) and ability (positive vs. mixed information about the tempting object). After being exposed to temptation, participants were given the opportunity to make use of deliberate epistemic self-persuasion strategies. Similar to the earlier studies, the epistemic use of deliberate self-persuasion was measured by the amount of negative attributes participants generated regarding the alternative partner. To test the predictions, a between-subjects analysis was used. Together, the analysis enabled a further test of hypotheses 1 and 2 (see the Introduction).

Method

Participants

Participants were recruited using different approaches. The study was advertised to students of Cardiff University via the Participants' panel of the School of Psychology and via email to those who participated in a Student Union contest to win

£75 and who expressed a wish to receive information about future experiments. Sixty-nine (38 females and 31 males; mean age = 22.41 yrs.), heterosexual, and currently dating university students, expressed interest in participating in the experiment and completed the study. The average length of participants' relationships was 23.12 months (*SD*=20.85), and there was a wide range of duration values (min=1, max=90). The experiment took around 45 minutes per participant, and each one received £4 for his or her contribution.

Design

Two main independent variables were taken into consideration in the experimental design: a motivational variable (i.e., participants' commitment with the current intimate relationship) and an ability variable (positive vs. mixed information received about the tempting person). A one-way between-subjects design was implemented and participants were randomly assigned to one of the two groups. Commitment was measured in the beginning of the study. The main dependent variables were the number of negative information generated about the tempting person, both in the oral and written forms, and the evaluation of the target. A behavioural dependent variable was also considered.

Target Selection

To select the "tempting" male and female targets, photographs were taken of six women and eight men of the Royal Welsh College of Music and Drama who responded to an advert soliciting attractive models. These photographs were rated for attractiveness by 12 heterosexual university students of the opposite sex. The ratings were measured using a 10-point scale, ranging from 1 (very unattractive) to 10 (very attractive). The selection was based on the highest mean attractiveness rating and lowest variance. The selected female target received a mean attractiveness rating of 7.25 (*SD*=0.66) (see Table 21). The selected male target received a mean attractiveness rating of 7.00 (*SD*=0.59) (see Table 22).

Table 21. Descriptive Statistics of the Female Photographic Targets Evaluation

Female Targets	Min	Max	*M*	*SD*
A	3	9	7.08	.50
B	4	8	6.67	.33
C	3	10	7.25	.66
D	2	6	4.25	.41
E	2	9	6.92	.61
F	1	8	4.92	.53

Table 22. Descriptive Statistics of the Male Photographic Targets Evaluation

Male Targets	Min	Max	*M*	*SD*
A	1	7	4.00	.61
B	2	8	5.12	.52
C	2	9	7.00	.59
D	2	7	4.08	.50
E	2	9	5.75	.58
F	3	9	5.75	.45
G	1	9	6.00	.78
H	1	8	3.33	.63

Procedure

On arrival at the laboratory, participants were welcomed by a female experimenter and invited to take a seat. The experimental procedure can be divided in six phases. In Phase 1 (commitment evaluation), participants were given some scales to complete, which included the commitment measure. In Phase 2 (study description), the cover story was presented. In Phase 3 (exposure to temptation), participants received information about another university student whom they have to evaluate and interact with at a later phase of the experiment (the target person). In this phase, the ability manipulation took place. In Phase 4 (epistemic period), participants gave their opinion of the target person, both in oral and written forms. Similar to Study 2, the epistemic strategies were provided to participants during this phase as some "ideas of

thought" to help them perform the written task. In Phase 5 (target's evaluation), participants were asked to rate the target person in a number of different dimensions, and to perform a computer task. In Phase 6 (behavioural period), participants were asked to move to another lab, in order to have a 2-minute interaction with the target person. The distance and angle between the place where the participant chose to put his chair and the target person's chair was measured.

Phase 1 (Commitment Evaluation). Before being told the cover story, participants completed three small scales: the Rosenberg Self-Esteem Scale (RSE; Blascovich and Tomaka, 1991; Rosenberg, 1979), the attitudinal measure of commitment (constructed by Lydon, 1999), and the Jackson Personality Inventory (Jackson, 1976). The first and last scales were only included to make the commitment scale less salient, and responses were not used in the analysis. In the commitment measure (see Appendix 6), participants reported the extent to which they felt committed, obligated, attached, a sense of duty, enthusiastic, and burdened with their current romantic relationship. Participants responded to each item using a 9-point scale from 1 (not at all) to 9 (extremely). Participants were also asked how relieved they would feel if their relationship was to end, the likelihood that the relationship would end in the near future, and finally, the desired remaining length of their relationship. Participants used the same 9-point scale with substituted labels for the last question (1 = "a week or so", and 9 = "decades"). Items 6 (burdened), 7 (relieved to end), and 8 (likelihood to end) were reverse scored items. After reverse scoring these three items, a mean of the nine items was calculated. The internal consistency of the 9-item commitment measure was adequate (α=.79). However, a factor analysis of this commitment measure revealed two factors (see Table 23). The first factor consists of the items 1, 3, 5, 7 (reversed), 8 (reversed), and 9; the second factor includes the items 2 and 4. Using the familiar distinction of the two commitment types within the field of occupational psychology (see Meyer et. al., 2002), the first factor of commitment was named *affective commitment* (AC), and the second factor was named *normative commitment* (NC).

Table 23. Rotated Component Matrix of Factor Analysis of the Commitment Measure

Item		Component	
		1	2
1	Committed	.768	_
2	Obligated	_	.877
3	Attached	.770	_
4	A Sense of Duty	_	.826
5	Enthusiastic	.893	_
6	Burdened (rev)	.702	_
7	Relieved to End (rev)	.646	_
8	Likelihood to End (rev)	.677	_
9	Desired Length	.723	_

Note: Only factor loadings of.35 or larger are shown, N=69. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

The internal consistency of the two new sub-scales was reasonably good (ACα=.85; NCα=.77). Of interest, Lydon's scale of commitment was highly associated with the AC (r=.93, p<.001) but not with NC (r=.18, p=.14). This seems to corroborate the idea that Lydon's commitment scale is more a direct measure of relationship attachment and enthusiasm than the concept of commitment as sense of duty and obligation. Results will be analysed further, taking into consideration the two dimensions of commitment: affective and normative commitment. AC was on average high (M=7.28, SD=1.27), and NC was moderate (M=4.97, SD=1.53). Indices of relationship length were not correlated with either affective or normative commitment.

Phase 2 (Study Description). Participants were told that the purpose of the study was to compare perceptions of a target person based on initial information and on a short interaction. The study was described as a three-phase "social perception" study. According to the cover story, another group of "participants" (hereafter referred to as "targets") were photographed and filled out general personality and interests questionnaires. The "second phase" of the study would involve a new group of participants (the actual participants of the study) reading a description of one of the targets and rating him or her on a number of different dimensions. The "third phase"

would involve a 2-minute interaction between the targets and the actual participants. It was also explained that, on each day, three targets would be assisting with the experimenter, and that the participants would be given the opportunity to select which one to evaluate and interact with.

Phase 3 (Exposure to Temptation). After having listened to the description of the study, participants were asked to pick randomly one of the file folders placed on the table. However, all file folders were identical, containing a photograph of the same target person, who was an attractive university student of the opposite sex. Along with the photo, participants were given a fictitious biographical description of the target's personality and interests (see Appendix 7). This description included the person's name, age, sex, height, weight, general personality traits, interests, information that the person was not currently involved in a romantic relationship, and the person's perception of the ideal physical characteristics of an ideal romantic partner. Ability was manipulated by changing the information given in the subsection of personality attributes and interests. In the positive information condition, only positive personality characteristics were included such as *active*, *warm*, *enjoying music* and *travelling.* In the mixed information condition, the same positive personal characteristics were included and additional negative characteristics were described, such as *stubborn*, *untidy*, *collector of dead insects,* and *train-spotting.* Moreover, the physical characteristics (colour of hair and eyes) of the target's ideal partner were also manipulated. In order to increase the situational threat, and while the participant was filling in the initial scales, the experimenter wrote down the hair and eye colour of the actual participant on the target's description of the desired physical characteristics of an ideal partner. As a result, participants were faced with the situation in which the person whom they had to evaluate and meet at the end of the study was actually looking for a partner with the same physical characteristics as him or herself. [3]

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[3] In this situation, the level of threat was higher than the one involved in the situation used by Lydon et al. (2003), but it is still not considered a high-threat situation where the target would

Phase 4 (Epistemic Period). After reading the biographical description, participants were asked to give their opinion about the target person, both in oral and written forms. They were asked orally two general questions using the free association method (Pope, 1978). The first question was related to a neutral concept (i.e., ice-cream): *'What comes first to your mind when you think about ice cream?'* The second question pertained to the target: *'What comes first to your mind when you think about the person you read about?'* Following this method, participants were instructed to simply report orally whatever information came to their minds at that particular moment with no restrictions whatsoever. Participants had 30 seconds to answer each question and their replies were audio-recorded. The purpose of the oral question was to explore the type of thoughts that participants would spontaneously recall and create about the tempting person, without the experimenter's introduction of the epistemic strategies. The question about a neutral concept was introduced before the actual question as a practice trial.

After this task, participants were asked to write in their own words a comprehensive and detailed description of the target person. In line with Study 2, the epistemic strategies were provided to participants at this phase as "ideas of thought" to help them perform this written epistemic task (see Appendix 8). To illustrate *reinterpretation*, participants were invited to re-label some of the positive attributes of

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explicitly express a romantic interest in the participant (Bazzini & Shaffer, 1999). According to the *calibration hypothesis* proposed by Lydon et. al. (1999), the alternatives devaluation effect only happens when the level of threat is commensurate with the level of commitment because the relationship needs to be defended in such a situation. Individuals highly committed to a dating relationship are conceptualized in the relationships literature as moderately committed in an absolute sense (in comparison to those highly committed to a marriage) (see Lydon et al., 2003). Because the level of threat of the present experimental situation (i.e., moderately to highly threatening) matches by theoretical standards the maximum level of commitment of the present dating sample, we should observe a devaluation effect as commitment increases.

the person. An example was given: *"one person may see another as shy, while others may see the same person as anti-social"*. To illustrate *reintegration*, participants were invited to offset the positive attributes of the person by negative ones. Again, an example was given: *"for example, someone can be beautiful but arrogant at the same time"*. To illustrate *reattribution*, participants were presented with the idea of how the positive attributes of the person are related or partly a result of more negative ones; *"for example, someone can be extremely nice just because she/he is interested in something you have"*. To illustrate *retesting*, participants were invited to reconsider whether the person really possessed those positive attributes. To illustrate *change of comparators*, participants were informed that they could describe how that person could be compared to others. Finally, to illustrate *change of dimensions*, participants were invited to reflect to which extent the attributes of that person were important to them. When participants finished reading the instructions sheet with the epistemic ideas of thought, this sheet was collected and participants were then given a blank sheet to write their answers.

Both the oral and written descriptions of the target person were coded by counting the number of negative and positive attributes recalled and self-created. It is important to distinguish between recalled and self-created attributes, and the coding of the epistemic strategies followed the same procedure of earlier studies. To test the reliability of the coding, copies of the oral and written answers of ten participants were randomly selected and given to an independent researcher to code the answers in terms of number of negative attributions about the target person (recalled and self-created), number of positive attributions (recalled and self-created), and frequency of use of epistemic strategies. The inter-judge reliability across all of the dimensions under evaluation was high (r=.87).

Phase 5 (Target's Evaluation). Participants were asked to evaluate the target on eight dimensions, each measured with one item: *personal qualities*, *physical attractiveness*, *similarity of attitudes*, *similarity of interests*, *compatibility*, *interpersonal attraction*, *appealing romantic partner* and *interested in going out with the target* (see

Appendix 9). Participants responded to each item using a 9-point scale from 1 (extremely negative/not at all) to 9 (extremely positive/extremely). Lydon et al. (2003) considered the last three items as a measure of romantic attraction that evaluates the target as a potential dating partner. A factor analysis of the three items for the romantic attraction measure, along with the other evaluations of the target, revealed that the three items loaded highly (>.60) on their own factor, along with the item "physical attractiveness". Moreover, a reliability analysis of the four items revealed an adequate internal consistency (α=.77). The average of responses to these four items was computed and labelled *romantic appeal*. The responses to the other four items loading on the other factor were averaged to compute a measure of *similarity*, which also presented an acceptable level of internal consistency (α=.77). These two evaluation measures differ from the level of threat they induce to the participant's relationship. The question "How interested would you be in going out on a date with this person?" is conceptually more threatening than the question "To what extent are this person's interests similar to you?" This enabled me to compare the effect of motivation constrained by ability on these two explicit evaluative indexes.

After filling in the target's evaluation sheet, participants were asked to perform a simple computer task. This task was designed as an implicit measurement technique (see Fazio & Olson, 2004 for a definition) of the strength of the association between the target person and the attribute *attractive,* by measuring the latency with which participants press the response key after seeing a photograph of the target. The instructions of the task were presented on the computer screen, and informed participants that some photographs would appear in the middle of the screen and then would randomly go up or down. Two keys were marked on the keyboard and were labelled *unattractive* and *attractive*. The task for half of the participants was to press the key marked *unattractive* each time the photograph on the screen would move down and press the key marked *attractive* each time the photograph would move up. The other half of the participants received reversed movement-response assignments. Moreover, while pressing a key on the keyboard, participants were instructed to say

aloud the key label (*attractive* or *unattractive* depending on the condition). Instructions and key labels were counterbalanced and participants were randomly assigned to one of the conditions. The task included 8 practice trials (with four photographs appearing twice) and 12 real trials (with three photographs appearing each one four times). The practice photographs included two explicitly attractive (i.e., flower and ice cream) and two explicitly unattractive photographs (i.e., rotten teeth and snakes). The photographs used in the real trials included the photo of the target person, and photos of two other targets with the highest mean attractiveness rating and lowest variance (females *a* and *e*, and males *g* and *f* – see Table 21 and Table 22). The time between the onset of the target photo and the first key pressed when the correct key was attractive was considered as an implicit measure of interpersonal attraction; in other words, it was an indirect measure of the extent to which participants associate the target with the attribute *attractive*. The faster the reaction time to press/say attractive when the photograph of the target person was presented, the stronger the association is between the target person and the attribute attractive in participant's mind.

Phase 6 (Behavioural Period). After completion of the computer task, participants were told that the "second phase" of the study had finished and the "third phase", which involved the interaction between the participant and the target, was about to begin. The participant was accompanied to another room and invited to take one chair of a pile and position it where he or she wanted to sit. Another chair was displayed in the room. This chair ostensibly belonged to the target person, and the "target's coat" was hung on the back of the chair (see Figure 8).

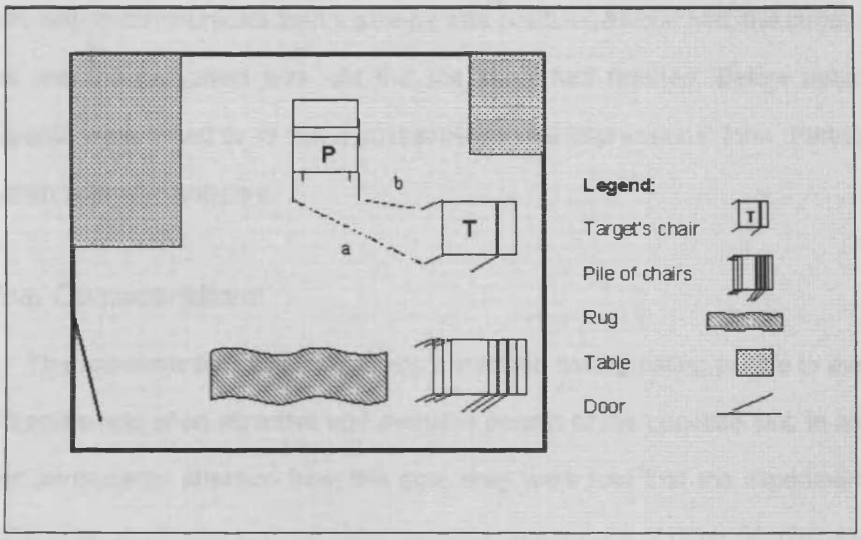


Figure 8. Scheme of the seating arrangements in Study 3

Note: An example of a participant's chair (P) is represented

The participant was told that the target person had gone to the toilet and should be arriving at any minute, after which they would be given a topic of conversation. The distance between the target's chair and the position where the participant chose to place his/her chair was conceptualised as a measure of behavioural attraction. Recent models on intimacy propose that non-verbal behaviours, such as eye contact or interpersonal distance, are used to control levels of interpersonal engagement such as enhancing or diminishing intimacy (see Reis & Shaver, 1988). Two distance measures between the target's chair and the participant's chair were taken into consideration (measures *a* and *b* are indicated in Figure 8). They helped to evaluate the extent to which participants chose to be distant from the target person and facing as opposed to sitting side-by-side to the target person. These distance measures were combined to create two different indices of behavioural attraction: interpersonal distance and interpersonal angle. Interpersonal distance was computed by averaging *a* and *b* [i.e., (a+b)/2] and the interpersonal angle was computed by subtracting *b* from *a* (a-b), since measure *b* was always numerically inferior. Higher interpersonal distance reveals less degree of attraction to the target person, while a face-to-face position (i.e., interpersonal angle closer to the value 0; a=b) reveals higher attraction and a more

intimate way to communicate than a side-by-side position. As planned, the target never arrived and the participant was told that the study had finished. Before debriefing, participants were asked to fill out a post-experimental impressions' form. Participants were then debriefed and paid.

Ethical Considerations

The experimental situation of Study 3 involved asking dating people to evaluate the attractiveness of an attractive and available person of the opposite sex. In order to deviate participants' attention from this goal, they were told that the experiment was part of a wider study aiming to compare people's perceptions of other people based on a description or based on a real interaction. Deception was dealt following the recommended ethical principles (BPS, 2000). At the onset of the study, participants were reminded of the anonymity of the answers and of their right to withdraw from the research at any time. At the end of the study, participants were appropriately debriefed, receiving information about the true nature of the study, the research hypothesis, and the methods used for collecting the data. Participants had also the opportunity to express how they felt during the experiment, and to ask further questions, which helped to monitor any unforeseen negative effects or misconceptions regarding the study. All participants completed the experiment to the end and gave permission to use their data in the analysis. The data was treated confidentially according to the Data Protection Act.

Results

Epistemic Self-Persuasion

The dependent measures regarding epistemic self-persuasion included (1) the number of negative attributes generated about the target person and (2) the use of epistemic strategies, both in the oral and written description.

Negative Information. The number of negative attributes participants generated about the target person both in the oral and written descriptions is presented in Table 24. Consistent with the pattern of results in Study 2, participants generated a higher amount of total negative attributes and self-created negative attributes in the written task than in the oral one ($t(67)=-9.88$, $p<.01$; $t(67)=-9.96$, $p<.01$). This is not surprising due to the epistemic strategies' influence and the limited amount of time given to the oral task.

Table 24. Means and Standard Deviations of the Negative Attributes Generated

Task/Attributes		Experimental Groups		
		Positive	Mixed	Both groups
		n=35	*n*=34	*N*=69
Oral				
	Total	0.09 (0.38)	2.24 (1.81)	1.16 (1.69)
	Self-created	0.09 (0.38)	0.71 (1.14)	0.40 (0.90)
Written				
	Total	3.40 (2.72)	5.56 (3.49)	4.41 (3.28)
	Self-created	3.37 (2.66)	3.59 (2.77)	3.41 (2.66)

To test hypothesis 1, the effect of commitment on the negative information generated about the tempting person was analysed using regression analysis. [4] To explore if commitment was constrained by ability, the interaction between the two factors was also analysed using hierarchical regression. To compute the interaction variables the relevant variables were first centered and then multiplied together in order to reduce multicollinearity. Results are presented in Table 25.

[4] Some authors argue that this procedure is more appropriate than to submit a continuous variable like commitment to a dichotomisation (i.e., median-split) in order to perform the analysis of variance since results on dichotomised variables may be sometimes misleading (see MacCallum et al., 2002; Maxwell & Delaney, 1993).

Table 25. Influence of Commitment and Information on Negative Information

	Predictor	Oral		Written	
		Negative Attributes	Negative Self-created Attributes	Negative Attributed	Negative Self-created Attributes
1	Affective Commitment (AC)	.04	.20+	.10	.12
	Normative Commitment (NC)	.07	.07	-.01	-.01
	Information	-.62**	-.30*	-.32**	-.03
2	Affective Commitment (AC)	.06	.36*	.11	.13
	Normative Commitment (NC)	.15	.19	-.04	-.05
	Information	-.62**	-.30*	-.32**	-.03
	AC * Information	-.02	-.21	-.02	-.02
	NC * Information	-.11	-.14	.04	.05

Note: + p<.08; * p<.05 ; ** p<.01 (one-tailed).

Affective commitment predicted only the number of self-created negative attributes participants generated regarding the target in the oral task, β_{SI}=.36, p=.03. This suggests that the higher the level of AC with the current relationship, the higher the number of negative attributes participants creatively produce about the target will be. Interestingly, NC did not significantly predict the amount of negative information produced. Information significantly predicted the amount of negative attributes participants generated in the oral and written tasks (with the exception of the written self-created attributes). The interaction factor of commitment and information did not significantly predict the amount of negative attributes participants generated.

To test the effect of ability further, differences between the two ability groups were tested. Results reveal that mixed-information participants generated more negative attributes (total and self-created) in the oral task than positive-information participants, $t(65)$=6.77, p<.001, and $t(65)$=2.99, p<.001. In the written task, mixed-information participants also generated more negative attributes in total than positive-information participants, $t(62)$=2.86, p<.001, but both groups generated an equal number of self-created negative attributes, $t(67)$=0.33, p=.74. The effect was not significant regarding the number of self-created negative information produced in the

written task, perhaps due to the influence that the epistemic strategies had in leading positive participants to think in a more negative way regarding the target person.

Use of Epistemic Strategies. The epistemic strategies used both in the oral and written descriptions are presented in Table 26.

Table 26. Means and Standard Deviations of the Use of Epistemic Strategies

Task / Strategies	Experimental Groups		Total
	Positive	Mixed	
	n=35	*n*=34	*N*=69
Oral			
Reinterpretation (a)	0.00 (0.00)	0.03 (0.17)	0.01 (0.12)
Reintegration (b)	0.00 (0.00)	0.06 (0.34)	0.03 (0.24)
Retesting (c)	0.03 (0.17)	0.00 (0.00)	0.01 (0.12)
Written			
Reinterpretation (d)	0.63 (1.00)	0.65 (1.20)	0.64 (1.10)^{efghi}
Reintegration (e)	0.34 (0.80)	0.29 (0.58)	0.32 (0.70)^{di}
Reattribution (f)	0.17 (0.57)	0.09 (0.29)	0.13 (0.45)^{di}
Retesting (g)	0.17 (0.45)	0.24 (0.65)	0.20 (0.56)^{di}
Comparators (h)	0.29 (0.45)	0.21 (0.41)	0.25 (0.43)^{di}
Dimensions (i)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)^{defgh}

Note: in the right most column, each strategy total mean differs significantly ($p<.05$) from the strategies indicated by the letters in superscript.

As in Study 2, reintegration and retesting were used in the oral description. This time, reinterpretation was also used spontaneously. It is interesting to note that reintegration (i.e., reasoning that apart from positive attributes, that person might have also negative ones) and reinterpretation (i.e., participants were suggested to re-label some of the positive attributes of the person) were used only by the mixed-information group, while retesting (i.e., generation of doubts about the veracity of the person's positive attributes) was only used by the positive-information group. This evidence may suggest that it is easier for the positive group spontaneously to doubt the veracity of the given positive information than to generate new negative information. Reinterpretation was the strategy most frequently used in the written task (see Table 26).

The effect of commitment, and the effect of the interaction between commitment and ability on the use of each of the specific epistemic strategies, were analysed using regression coefficients. No significant results were found.

Target's Evaluation and Behaviour

In order to test the effect of commitment, and the interaction between commitment and information, on evaluation and behaviour, the correlations between these variables were analysed (see results in Table 27). Regarding the relationship between commitment and evaluative and behavioural indexes, it was found that AC predicted only romantic appeal. The more affectively committed participants were to their current relationship, the less romantically appealing they evaluated the target. NC was not significantly associated with any of the considered variables. The interaction between commitment (both AC and NC) and information predicted judgements of similarity. Commitment increased the evaluation of similarity, an effect that increased as the information became more positive.

Table 27. Correlations Between Commitment (and Ability), Negative Information, Evaluation, and Behaviour

Variables	Romantic Appeal	Similarity	Implicit Attraction	Distance	Angle
Affective Commitment (AC)	-.26*	-.08	.05	.07	-.09
Normative Commitment (NC)	.004	-.18	-.03	.07	.04
AC * Information	.02	.30*	-.16	-.12	-.07
NC * Information	.07	.24*	-.10	-.12	.005
Negative Attributes (Oral)	-.24*	-.48**	.19	.16	.10
Negative Self-created Attributes (Oral)	-.20*	-.41**	.15	.15	.15
Negative Attributes (Written)	-.20*	-.25*	.20*	-.01	.28*
Negative Self-created Attributes (Written)	-.15	-.15	.22*	-.03	.27*

Note: * p<.05 ; ** p<.01 (one-tailed).

Regarding the relationship of negative information with the evaluative and behavioural indexes, the results revealed that the production of negative attributes about the target person predicted lower ratings on romantic appeal, similarity and implicit attraction (i.e., by the weakening of the association between target person and attribute attractive). Negative information also predicted behavioural attraction (i.e., interpersonal angle). The higher the number of negative attributes epistemically generated about the target person, the greater was the angle between participant's chair and target's chair. This result indicates that those who created more negative information about the target avoided the target not by creating greater interpersonal distance but by choosing a side-by-side position to sit.

In order to investigate further the effect of information on evaluation (romantic appeal, similarity, and the implicit measure of interpersonal attraction) and behaviour (interpersonal distance and angle), a series of t-tests were conducted. The analysis reveals that the groups differ significantly only in the evaluation of similarity (see Table 28). Positive-information participants evaluated the target as more similar and compatible with them than the mixed-information participants did. Although the differences regarding the other evaluative and behavioural indexes were in the expected direction, they were not significant.

Table 28. Means, Standard Deviations and T-Test Results of the Evaluation and Behavioural Measures

Variables		Experimental Groups		*t* (df)	sig.
		Mixed *n*=34	Positive *n*=35		
Evaluation					
	Romantic Appeal	4.95 (1.64)	5.14 (1.17)	-0.57 (67)	.57
	Similarity	5.54 (1.11)	6.16 (1.06)	-2.38 (67)	.02
	Implicit Attraction	950.64 (303.56)	869.09 (331.19)	-0.10 (65)	.30
Behaviour					
	Distance	141.11(38.11)	133.12(36.84)	0.84 (60)	.40
	Angle	32.28 (13.17)	30.58 (15.78)	0.46 (60)	.64

Test of the Mediating Role of Negative Information

To test whether the number of negative attributes generated about the tempting person mediated the effect of motivation on the derogation of the tempting person, the same analytic strategies were used as in the prior studies. Two mediation models were tested.

The first model included (1) the interaction of affective commitment and information as predictor, (2) the self-created negative attributes (oral task) as mediator and (3) similarity as dependent variable. Three effects must be demonstrated to establish full mediation (see Baron & Kenny, 1986). First, the AC*Information must predict the self-created negative attributes and the similarity. This was demonstrated above. Second, the path between the AC*Information and similarity must drop to non-significant levels when the self-created negative attributes are controlled for. Third, the path from the self-created negative attributes to similarity must be significant when the AC*Information is controlled for. Results of the regression analysis examining these last two steps are presented in Table 29. This analysis suggests full mediation. Negative attributes did mediate the effects of the interaction between AC and information on the evaluation of similarity. Higher affective commitment with the current relationship predicted a higher amount of self-created negative attributes generated about the target person, which in turn predicted lower ratings on similarity evaluations; and this effect decreased as the information became more positive. However, the reduction of the total effect of the interaction between AC and information on similarity with the addition of the self-created negative attributes was not significant (*Sobel value*=.01, p=.39).

Table 29. Mediation Analysis for Similarity (DV) With the Interaction Between Motivation and Ability as Predictor (P) and Self-Created Negative Attributes as a Mediator (M)

Predictor	*r* P-DV	*r* P-M	*r* M-DV	β_{St} M-DV	β_{St} P-DV	Sobel Value	n
AC * Information	.30*	-.32**	-.41**	-.34**	.19	.01	68

Note: ** p≤.01, * p≤.05

The second model included (1) the affective commitment predictor, (2) the self-created negative attributes (oral task) as mediator, and (3) romantic appeal as dependent variable.[5] For mediation to occur, first, the AC must predict the self-created negative attributes and romantic appeal. This was demonstrated above. Second, the path between the AC and romantic appeal must drop to non-significant levels when the self-created negative attributes are controlled for. Third, the path from the self-created negative attributes to romantic appeal must be significant when the AC is controlled for. The regression analysis did not suggest mediation (see Table 30), and the last condition was not verified. Affective commitment predicted lower ratings on romantic appeal independently of the number of negative attributes generated.

Table 30. Mediation Analysis for Romantic Appeal (DV) With Motivation as a Predictor (P) and the Self-Created Negative Attributes as a Mediator (M)

Predictor	*r* P-DV	*r* P-M	*r* M-DV	β_{St} M-DV	β_{St} P-DV	Sobel Value	n
Affective Commitment	-.26*	.24*	-.20*	-.14	-.23+	-.03	68

Note: * p≤.05, +.05<p≤.08

Interestingly, the self-created negative attributes generated about the tempting person mediated the effect of commitment only on low-threatening evaluations (i.e.,

[5] The interaction factor of affective commitment and information (AC * Information) was not considered as predictor in this model because it did not satisfy a condition for mediation (see Baron & Kenny, 1986). Specifically, AC * Information did not predict romantic appeal.

similarity). In contrast, no mediation was found regarding high-threatening evaluations (i.e., romantic appeal).

Discussion

Study 3 replaced choice with commitment as the experimental measure of motivation, and examined an interpersonal context of temptation. I expected that participants with a higher commitment level would be more personally motivated to self-persuade, generating more negative thoughts about the tempting potential alternative than participants with lower levels of commitment. Results indicate that affective commitment does indeed predict a higher amount of self-created negative information produced about the tempting alternative. In contrast, normative commitment, which is a weaker indicator of personally held motivation, did not predict the negative information generated about the tempting alternative. This different pattern of results is very interesting and supports the idea that being enthusiastic or being obligated in an intimate relationship have different implications. More specifically, if a person is enthusiastic about the current relationship, she or he will tend to spontaneously create new negative information about a tempting alternative partner, but the same does not seem to be the case when a person feels obligated or burdened by the relationship.

In addition, the negative information generated about the tempting person was expected to mediate the effect of commitment on subsequent evaluation of the tempting person. Indeed, Study 3 manifested the first evidence in support of this hypothesis. Higher affective commitment with the current relationship predicted higher amounts of self-created negative attributes generated about the target person, which in turn predicted lower ratings on evaluations of similarity. In contrast, no mediation was found regarding the evaluations of romantic appeal. This difference in results may suggest that commitment determines derogation of the tempting alternative through epistemic self-persuasion when the dimension under evaluation is associated with low

levels of threat to the relationship (i.e., *to what extent is the person similar and compatible with you?).* However, if the dimension under evaluation is highly threatening (i.e., *to what extent do you find this person an appealing romantic partner?),* higher commitment directly predicts derogation of the tempting alternative, independently of the influence of epistemic self-persuasion.

Therefore, the evidence discussed above yields a useful explanation of the *alternatives derogation effect.* Extending past evidence of this effect (e.g., Johnson & Rusbult, 1989; Lydon et al., 2003), this pattern of results indicates that individuals committed to a romantic relationship engage in reasoning strategies to create new negative information about the tempting alternative, which in turn lead to the derogation of that alternative. People may use this cognitive mechanism as a way to resist temptation and protect their current romantic relationship, unless they are grappling with evaluations of the tempting alternative that are highly threatening to the relationship.

Limitations

Four limitations are worth highlighting. First, a measure of perceived threat of the evaluations of romantic appeal and similarity to the target could have been used to provide more definitive evidence of the role of perceived threat in moderating the effect of commitment.

Second, the impact of motivation and ability was tested only on the use of epistemic strategies. It would be interesting to analyse how and under which situations these two determinants of deliberate self-persuasion influence teleologic strategies. Study 4 overcomes this limitation by testing the comparative helpfulness of both epistemic and teleologic strategies in resisting temptation.

Third, an important question is whether participants were aware of their attempt to self-persuade. The present study offers evidence that committed people engage in self-persuasion to devalue tempting alternatives as a way to resist temptation, but no data addresses the issue of awareness. According to the ETSP, conscious processes

should drive the deliberate process of self-persuasion. However, the model does not exclude the possibility of automatic processes being involved under certain circumstances. The present data cannot address whether self-persuasion was attempted deliberately or automatically, but Study 4 aims to overcome this limitation.

Finally, some potential problems may arise from the manipulation of ability in the first three studies. Participants were given information about the tempting object that was different in valence (positive or mixed) and in number (participants in the mixed information condition received always twice as many attributes as those in the positive information condition). In spite of this potential confound, the direction of the expected effect of ability should be the same. Receiving more information about the tempting object should be associated with a higher ability to self-persuade. It could also be argued that this manipulation might interfere with the extent to which people feel tempted by the object. These potential problems could have been overcome by using a clearer measure of ability, such as cognitive load, while keeping constant the information provided about the tempting object.

Conclusions

In conclusion, individuals motivated to defend their romantic relationships tend to use reasoning to create new negative information about tempting alternative partners, as a way to resist temptation. This experiment extends the knowledge of the *alternatives derogation effect* by offering evidence that the new negative information produced about the tempting alternatives is an important mediator of the cognitive devaluation process.

STUDY 4

Introduction

Across the prior three studies, there is evidence that motivated people can implement processes consistent with the notion of deliberate self-persuasion. Nonetheless, these studies did not address whether people are aware of the self-persuasion attempt. Evidence of this awareness is essential for concluding that self-persuasion is occurring. This study intends to address this limitation of prior studies by exploring people's lay theories of temptation. Temptation is a concept that is very relevant to everyday life. However, the meaning of this concept for lay people has not yet received much attention. Prototype theory (see Fehr, 1999; Mervis & Rosch, 1981) provides a basis for making predictions concerning the organization of categories within a cognitive representation. Laypeople's knowledge of temptation should entail information about members of a category (e.g., objects of temptation), as well as information about the relative weighting or prototypicality of these members in the cognitive representation. The present research intends to provide some insight into the cognitive representation of temptation to determine how it converges with the ETSP model and previous research on self-persuasion. More specifically, this study aims to explore three categories of people's lay conception of temptation: objects of temptation, strategies used to resist temptation, and awareness of the process. In addition, this final study includes an examination of the four teleological strategies, which received no direct attention in the earlier three studies. In sum, answers to the following questions are explored: (1) what strategies do people spontaneously adopt to resist temptation? (2) Which epistemic and teleologic strategies do people find most helpful? (3) To what extent are people aware of the self-persuasion process? (4) What is the effect of specific dispositional and situational factors on the choice of strategies? A

prototype approach is employed to cover the first three aims, and an experimental approach is adopted to cover the fourth.

Regarding the first two aims, the ETSP model argues that epistemic strategies would be more frequently used and regarded as more helpful because they satisfy the goals of achieving a desired and accurate attitude, while teleologic strategies only satisfy the goal of desirability. However, no prediction is made concerning the comparative helpfulness within the six epistemic and four teleologic strategies.

The third aim is descriptive. Thus, some indication of awareness of each route is expected. Differences of awareness of each route were also of interest, but not the subject of *a priori* prediction.

In relation to the fourth aim, the ETSP model also accounts for the influence of personality and social factors on people's choice of strategy. With regard to the dispositional factors, it is suggested that the chosen teleologic route should depend on self-regulatory focus (Higgins et al., 1994). Higgins' Regulatory Focus Theory (Higgins, 1997) proposes that the strategies people use to achieve a goal or a desired end state depends on self-regulatory orientation. Regulatory focus theory distinguishes between a promotion focus on hopes and accomplishments (gains) and a prevention focus on safety and responsibilities (non-losses). Regulatory focus has been applied both as a temporary, situational induced orientation, and as a chronic, individual difference variable (for a review see Higgins and Spiegel, 2004). Recent studies on chronic regulatory focus (e.g., Higgins et al., 2001) show that a subjective history of success with promotion-related eagerness (which the authors named "promotion pride") orients individuals towards eagerness as a way to approach the desired goal, whereas a subjective history of success with prevention-related vigilance (prevention pride) orients individuals towards vigilance as a way to approach the desired goal. Consistent with the ETSP model and Regulatory Focus Theory, I expected regulatory focus to determine the choice within teleologic strategies. More specifically, individuals with high-promotion-pride should be more inclined to use approach eagerness as a way to attain the desired attitude (i.e., concentration and distraction strategies) than individuals

with low-promotion-pride. In addition, individuals with high-prevention-pride should be more inclined to use avoidance vigilance as a way to attain the desired attitude (i.e., suppression and pre-emption) than individuals with low-prevention-pride.

Situational factors may also play an important role in the type of strategies used. The repeated exposure to a stimulus results in increased liking for that stimulus (i.e., *mere exposure effect*; Zajonc, 1968; for a review see Bornstein, 1989). Longer time of exposure to a tempting object should be associated with increased attraction towards the object, and consequently, increased difficulty in resisting temptation. What is the effect of time of exposure on the type of strategies that people use to resist temptation? According to the ETSP model, epistemic strategies should entail a higher degree of effort than teleologic strategies (see Maio & Thomas, 2005). Changing temporarily the attention focus should be easier than deliberately engaging in reasoning processes. Consequently, in the context of temptation, people should adopt the teleologic route when they face only a brief exposure to the tempting object. On the contrary, when exposure to temptation is known to be lengthy, reasoning processes might be considered worth using. Past research on mental control strategies have shown that people have difficulty in sustaining mental control over time (see Wenzlaff & Wegner, 2000). Therefore, length of exposure should predict the choice between epistemic and teleologic strategies. In this context, it can be expected that epistemic strategies will be preferred in a situation of long-term exposure to the tempting object, whereas teleologic strategies will be preferred in a situation of short-term exposure to the tempting object. Note that this interaction may coincide with a general preference for epistemic strategies, which is particularly likely during long-term exposure.

To recapitulate, in Study 4 participants were asked to nominate the most familiar tempting object out of a selection of three commonly experienced temptations, to nominate any additional temptations not already covered, and to report what strategies they would use and how helpful they are in overcoming temptation. The selection of strategies was entirely self-generated at first. Next, the six epistemic and four teleologic strategies were presented, and participants were asked to report which

of those strategies they would use and how helpful they were. Peoples' chronic self-regulatory focus was assessed using Higgins' Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001), and length of exposure to the tempting object was experimentally manipulated (short-term vs. long-term exposure). A within and between-subjects analysis was used. Together, the analyses enabled tests of hypotheses 3, 4, and 5.

Method

Participants

The study was advertised to the students of Cardiff University via the Participants' panel of the School of Psychology. Thirty-five university students (25 females and 10 males; mean age=19.8 yrs), participated in the experiment in groups of four. The experiment took about 45 minutes and each participant received £4 for their contribution.

Design

The study involved a mixed design, including both between-subjects and within-subjects factors. Two main predictors were considered: chronic self-regulatory focus (prevention vs. promotion focus) and length of exposure to the tempting object (short-term vs. long-term exposure). Participants' self-regulatory tendencies were assessed and participants were randomly assigned to one of the two conditions of exposure. The main dependent variable was the type of strategies participants used to resist temptation and the perceived helpfulness of the strategies.

Procedure

On arrival to the laboratory, participants were welcomed by a female experimenter. Participants received a piece of paper with the explanation of the study,

which the experimenter read aloud at the beginning of the session. Participants were told:

> *You will be asked to read three different life situations and to select the one you find closest to a past experience you have had. Please concentrate on trying to imagine yourself in the selected situation. You will be given one minute to imagine the situation. Subsequently, you will be asked to answer some questions on how you would handle this situation. Your colleagues will be given different scenarios. There are no right or wrong answers. The data are absolutely confidential. Please write your answers with legible handwriting. Thank you.*

After making sure that all participants' questions were clarified and the task was fully understood, the experimenter asked participants to complete the Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001). This scale comprises 11 items in which participants are asked to report how frequently specific events occur or have occurred in their lives (see Appendix 10). Participants responded to each item by circling numbers in a series of 5-point scales, from 1 (never or seldom) to 5 (very often). Items 1, 3, 7, 9, 10, and 11 are promotion-focus items (items 1, 9 and 11 were reverse scored) and items 2, 4, 5, 6, and 8 are prevention-focus items (items 2, 4,6 and 8 were reverse scored). A measure of promotion pride was computed by adding promotion scale scores, and a measure of prevention pride was computed by adding prevention scale scores. The resulting scales did not achieve an acceptable level of internal consistency (α=.51 for the Promotion scale; α=.43 for the Prevention scale). Once the RFQ was completed, each participant received a description of three different scenarios of temptation: temptation with chocolate, with alcohol, and with an alternative partner. Half of the participants received scenarios describing a brief moment of exposure to the tempting object (short-exposure condition), while the other half of participants received scenarios describing a continuous exposure to the tempting object (long-term condition). The scenarios given in both conditions are in Table 31.

Table 31. Scenarios and Objects of Temptation Depending on Exposure Conditions

Scenario	Condition	
	Short-term Exposure	Long-term Exposure
Chocolate	Imagine that you are a person who loves chocolate but you are on a diet/seriously trying to lose weight. One day, you enter a chocolate shop with a friend and he/she wants you to help him/her buying some chocolate. At that moment, you have in front of you many different kinds of deliciously rich and smooth chocolate. The velvety brown colours and rich aroma drives you crazy.	Imagine that you are a person who loves chocolate, but you are on a diet and seriously trying to lose weight. In addition, you work at a chocolate shop, which you really enjoy. Every day you have to face many different kinds of deliciously rich and smooth chocolate. The velvety brown colours and rich aroma drives you crazy.
Alcohol	Imagine that you are a person who loves to drink alcohol, but you decided to quit for health reasons. One day, one of your housemates invites you to join him/her drinking some of the drinks he/she has in the refrigerator. At that moment, you have in front of you many different kinds of attractive drinks. They look incredibly cool, refreshing and satisfying.	Imagine that you are a person who loves to drink alcohol but you decided to quit for health reasons. In addition, you share a house with a group of good friends that drink heavily. Every day you have to face many different kinds of attractive drinks that your housemates leave in the kitchen. They look incredibly cool, refreshing and satisfying.
Alternative Partner	Imagine that you are in love with your partner, but you just met someone you find extremely attractive and you think this feeling is mutual. You have to go to a business dinner with her/him. Her/his body and smile are so seductive that you cannot avoid feeling aroused.	Imagine that you are in love with your partner, but you have a colleague at work that you find extremely attractive and you think this feeling is mutual. Every day you have to work closely with this person in your workplace. Her/his body and smile are so seductive that you cannot avoid feeling aroused.

After reading the three scenarios, participants were asked to select the one that was more familiar to them (i.e., closest to a past experience), and to imagine themselves in that situation. Participants then received a booklet including several sections of questions (see example in Appendix 11). In Section A, participants were asked to report what strategies they would use to overcome temptation and to evaluate

the helpfulness of those *self-generated strategies*. Participants gave a score of 1 to the most helpful strategy and 10 to the least helpful strategy. In Section B, descriptions of the various epistemic and teleologic strategies were presented. Participants were asked to indicate which of those *given strategies* they would use and how helpful they would be. Again, participants gave a score of 1 to the most helpful strategy and 10 to the least helpful strategy. In Section C, participants were asked to rate how *familiar* and how *uncomfortable* the situation of temptation was for them by using a 9-point scale from 1 (not at all familiar/uncomfortable) to 9 (extremely familiar/uncomfortable). Finally, Section D included three questions designed to analyse participants' awareness of the self-persuasion process: (1) *To what extent did you try to persuade yourself to dislike the chocolates/alcohol/person?* (2) *To what extent did you succeed at persuading yourself to dislike the chocolates/alcohol/person?* (3) *Do you consider this self-persuasion a good or a bad thing?* Participants answered the first two questions using a 9-point scale from 1 (not at all) to 9 (extremely), and the third question by ticking one of the three alternative responses (good, bad, don't know).

When participants finished answering this booklet, they were asked to nominate any additional familiar temptation not yet covered. Participants were then debriefed and paid.

Ethical Considerations

Study 4 involved asking participants to imagine themselves in a situation of temptation. The study was conducted following the ethical principles recommended in the Code of Conduct (BPS, 2005). Therefore, at the onset of the study, participants were reminded of the anonymity of their answers and of their right to withdraw from the research at any time. At the end of the study, participants were appropriately debriefed. They received information about the full nature of the study, the hypothesis involved, and the methods used for collecting the data. Participants were also given the opportunity to express how they felt during the experiment and to ask further questions, which allowed the monitoring of any unforeseen negative effects or misconceptions

regarding the study. All participants fully completed the experiment and gave permission to use their data in the analysis. The data was treated confidentially according to the Data Protection Act.

Results

Temptation Objects

Participants were asked to select the most familiar tempting object out of the given options (chocolate, alcohol, and alternative partner), and to nominate an additional familiar temptation not covered in the situations given. The objects of temptation chosen by participants are presented in Table 32.

Table 32. Frequency of Chosen Objects of Temptation

Temptation Object	Selected From Given		Self-selected		Total	
	Freq	%	Freq	%	Freq	%
Alternative partner	16	45.7	1	3.0	17	25.0
Alcohol	8	22.9	8	24.2	16	23.5
Chocolate	11	31.4	3	9.1	14	20.6
Unhealthy food	_	_	7	21.2	7	10.3
Shopping	_	_	4	12.1	4	5.9
Smoking	_	_	4	12.1	4	5.9
Drugs	_	_	2	6.1	2	2.9
Going out	_	_	2	6.1	2	2.9
Internet	_	_	1	3.0	1	1.4
Being selfish	_	_	1	3.0	1	1.4

From the three commonly experienced temptations given to participants, the *alternative partner* was the one selected by the highest number of participants, being preferred by almost half of the sample. When the opportunity was given to participants to add another familiar temptation, the objects most frequently nominated were *alcohol* (24.2%) and *unhealthy food* (21.2%).

Strategies to Resist Temptation

In the booklet, participants were asked to report the strategies they would most frequently use to resist temptation. Each nominated strategy was qualitatively analysed and labelled according to its meaning. In a second phase of the qualitative analysis, the strategies were clustered in larger categories of shared meaning. The analysis revealed three main categories of strategies: reasoning strategies (also named epistemic), mental control strategies (teleologic), and compliance/help strategies. A fourth category of responses involved succumbing to temptation, rather than resisting it. These four categories, respective components, definitions, and examples are presented in Table 33.

The *reasoning strategies* category included any strategy using reasoning to derogate the positive aspects of the tempting object and strengthen the negative aspects of the tempting object. For example, thinking "that surfing the Internet is not as enjoyable as I believe". *Healthy Substitution* was also included in the reasoning category because, like *change of comparators*, it implies comparing the tempting object with a better alternative, and opting for the better alternative.

The *mental control* strategies category included only strategies that use mental control processes to focus attention on the negative side of the tempting object and to avoid attention to the positive side of the tempting object. For example, "Think of other, more important, things I have to do".

The *compliance/help* category included any strategy that, in some way or another, involved asking for help or compliance from others in order to resist temptation. For example, "Ask my friends to help me".

Finally, the *succumbing* category included the tactics that promote succumbing to temptation instead of resistance. There was also an "*other*" category to include infrequent strategies (e.g., "I would leave all credit and debit cards at home").

Table 33. Prototypical Strategies, Categories, Compounds, Definitions and Examples

Category	Components	Definition	Example
Reasoning Strategies (Epistemic)	Reinterpretation	Think about how the positive aspects of the tempting object could also be seen as negative.	No examples given.
	Reintegration	Think about how the tempting object has negative aspects in addition to the positive aspects.	"The grass is not always greener on the other side!"
	Reattribution	Think about how the positive aspects of tempting object are due to negative ones.	No examples given.
	Retesting	Doubt that the tempting object really has such positive aspects.	"Convince myself that surfing the internet is not as enjoyable as I believe it to be as everyone else copes without it."
	Comparison	Compare the tempting object with other products that are much better	No examples given.
	Dimensions.	Reflect on the fact that the tempting object' positive aspects are not so important to you.	No examples given.
	Healthy Substitution	Opt for having a healthy alternative instead of the tempting object.	"Buy a drink like orange juice instead."
	Reflect on negative consequences	Thinking about the negative consequences of having the tempting object.	"Think about how tired I'll be in the morning."
	Reflect on Goal /commitment	Thinking about the commitment and the reasons behind your decision to restrain yourself from the tempting object.	"Would tell myself all the days I had gone without would have been for nothing."
	Reflect on positive consequences	Thinking about the positive consequences of being able to resist the tempting object.	"I'd imagine how much better I'd feel if I left the shop without eating any."
	Morality	Thinking about the moral obligation to resist the tempting object.	"You can't get involved with someone you do business with."
Mental Control Strategies (Teleologic)	Suppression	Avoid thinking about the positive qualities of the tempting object.	"I would try to block out the attraction"
	Distraction	Focus your mind on things that are not associated with the positive qualities of the tempting object.	"Think of other, more important, things I have to do."
	Concentration	Focus your mind on the negative qualities of the tempting object.	"Look at the negative things it does to the body."
	Preemption	Avoid thinking about things that are associated with the positive qualities of the tempting object.	No examples given.
	Behavioural avoidance	Avoid behaviourally the tempting object.	"Leave the shop and wait outside for my friend"
	Behavioural distraction	Engage in behaviour to distract from the tempting object.	"Find new hobbies to distract from drinking."
	Behaviour control	Control personal behaviour regarding the tempting object.	"Try not to flirt in any way."
Compliance Strategies	Compliance/ Help	Ask others to help you avoiding the tempting object.	"Ask friends/family to support."
Succumbing Strategies	Compensation	Opt for having a small portion of the tempting object and compensate for that by engaging in a healthy behaviour.	"Have some but follow it by eating well for a few days."
	Partially succumbing	Opt for having a smaller portion than usual of the tempting object.	"Limit self to 4 portions a day."
	Total succumbing	Opt for having the tempting object.	"Go for it, you only live once!"

When comparing the use of the self-generated strategies, results indicated that a higher number of participants used mental control strategies (83%) than reasoning strategies (69%) or any other type of strategies (see Table 34). No significant differences were found regarding the use of these two strategies. In addition, results revealed some use of the theoretically derived tactics within the epistemic (i.e., reintegration) and teleological (i.e., suppression, distraction and concentration) routes. Within reasoning strategies, the strategies used by highest number of participants were *reflection on goal/commitment* (43%) and *healthy substitution* (20%). Within mental control strategies, higher numbers of participants reported *behavioural avoidance* (51%) and *distraction* (34%).

Table 34. Frequency (%) of the Use of Self-Generated Strategies

Strategy	% Total (n=35)	% Short Exp. (n=20)	% Long Exp. (n=15)	χ^2 (Sig.)
Reasoning	**68.57**	**70.00**	**66.67**	**0.044 (.833)**
Reintegration	2.86	5.00	0.00	0.772 (.380)
Healthy Substitution	20.00	20.00	20.00	0.000 (1.00)
Negative consequences	11.43	20.00	0.00	3.387 (.066)
Goal/commitment	42.86	40.00	46.67	0.156 (.693)
Positive consequences	2.86	5.00	0.00	0.772 (.380)
Morality	5.71	10.00	0.00	1.591 (.207)
Mental Control	**82.86**	**95.00**	**66.67**	**4.844 (.028)**
Suppression	11.43	15.00	6.67	0.588 (.619)
Distraction	34.29	50.00	13.33	5.115 (.024)
Concentration	25.71	30.00	20.00	0.449 (.503)
Behavioural avoidance	51.43	65.00	33.33	3.441 (.064)
Behavioural distraction	11.43	0.00	26.67	6.022 (.014)
Control of Behaviour	5.71	10.00	0.00	1.591 (.207)
Compliance/Help	**28.57**	**10.00**	**53.33**	**7.887 (.005)**
Succumbing	**5.71**	**10.00**	**0.00**	**1.591 (.207)**
Partial succumbing	2.86	5.00	0.00	0.772 (.380)
Total succumbing	2.86	5.00	0.00	0.772 (.380)

After nominating the self-generated strategies, participants were asked to rank them in order of helpfulness giving a score of 1 to the most helpful strategy; this scale was subsequently reversed so that higher values corresponded to greater helpfulness; strategies that were not presented by the participants as being helpful (missing values) were given a 0 score in the reversed scale (meaning not useful at all). Rankings of self-generated strategies are presented in Table 35. Results revealed that *behavioural avoidance* was perceived as the most helpful strategy, followed by *reflection on goal/commitment, distraction* and *compliance/help.*

Table 35. Rank of Helpfulness of Self-Generated Strategies

	Total (n=35)		Short Exp. (n=20)		Long Exp. (n=15)		*t*	df	Sig.
	M	***SD***	***M***	***SD***	***M***	***SD***			
Reasoning									
Goal/commitment	2.71	3.23	2.50	3.19	3.00	3.38	-0.45	33	0.66
Healthy Substitution	1.20	2.51	1.35	2.78	1.00	2.17	0.40	33	0.69
Negative Consequences	0.69	1.97	1.20	2.50	0.00	0.00	2.14	19	0.04
Morality	0.26	1.22	0.45	1.61	0.00	0.00	1.25	19	0.22
Positive Consequences	0.17	1.01	0.30	1.34	0.00	0.00	0.86	33	0.39
Reintegration	0.11	0.68	0.20	0.89	0.00	0.00	0.86	33	0.39
Mental Control									
Behavioural Avoidance	2.83	2.92	3.45	2.78	2.00	2.98	1.48	33	0.15
Distraction	1.89	2.77	2.80	3.05	0.67	1.80	2.58	32	0.01
Concentration	1.49	2.63	1.70	2.77	1.20	2.48	0.55	33	0.58
Suppression	0.60	1.74	0.70	1.72	0.47	1.81	0.39	33	0.70
Behaviour Control	0.31	1.30	0.55	1.70	0.00	0.00	1.45	19	0.16
Behavioural Distraction	0.63	1.80	0.00	0.00	1.47	2.56	-2.22	14	0.04
Compliance/Help	1.71	2.81	0.50	1.57	3.33	3.31	-3.07	19	0.01
Succumbing									
Partially Succumbing	0.14	0.85	0.25	1.12	0.00	0.00	0.86	33	0.39
Total Succumbing	0.06	0.34	0.10	0.45	0.00	0.00	0.86	33	0.39

Note: Reinterpretation, Reattribution, Retesting, Comparison, Dimensions, Preemption and Compensation scored 0, i.e. were not presented by participants as useful; therefore, these strategies were excluded from the table.

In section B of the booklet, participants received descriptions of the various epistemic and teleologic strategies and were asked to indicate which of those *given strategies* they would use most frequently when trying to resist temptation. Results are presented in Table 36. The epistemic and teleologic strategies were also clustered into two factors (i.e., reasoning and mental control strategies) to facilitate comparison between the use of self-generated and given strategies. From the given strategies, participants reported using more reasoning strategies (97%) than mental control strategies (86%). However, this difference was not significant.

Table 36. Frequency (%) of the Use of Given Strategies

Strategy	% Total (n=35)	% Short Exp. (n=20)	% Long Exp. (n=15)	χ^2 (Sig.)
Reasoning	**97.14**	**95.00**	**100.00**	**0.772 (.380)**
Reinterpretation	37.14	55.00	13.33	6.374 (.012)
Reintegration	68.57	60.00	80.00	1.591 (.207)
Reattribution	17.14	5.00	33.33	4.844 (.028)
Retesting	25.71	20.00	33.33	0.798 (.372)
Comparison	77.14	70.00	86.67	1.350 (.245)
Dimensions	45.71	40.00	53.33	0.614 (.433)
Mental Control	**85.71**	**85.00**	**86.67**	**0.019 (.889)**
Suppression	42.86	35.00	53.33	1.176 (.278)
Distraction	31.43	30.00	33.33	0.044 (.833)
Concentration	60.00	60.00	60.00	0.001 (1.00)
Preemption	20.00	30.00	6.67	2.917 (.088)

Results of the rankings of helpfulness of the given strategies are presented in Table 37. Within reasoning strategies, *comparison* and *reintegration* were perceived as the most helpful strategies. Regarding mental control strategies, *concentration* was ranked first.

Table 37. Rank of Helpfulness of Given Strategies

	Total (n=35)		Short Exp. (n=20)		Long Exp. (n=15)		*t*	df	Sig.
	M	***SD***	***M***	***SD***	***M***	***SD***			
Reasoning									
Comparison	4.20	2.63	4.20	2.93	4.20	2.27	0.00	33	1.00
Reintegration	3.91	2.98	3.25	3.02	4.80	2.78	-1.55	33	0.13
Dimensions	2.49	2.88	2.35	3.07	2.67	2.72	-0.32	33	0.75
Reinterpretation	2.03	2.87	2.85	2.94	0.93	2.46	2.09	33	0.04
Retesting	0.89	1.83	0.35	0.93	1.60	2.44	-1.88	17	0.08
Reattribution	0.69	1.71	0.25	1.12	1.27	2.19	-1.65	19	0.12
Mental Control									
Concentration	2.86	2.73	2.55	2.54	3.27	3.01	-0.76	33	0.45
Suppression	2.03	2.56	1.80	2.65	2.33	2.50	-0.60	33	0.55
Distraction	1.63	2.56	1.75	2.83	1.47	2.23	0.32	33	0.75
Preemption	0.66	1.41	0.95	1.61	0.27	1.03	1.53	32	0.14

Regulatory Focus

Almost all participants had higher promotion pride (M=21.63, SD=2.73) than prevention pride (M=16.26, SD=3.55). In the entire sample, only two participants possessed a dominant prevention pride, making any comparison meaningless. The RFQ Promotion scale and the RFQ Prevention scale were not significantly correlated (r=.20, p=.23), which is consistent with past research (see Higgins, Shah and Friedman, 1997). Due to the poor reliability of the scales and the size disparity of the promotion and prevention pride groups, it was not possible to test hypothesis 4.

Length of Exposure

In order to test the effect of the length of exposure in the use and perceived helpfulness of self-generated and given strategies, a series of t-tests and chi-square tests were conducted.

With regard to the use of self-generated strategies, length of exposure has a significant impact on the use of mental control and compliance/help strategies (see Table 34).

A higher number of participants used mental control strategies on the short-term exposure condition (95%) than on the long-term exposure condition (67%), χ^2=4.84, p=.03. Although this was the case, there was an intriguing difference regarding the use of distraction and behavioural distraction within mental control strategies. As expected, participants seemed to distract themselves more in cognitive terms when in a situation of short-term exposure, χ^2=5.12, p=.03. However, they used more behavioural distraction in a long-term situation, χ^2=6.02, p=.01. In addition, compliance/help strategies are used more in long-term exposure (53%) than the short-term exposure (10%), χ^2=7.89, p=.01. Although reasoning (epistemic) strategies were equally used in short and long-term exposure conditions, mental control (teleologic) strategies were used to a greater extent in the situation of short-term exposure to the tempting object. Concerning perceived helpfulness of self-generated strategies, results revealed some differences between conditions of exposure (see Table 35). Participants perceived the strategies *negative consequences* and *distraction* as more helpful in situations of short-term exposure to the tempting object than in long-term exposure, t(19)=2.14, p=.04, t(32)=2.58, p=.01. *Behavioural distraction* and *compliance/help* were perceived as more helpful in situations of long-term exposure than in short-term exposure, t(14)=-2.22, p=.04, t(19)=-3.07, p=.01.

Length of exposure had an effect on the use of the given strategies in a unexpected way (see Table 36). Participants in a situation of short-term exposure used more reinterpretation (55%) and less reattribution (5%) than participants exposed permanently to temptation (13% and 33%), χ^2=6.37, p=.01, χ^2=4.84, p=.03. The perceived helpfulness of some given strategies was also affected by length of exposure (see Table 37). While *reinterpretation* was seen as more helpful in a situation of short-term exposure, t(33)=2.09, p=.04, *retesting* was seen as more effective in a situation of

long-term exposure to temptation, t(17)=-1.88, p=.08. No significant differences were found regarding teleologic strategies.

Self-Persuasion Awareness

Results revealed that participants were aware of trying to self-persuade to dislike the tempting object (M=5.57, SD=2.28). Regarding self-persuasion success, participants indicated that they were somewhat successful at self-persuasion (M=4.40, SD=2.13). As shown in Table 38, the awareness and success was reported for both short and long-term scenarios.

Table 38. Awareness and Perceived Success in Self-Persuasion

Measure	Total (n=35)		Short Exp. (n=20)		Long Exp. (n=15)		*t*	df	Sig.
	M	***SD***	***M***	***SD***	***M***	***SD***			
Aware	5.57	2.28	5.40	2.48	5.80	2.04	-0.51	33	0.61
Success	4.40	2.13	4.45	2.39	4.33	1.80	0.16	33	0.88

The majority of the sample considered self-persuasion to be a good thing (71.4%), 11.4% a bad thing, and 17.1% reported to be uncertain, χ^2=6.44, p=.04, (see Table 39). The evaluation of self-persuasion seemed to be higher for the long-term scenario.

Table 39. Opinion of Self-Persuasion

Opinion	% Total (n=35)	% Short Contact (n=20)	% Long Contact (n=15)
Good	71.40	55.00	93.30
Bad	11.40	20.00	0.00
Don't Know	17.10	25.00	6.70

Some of the reasons given to justify the opinion on self-persuasion are presented in Table 40. The reasons are of interest because they show considerable thought and awareness of self-persuasion processes.

Table 40. Reasons for the Evaluation of Self-Persuasion

Self-persuasion Evaluation	Example of Reasons Given
It's a **good** thing because	"Once persuasion has happened you have managed good self-control over a situation even though you may know you have made up some facts during persuasion." "Shows my general strength/loyalty and how much the partner meant to me." "It is a useful skill to be able to control yourself; when you don't follow through with your plans can make you upset/disappointed." "Its a good thing to have but I'm not very good at it.
It's a **bad** thing because	"Trying to change what you feel confuses you and often you get angry with the other person for no reason." "You shouldn't have to persuade yourself that you think something different to what you actually believe - should be able to know you like chocolate but strong enough not to eat it." "Its almost like falsely believing in something. Often the more you try to stop yourself thinking or behaving in some way, the more you do." "Because you know that you either like or dislike a person, persuading yourself just hide the truth."

Discussion

This study intended to explore people's lay theories of temptation, and to test the influence of some dispositional and situational factors on the choice of self-persuasion strategies. The study of lay conceptions is useful because it may reveal aspects of a phenomenon that might have been overlooked by past research and experts (see Fehr, 1994, 1999). For example, past research on temptation emphasised the relevance of certain type of strategies, such as suppression and distraction.

However, the present study revealed that people also consider '*asking help from others*' a relevant strategy to resist temptation.

The objects of temptation considered most familiar were '*alternative partner*', *alcohol, and unhealthy food* including *chocolate*. The considerable amount of people that chose the alternative partner scenario was surprising. This might be due to the comparative interest or seriousness of this scenario. Moreover, it provides validation of the relevance and familiarity of the temptation scenarios chosen in the first three studies. However, it should be noted that alcohol was much more salient in self-selected scenarios.

Three different types of strategies were used in order to resist temptation: reasoning strategies, mental control strategies, and help/compliance strategies. Results indicate that people tend to use reasoning and mental control strategies similarly. Within reasoning strategies, the strategies perceived as most helpful were *reflection on goal / commitment* (i.e., reflecting on the reasons behind the decision to restrain from temptation), *comparison* (i.e., comparing the tempting object with other better products) and *reintegration* (i.e., thinking about how the tempting object have negative aspects in addition to the positive aspects). Within mental control strategies, *behavioural avoidance* (i.e., behaviourally avoid the tempting object), *concentration* (i.e., focusing on the negative qualities of the tempting object) and distraction (i.e., focusing on things that are not associated with the positive qualities of the tempting object) were considered the most helpful strategies to resist temptation. These results supported hypothesis 3 and the predictions of the ETSP model that reasoning strategies (i.e., epistemic) are perceived as more helpful in resisting temptation than mental control strategies (i.e., teleologic), perhaps due to the fact that the first type of strategies not only achieves a desired attitude but also an attitude validated in reality. Although this study was not designed to evaluate succumbing strategies, the results suggest that people do try much more often to resist temptation than to succumb to it, highlighting the importance of self-persuasion for personal and social welfare.

Regarding awareness, results offered some evidence that people are aware of the self-persuasion process and the need to attain their desired attitude. Moreover, people tend to consider self-persuasion as beneficial process to undertake.

The ETSP model also highlights the importance of personal and social determinants of the use of deliberate self-persuasion strategies. Hypothesis 4 incorporated a prediction regarding the role of chronic self-regulatory focus on the choice of teleologic strategy. People with high promotion pride were expected to prefer promotion teleologic strategies (concentration and distraction), whereas people with high prevention pride were expected to prefer preventive teleologic strategies (suppression and preemption). Unfortunately, this hypothesis could not be tested due to the limitations of the measurement technique.

The hypothesis regarding the effect of length of exposure on the use of self-persuasion strategies received partial support. Participants in a situation of brief exposure to the tempting object tended to use more mental control strategies than participants in a situation of long-term exposure to the tempting object. Reasoning strategies were equally used in the two situations. Epistemic strategies may be more effective than teleologic strategies but are also more effortful. People might consider that the use of epistemic/reasoning strategies in a situation of fleeting exposure to the tempting object is an unnecessary effort.

Limitations

The most relevant limitation of the present study seems to be the fact that no conclusion was taken regarding the effect of self-regulatory focus on the use of teleologic strategies. The measurement of chronic self-regulatory focus did not offer good reliability and was not enough to discriminate two operational groups, as only two people constituted the group with a dominant prevention regulatory focus. Perhaps a manipulation of regulatory focus would be more useful. Past research has done this by either framing an identical set of task payoffs for success or failure as involving "gain/non-gain" (promotion) or "non-loss/loss" (prevention) (Shah & Higgins, 1997;

Shah, Higgins & Friedman, 1998), or by priming ideals or obligations (Higgins et al., 1994; Liberman *et al.*, 2001).

A second limitation is that the procedure relied on participants' recollection and reconstruction of temptation scenarios. These memories can be biased by participants' theories about their own behaviour (Nisbett & Wilson, 1977; Ross, 1989). Replication in real contexts would be desirable, although it is worth noting that simulated scenarios often successfully replicate real world behaviour (see Davis et al. 1999; Laner, Benin, & Ventrone, 2001; Robinson & Clore, 2001).

Conclusions

People spontaneously use reasoning/epistemic and mental control/teleologic strategies to resist temptation. However, reasoning/epistemic strategies are perceived to be more helpful than any other kind of strategy. Moreover, people seem to be aware of the self-persuasion process and consider it beneficial. In situations of brief exposure to the tempting object, people tend to use more mental control/teleologic strategies than in situations of permanent exposure.

GENERAL DISCUSSION

"The temptation to form premature theories upon insufficient data is the bane of our profession"

Sherlock Holmes (Arthur Conan Doyle; *The Valley of Fear*)

The present thesis attempted to explore the cognitive processes underlying resistance to temptation by using the Epistemic-Teleologic Model of Deliberate Self-Persuasion (ETSP; Maio & Thomas, 2005). More specifically, it intended to address four main issues: (a) the impact of motivation, constrained by ability, on the use of deliberate self-persuasion strategies; (b) the impact of the use of deliberate self-persuasion strategies on the subsequent judgment of the tempting object and consequential behaviour; (c) people's choice of strategies to resist temptation; and (d) people's theories about the use of deliberate self-persuasion to resist temptation.

The first three studies explored the effect of motivation (choice or commitment), constrained by ability (information about the object), on the use of deliberate self-persuasion strategies in different contexts of temptation: teenagers' resistance to drink an attractive beverage, restrained eaters' resistance to eat chocolate, and dating people's evaluation of an attractive alternative partner.

The ETSP model highlights the importance of motivation and ability in deliberate self-persuasion. Results generally supported the prediction that choice and commitment are important motivators of deliberate self-persuasion. When choice to have the tempting object was salient (in Study 1) and commitment to the current relationship was high (in Study 3), participants generated a higher amount of new negative information about the tempting object. This effect, however, did not consistently interact with the ability factor (i.e., information previously given about the tempting object). One potential reason for the lack of interaction between motivation

and ability is that the designs substantially underestimated people's ability to self-persuade. Even when positive information alone was salient, participants spontaneously generated negative information about the tempting object. This self-created negative information turned out to be quite different in impact from the negative information that was merely given to participants, and then simply repeated. Indeed, in Study 1, higher self-created negative information mediated the effect of motivation on behavioural avoidance regarding the tempting object in the low-ability (positive information) group. Nevertheless, in Study 1 and 3, the high-motivation group (high-choice; high affective commitment) generated a greater amount of negative information about the tempting object, particularly the self-created negative information.

The effect of choice on deliberate self-persuasion is supported by past research on behaviour-induced attitude change, and is relevant to cognitive dissonance theory. When a person perceives to have the choice to opt for acting either consistently with the actual attitude or consistently with the desired attitude, the individual may experience a tension state (i.e., dissonance) because these two attitudes are opposite. Such experienced dissonance may prompt the process of deliberate self-persuasion in order to strengthen the desired attitude. Nonetheless, the results of Study 2 did not offer evidence to support this explanation because no effect was found in post-epistemic dissonance.

In Study 2, motivation did not affect the generation of negative information, but it did affect actual overt behavioural yielding to temptation (and this was the only study to directly look at this variable). What explains this puzzling pattern of results in Study 2? Restrained eaters, independently of their actual level of choice, possibly felt that they effectively had little choice to decide whether to eat the chocolates because of their chronically high level of commitment to restrain from fattening food. Consequently, the manipulation of choice may have been less effective for these individuals. Indeed, supplementary analyses indicated that people who scored higher in restrained eating and received positive information about the tempting object (i.e., low-ability group) tended to perceive lower levels of choice. This result seems consistent with past

research showing that restrained eaters have cognitive capacity limitations (see Boon et al., 2002). The perceived absence of choice among low-ability restrained eaters enabled them to refrain from engaging in the effortful process of epistemic self-persuasion. In the high-ability group, there was no association between restraint level and perceived choice. Perhaps the negative information given about the tempting object in this condition helped restrained eaters to engage in the process of cognitive derogation.

The ETSP model states that deliberate self-persuasion is successful when the desired attitude replaces the actual attitude in people's phenomenological experience. Therefore, people who succeed in deliberate self-persuasion should exhibit feelings, beliefs, and behaviours characteristic of the desired attitude. In the first three studies, the relationship between the degree of success in deliberate self-persuasion (i.e., the number of negative information produced about the tempting object) and evaluation and behaviour towards the tempting object was analysed. In Study 1, no association was found between negative information generated about the tempting object and subsequent attitude. However, the attitude measure was administered at the end of the study, after a film of adverts representing attractive beverages. Consistent with past research on post-decisional dissonance and induced compliance paradigm (Allen, 1965; Ebbesen et al., 1975; Zanna & Aziza, 1976, *cit. in* Maio & Thomas, 2005), the film might have distracted participants from their goal of derogating the drink and, consequently, might have blurred the differences between groups. Study 2 tried to overcome this unexpected result by placing the attitude measure just after the epistemic task. As expected, a higher amount of negative information (recalled and self-created) generated about the tempting object and a greater use of epistemic strategies predicted a more unfavourable attitude towards chocolates. In Study 3, the link between the quantity of negative information generated and subsequent temptation-related evaluations was also evident. The negative information produced about the tempting object predicted more negative evaluations of it.

Similarly, the generation of negative information about the tempting object affected behaviour towards that object in a somewhat varied manner across studies. In Study 1, the group with higher motivation and lower ability (i.e., high-choice-positive-information group) generated more self-created negative information and exhibited less behavioural avoidance. In Study 2, there was no direct effect of generated negative information on resistance-to-temptation behaviour, although higher motivation (higher choice) predicted greater resistance (fewer chocolates eaten). When investigating this effect further, it was found that within the high-choice-mixed-information group, the self-created negative information predicted the fewer chocolates eaten, but no effect was found within the high-choice-positive-information group. This pattern of results is again consistent with the idea that, when choice was salient and mixed information was received about the tempting object, restrained eaters engaged in the process of cognitive derogation. In contrast, when choice was salient and only positive information was received about the tempting object, restrained eaters rejected perceived choice, which prevented them from engaging in the effortful process of epistemic self-persuasion. In Study 3, the creation of more negative information about the tempting person predicted the choice of a less confronting interaction position with the tempting person (i.e., greater angle between the chairs).

Thus, there were effects of motivation (i.e., choice and commitment) on the self-created negative information produced about the tempting object, and this negative information affected subsequent evaluation and behaviour towards that object. However, the effects of motivation on evaluation and behaviour were not consistently mediated by the new negative information generated in the first two studies. However, Study 3 did offer evidence in support of the mediation hypothesis and some insight regarding the inconsistency of previous results. Study 3 revealed that commitment elicits derogation of the tempting alternative through the generation of new negative information, when the dimension under evaluation constitutes a relatively low level of threat (i.e., similarity measure). If the dimension under evaluation imposes high levels of threat (i.e., romantic appeal measure), then higher commitment directly predicts

derogation of the tempting alternative. Perhaps the level of threat involved in an evaluation or behaviour is a relevant moderator of the motivation effect. This might plausibly explain the different pattern of results between Study 1 and 2 regarding behaviour towards the tempting object. Study 1 revealed that choice salience led to less avoidance of the tempting object through the generation of new negative information about that object. In contrast, in Study 2 no mediation was found. Instead, results indicated that choice salience directly predicted the number of chocolates eaten at the end of the study. These two types of behaviour (i.e., object movement and object consumption) are different regarding the level of threat that they pose to the desired attitude. It is plausible to view object movement as a low-threat behaviour, and object consumption as a high-threat behaviour. Choice determined unfavourable behaviour towards the tempting object through the generation of new negative information only when the behaviour posed low level of threat (i.e., object movement). When high-threat behaviour was involved (i.e., object consumption), choice predicted the unfavourable behaviour independently of the negative information generated.

The comparative use and helpfulness of the various deliberate self-persuasion strategies was tested for the first time across studies. The first three studies focused on the use of the epistemic route of deliberate self-persuasion, finding that reintegration, retesting, and reinterpretation were the most used epistemic strategies. The relative preferences for epistemic and teleologic strategies were addressed in Study 4. The ETSP model presumes that (a) the epistemic strategies should be preferred over the teleologic strategies because they satisfy the goals of achieving a desired and accurate attitude, and that (b) the teleological route can be pursued when the epistemic route is insufficient or has failed. However, the teleologic route also has the advantage that it requires fewer cognitive resources than the epistemic route. For that reason, it is conceivable that the teleologic route would be used as first choice in certain situations. In this study, the effects of different objects of temptation and different levels of exposure to temptation (short-term vs. long-term exposure) on choice of strategy were explored. I hypothesized that teleologic strategies should be preferred in a situation of

short-term exposure to the tempting object, due to the lower degree of cognitive effort that they entail. Results partly supported this prediction. Participants in a situation of brief exposure to the tempting object tended to use more mental control strategies than participants in a situation of long-term exposure to the tempting object. However, reasoning strategies were equally used in the two situations. Within the epistemic strategies, *reflection on goal /commitment, comparison* and *reintegration* were perceived as most helpful. Regarding the teleologic strategies, *behavioural avoidance*, *concentration* and *distraction* were rated as the most helpful. The reason why these strategies are perceived as being more helpful than the others is not entirely clear. Reintegration seems to be one of the easiest strategies to use, as it simply requires seeing the other negative side of the object. This epistemic strategy was the only one that was spontaneously used across studies. Comparison involves thinking of an alternative and might be an easy way to minimise the relevance of the tempting object. Reflection on goal / commitment seems to be a strategy that is closely linked with the motives to achieve the desired attitude. Indeed, the spontaneous use of this strategy is consistent with past research showing that temptation automatically activates the higher priority goals that temptation threatens to undermine (see Fishbach, Friedman, & Kruglanski, 2003). These findings are also consistent with past evidence that concentration and distraction are more effective as mental control strategies than suppression (e.g., Wegner et al., 1987; Wenzlaff and Bates, 2000). It is also interesting to note that virtually all participants in Study 4 had a chronic promotion self-regulatory focus. Hence, perhaps it is not a pure coincidence that these participants perceived as more helpful exactly those strategies that involve approach eagerness as a way to attain the desired attitude (i.e., concentration and distraction). Behavioural avoidance might be one of the most intuitive ways to solve the issue of temptation. Although this study was not designed to evaluate succumbing strategies, results of Study 4 suggest that people do try much more often to resist temptation than to succumb to it, highlighting the importance of self-persuasion for personal and social welfare.

According to the ETSP model, people must be self-aware of the discrepancy between what they feel (i.e., the actual attitude) and what they would like to feel (i.e., the desired attitude) in order to initiate the process of deliberate self-persuasion. Study 4 tested the extent to which people were aware of deliberately trying to self-persuade to acquire a more negative attitude about the tempting object. Interestingly, people reported being consciously aware of their attempt to dislike the tempting object, and consider self-persuasion to be a positive thing, even when they are not very successful at it. These findings indicate that deliberate self-persuasion can be a conscious act.

Overall, the hypotheses of the present research were partially verified, with the exception of hypothesis 4 that could not be tested. The ETSP model could be well adjusted to tempting scenarios, and self-persuasion strategies were found to be relevant in the process of resisting temptation. Notwithstanding the limitations of the present research, it is worth emphasizing the ways in which it has provided a thorough examination of deliberate self-persuasion. The use of diverse contexts (food and interpersonal temptations) and samples (teenagers, restrained eaters, and dating students) ensured wider applicability and reliability of the findings. The studies involved a range of methodological techniques, including multiple sessions, different motivation inductions (induced thirst, chronic hunger/restraint, and relationship commitment), diverse evaluative measures (attitudes, object's appeal, attraction, and similarity) and diverse behavioural measures (object movement, consumption and interpersonal distance). Multi-methodological approaches are often a tough test of consistency, and yet, some interesting trends have emerged.

Theoretical and Practical Implications

Taken together, the findings reported in this thesis demonstrate that people can use deliberate self-persuasion to resist temptation. As discussed in the introductory chapter, the study of the cognitive management of temptation has been largely

overlooked and the present research provided new evidence on this topic. The limitations of the four studies (presented in the discussion sections of the different chapters) have to be acknowledged, but the findings of these studies make a relevant contribution to our limited knowledge about these processes. Some of the most important theoretical and practical implications for the self-persuasion literature are highlighted bellow.

Theoretical Implications. I would like to highlight four theoretical implications of the research presented in this thesis: implications for the ETSP model, relationship maintenance literature, attitude-change theory, and the conscious vs. automatic processes debate.

First, the present research tests and extends the ETSP model by offering some evidence of the cognitive processes that occur in deliberate self-persuasion. Applying the ETSP model to temptation, this research suggests that people, when motivated, resist temptation by cognitive derogation of the tempting object. In particular, the research emphasizes the relevance of the generation of new negative information to deliberate self-persuasion. Indeed, this is consistent with the theoretical assumption of self-persuasion theories, which states that a person's self-generated thoughts or cognitions are a powerful determinant of persuasion (Greenwald, 1968; Janis & King, 1954; Petty & Cacioppo, 1996 for a review; Petty, Ostrom & Brock, 1981; Tesser, 1978). The present research also extends the ETSP model by exploring the consequences of cognitive derogation to different types of evaluation and behaviour. There is some evidence that new negative information generated about the tempting object mediates the effect of motivation on subsequent evaluation and behaviour only when these behaviours pose low level of threat to the achievement of the desired attitude. Moreover, the present research offers some evidence on preferences and real use of deliberate self-persuasion strategies, tested with different tempting objects and levels of exposure to temptation. In general, participants perceived reasoning/epistemic strategies to be more effective in overcoming temptation than mental control/teleologic strategies. In addition, participants tended to use mental control strategies more in the

context of short-term exposure than long-term exposure. Past research has pointed out the problematic use of some mental control strategies (see Wenzlaff & Wegner, 2000, for a review), but they have the advantage of requiring less cognitive effort in the short-term. This evidence suggests that cognitive expedience is an important additional factor to consider. Adopting the current meta-theory of the human-being as a *motivated tactician* (Fiske & Taylor, 1991), it can be said that people avoid wasting their cognitive resources when unnecessary, usually opting for an effortless strategy (e.g., mental control strategies).

Second, this research, particularly Study 3, contributes to the literature on relationship maintenance by extending the understanding of the underlying cognitive processes involved in the derogation of alternatives. Research in this area revealed that committed individuals tend to devalue alternative partners (Johnson & Rusbult, 1989; Simpson, Gangestead & Lerma, 1990). This tendency to derogate alternatives is greater when commitment and threat is high (e.g., an attractive and readily available alternative), which indicates that derogation of alternatives is a motivated phenomenon. The evidence presented in this thesis suggests that the effect of commitment on derogation of alternatives is, in certain conditions, mediated by the generation of new negative information about the alternative. Specifically, the process of epistemic self-persuasion seems to account for the link between commitment and derogation, under conditions of low as opposed to high threat. Under high-threat, perhaps commitment is by itself a sufficient justification for derogation. However, under conditions of low-threat (i.e., where justification is not so explicit), committed people may engage in deliberate self-persuasion in order to find plausible arguments to devalue the tempting alternative, and protect the current relationship.

Third, the present research has implications for attitude-change theory, in particular for past research examining behaviour-induced attitude change. The paradigm used in studies 1 and 2 involved asking participants not to perform a pro-actual-attitudinal behaviour, when the actual attitude was somewhat ambivalent and no aversive consequences were foreseen. The present research tested if, under these

specific circumstances, choice would still have an effect on attitude-change, and if this effect would be mediated by self-persuasion. Although no evidence was found for an effect of choice on attitudes, choice did have an effect on overt behaviour mediated by the new negative information generated about the tempting object (Study 1). This effect of choice on behaviour may be considered a behavioural expression of people's attitude towards the tempting object (see Eagly & Chaiken, 1993).

Finally, the present research offers some insight into the debate about automaticity vs. consciousness in self-persuasion by suggesting that people are aware of their self-persuasion process. Although the ETSP model emphasises a consciously driven deliberate process of self-persuasion, it allows for the possibility for non-conscious processes to occur. The distinction between *deliberate self-persuasion* and *automated self-persuasion* is important. Automatic processes are defined according to several criteria (Bargh, 1984 and 1989) and vary in the spectrum of those criteria: automatic processes are *unintentional* (i.e., do not require a goal to be activated), *involuntary* (i.e., occur only in the presence of the relevant cue), *effortless* (i.e., do no use of cognitive capacity), *autonomous* (i.e., do no need conscious monitoring), and *outside awareness* (i.e., are activated and operated without consciousness). Based on these specific criteria, deliberate self-persuasion seems not to be an automatic process. First, it is *intentional* because it requires the recognition of an attitudinal discrepancy. Second, it is *voluntary* because it is activated by the personal wish to achieve the desired attitude and not simply by the presence of the discrepancy. Third, it is *effortful* because it uses cognitive capacity, although reasoning processes require higher cognitive resources than mental control processes. Fourth, it is a *goal-dependent* process because it does not run by itself; it needs conscious monitoring to assure that the goal of the desired attitude was achieved. Finally, it involves *awareness* because deliberate self-persuasion is activated and operated consciously. Therefore, deliberative self-persuasion must involve conscious processes for (a) the recognition of the attitudinal discrepancy, (b) the setting of a desired goal and (c) the process of self-persuasion.

Practical Implications. Above and beyond the theoretical aspects, the present findings may have practical implications, in particular to cognitive therapy and social intervention. The US National Mental Health Council (1996) have recently highlighted potential therapeutic benefits of self-persuasion processes. Cognitive therapy seeks to treat emotional problems by challenging dysfunctional beliefs and promoting a more positive frame of mind. This type of intervention typically leads to substantial improvement in approximately 55% of the cases involving either depression (Elkin, 1994; Hollon, 1996; Sacco & Beck, 1995) or anxiety (Clark, 1997; Wells & Butler, 1997). There is some evidence that self-determination (i.e., internal locus of control, responsibility for thoughts) predicts favourable responses to cognitive therapy (Liberman, 1978; Simons et al., 1985). The present research suggests that the perception of choice and commitment to the desired attitude are essential determinants of self-persuasion. Thus, to ensure a successful self-persuasion, therapists may benefit from fostering the perception of choice and commitment to change in the early phases of therapy. This suggestion is consistent with the prevailing clinical wisdom that the client's perception of personal agency in the change process is a critical element of effective psychotherapy (Meichenbaum, 1994).

Moreover, the present findings may also have important implications for social intervention. Work carried out on the prevention of unhealthy behaviour (e.g., health education campaigns and risk communication) has overlooked the potential role of choice in the process of intentional attitude change. If the individual is motivated to change, he/she can manipulate the information received in order to sustain that change. The present research offers evidence that choice salience is a motivator of attitude change, possibly because it promotes personal responsibility (e.g., Wicklund & Brehm, 1976; Tafarodi *et al.*, 2002). Therefore, when choice is salient, people might tend to feel more personally responsible for the aversive consequences of the unhealthy behaviour. Thus, it is plausible to expect that when the choice between unhealthy and healthy alternatives is made salient, people will engage in self-

persuasion to justify the option for the healthy alternative. Thus, health educators might succeed by highlighting people's responsibility for the choices they adopt.

Directions for Future Research

The present research supports the view that people use self-persuasion strategies to resist temptation and that motivation is an important factor for success. It would be worthwhile to continue examining the influence of motivation on the use of the various epistemic and teleologic strategies, and to explore how this influence is constrained by ability. The first three studies focused on the effect of motivation on the use of epistemic strategies. However, these studies overlooked the impact of the same effects on the use of teleologic strategies. In addition, it would be interesting to study different operationalizations of motivation (e.g., personal relevance, subjective norm), ability (e.g., cognitive load, distraction), and potential outcome variables (e.g. with different levels of threat to the desired attitude). There is also a need to improve our understanding about the effect of dissonance on self-persuasion strategies.

The emotional consequences of the success or failure of self-persuasion to resist temptation also merit study. It would be interesting to examine the effects of chronic successes and failures in self-persuasion on emotions. Self-regulatory theory would predict that the type of regulatory focus determines the type of emotional response to success and failure in attaining a goal (Higgins, Shah & Friedman, 1997; Idson, Liberman & Higgins, 2000; for a review, see Higgins, 2001). Specifically, people with high-promotion regulatory focus would express cheerfulness-related emotions (e.g., happy or satisfied) when successful at deliberate self-persuasion, and dejection-related emotions (e.g., disappointed or discouraged) when unsuccessful. In contrast, people with high-prevention regulatory focus should express quiescence-related emotions (e.g., calm or relaxed) when successful at deliberate self-persuasion, and agitation-related emotions (e.g., tense or uneasy) when unsuccessful.

Moreover, it would be interesting to test the empirical validity of the distinction between deliberate and automatic self-persuasion. A new hypothesised model describing how conscious and automatic processes can interact in self-persuasion is presented in Figure 9. This new model includes the process of deliberate self-persuasion, which was discussed in the General Introduction (see Figure 2; *path a* in Figure 9), and the process of automated self-persuasion (*path b* in the new figure). If the same individual encounters the same attitudinal discrepancy several times, and the exact process of self-persuasion is repeated, then an automatic response may be learned. Thus, the deliberate self-persuasion process may become automated.

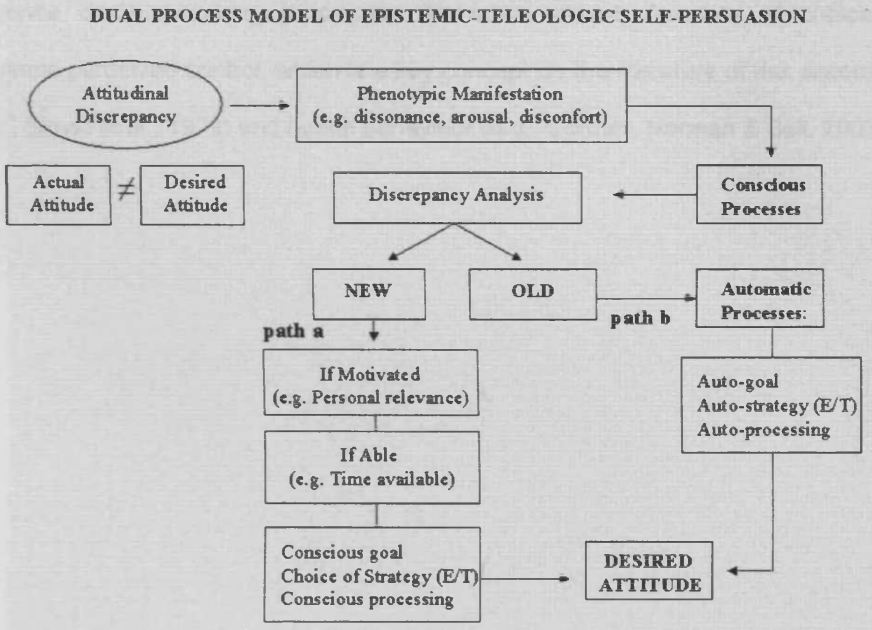


Figure 9. Dual Process Model of Epistemic-Teleologic of Self-persuasion

Whenever the individual encounters that old attitudinal discrepancy, the automatic processes may take over self-persuasion by activating an automated goal (i.e., auto-motive; Bargh 1990, 1997), adopting the usual strategy (i.e., epistemic or teleologic) and monitoring the process until the desired attitude is achieved.

Nevertheless, this extension of the ETSP model is speculative and further research is needed to evaluate and test such a model.

Finally, the role of choice and personal responsibility in the use of deliberate self-persuasion to engage in healthy behaviour is worth investigating further. As already mentioned, health educators may benefit from highlighting people's responsibility for the choices they adopt. It would be interesting to test the impact of the recommendations of a health advisor (i.e., nurse or GP) on patients' healthy behaviour, with or without choice salience, and to explore if the effect of choice is mediated by self-persuasion. The potential relationship between perceptions of choice and control is also interesting and may lead to a better understanding of how these variables influence decision-making processes. To some extent, freedom of choice may influence perceived control, which is a key concept on the literature of risk acceptability (e.g., Slovic et al., 1979) and health behaviour (e.g., Conner, Norman & Bell, 2002).

CONCLUSION

The principal results indicate that motivated people engage in epistemic self-persuasion strategies to derogate the tempting object as a way to resist temptation. In addition, the process of deliberate self-persuasion predicts subsequent evaluation and behaviour towards a tempting object. However, the study of the determinants and processes of deliberate self-persuasion and its success in resisting temptation is still in the beginning. I propose that future research should further examine the cognitive mechanisms that help people to use deliberate self-persuasion in the important domain of resisting temptation.

REFERENCES

Ainslie, G. (1992). *Picoeconomics: The strategic interaction of successive motivational states within the person.* Cambridge: Cambridge University Press.

Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology, 52,* 27-58.

Allen, V. L. (1965). Effect of extraneous cognitive activity on dissonance reduction. *Psychological Reports, 16,* 1145-1151.

Allport, F. H. (1924). *Social Psychology.* Boston: Houghton-Mifflin.

Allport, G. W. (1935). Attitudes. Reprinted in M. Fishbein (Ed.). *Readings In Attitude Theory and Measurement* (1967, pp. 1-13). New York: Wiley.

Aronson, E., Brewer, M., & Carlsmith, J. M. (1985). Experimentation in social psychology. In G. Lindzy, & E. Aronson (Eds.) *Handbook of Social Psychology* (pp. 441-486). New York: Random House.

Bargh, J. A. (1984). Automatic and conscious processing of social information. In R. S. Wyer Jr., & T. K. Srull (Eds.), *Handbook of social cognition* (Vol. 3, pp. 1-43). Hillsdale, NJ: Erlbaum.

Bargh, J. A. (1989). Conditional automaticity: Varieties of automatic influence in social perception and cognition. In J. S. Uleman, & J. A. Bargh (Eds.), *Unintended thought* (pp. 3-51). New York: Guilford Press.

Bargh, J. A. (1990). Auto-motives: Preconscious determinants of social interaction. In E. T. Higgins, & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 93-130). New York: Guilford Press.

Bargh, J. A. (1997). The automaticity of everyday life. In R. S. Wyer, Jr. (Ed.), *The automaticity of everyday life: Advances in social cognition* (Vol. 10, pp. 1-61). Mahway, NJ: Erlbaum.

Bargh, J. A., & Barndollar, K. (1996). Automaticity in action: the unconscious as a repository of chronic goals and motives. In P. M. Gollwitzer, & J. A. Bargh (Eds.), *The*

Psychology of action: Linking cognition and motivation to behavior (pp. 385-403). New York: Guilford.

Baumann, N. & Kuhl, J. (2005). How to resist temptation: The effects of external control versus autonomy support on self-regulatory dynamics. *Journal of Personality, 73*, 443-470.

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego-depletion: Is the active self a limited resource? *Journal of Personality & Social Psychology, 74*, 1252-1265.

Baumeister, R. F., Muraven, M., & Tice, D. M. (2000). Ego-depletion: A resource model of volition, self-regulation and controlled processing. *Social Cognition, 18,* 130-150.

Bazzini, D.G., & Shaffer, D.R. (1999). Resisting temptation revisited: Devaluation versus enhancement of an attractive suitor by exclusive and nonexclusive daters. *Personality and Social Psychology Bulletin, 25,* 162-176.

Betzig, L. (1989). Causes of conjugal dissolution: A cross-cultural study. *Current Anthropology, 30,* 654-676.

Boon, B., Stroebe, W., Schut, H., & Ijntema, R. (2002). Ironic processes in the eating behaviour of restrained eaters. *British Journal of Health Psychology, 7*, 1–10.

Borkovec, T. D., Robinson, E., Pruzinsky, T., & DePree, J. A. (1983). Preliminary exploration of worry: Some characteristics and processes. *Behaviour Research and Therapy, 21*, 9-16.

Bornstein, R.F. (1989). Exposure and affect: Overview and meta-analysis research, 1968-1987. *Psychological Bulletin, 106*, 265-289.

Braun, A. R., Balkin, T. J., Wesentsen, N. J., Carson, R. E., Varga, M., Baldwin, P., Selbie, S., Belenky, G., & Herscovitch, P. (1997). Regional cerebral blood flow throughout the sleep-wake cycle: An H215O PET study. *Brain,120*, 1173-1197.

Brehm, J. W., & Cohen, A. R. (1962). *Explorations in cognitive dissonance*. New York: Wiley.

British Psychological Society (2000). Code of conduct, Ethical Principles and Guidelines. Leicester, BPS.

Bruner, J. S. (1957). On perceptual readiness. *Psychological Review, 64*,123-152.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review, 97*, 19-35.

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.

Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic information processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended Thought* (pp. 212-252). New York: Guilford Press.

Changizi, M.A., & Hall, W.G. (2001) Thirst modulates a perception. *Perception, 30*, 1489-1497

Clark, D. M. (1997). Panic disorder and social phobia. In D. M. Clark & C. G. Fairburn (Eds.), *Science and practice of cognitive behaviour therapy* (pp. 121-153). New York: Oxford University Press.

Conner, M., Norman, P. & Bell, R. (2002). The theory of planned behavior and healthy eating. *Health Psychology, 21,* 194–201.

Cooper, J. & Fazio, R. H. (1984). A new look at dissonance theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 17, pp. 229-266). New York: Academic Press.

Cooper, J., & Fazio, R. H. (1984). A new look at dissonance theory. In L. Berkowitz, (Ed.), *Advances in experimental social psychology* (Vol. 17, pp. 229-266). San Diego, CA: Academic Press.

Cooper, J., & Scher, S. J. (1994). When do our actions affect our attitudes? In S. Shavitt, & T. Brock (Eds.), *Persuasion: Psychological insights and perspectives* (pp. 95-111). Boston: Allyn & Bacon.

Curry, S. J., & McBride, C. M. (1994). Relapse prevention for smoking cessation: review and evaluation of concepts and interventions. *Annual Review of Public Health, 15,* 345-366.

Davis, M. H., Mitchell, K. V., Hall, J. A., Lothert, J., Snapp, T., & Meyer, M. (1999). Empathy, expectations, and situational preferences: Personality influences on the decision to participate in volunteer helping behaviors. *Journal of Personality, 26,* 469-503.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* New York: Plenum.

Dember, W. N., Galinsky, T. L., & Warm, J. S. (1992). The role of choice in vigilance performance. *Bulletin of the Psychonomic Society, 30,* 201-204.

DHUK (Department of Health of the United Kingdom) (2004). *Statistical Bulletin – Statistics on Alcohol: England, 2004.* London, Department of Health of the United Kingdom.

Dunning, D. (1999). A newer look: Motivated social cognition and the schematic representation of social concepts. *Psychological Inquiry, 10,* 1-11.

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes.* FortWorth, TX: Harcourt Brace Jovanovich.

Eagly, A. H., & Chaiken, S. (1998). Attitude structure and function. In D. T. Gilbert, S. T., Fiske, & G. Lindzey (Eds.), *Handbook of Social Psychology* (pp. 269-322). New York: McGraw-Hill.

Ebbesen, E. B., Bowers, R. J., Phillips, S., & Snyder, M. (1975). Self-control processes in the forbidden toy paradigm. *Journal of Personality and Social Psychology, 31,* 442-452.

Eiser, C., Eiser, J. R., & Greco, V. (2004). Surviving childhood cancer: Quality of life and parental regulatory focus. *Personality and Social Psychology Bulletin*, 30: 123-133.

Elkin, I. (1994). The NIMH Treatment of Depression Collaborative Research Program: Where we began and where we are. In A. E. Bergin & S. L. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (pp. 114-139). New York: John Wiley.

EMCDDA (2003). Annual Report 2003: *The State of the Drugs Problem in the European Union and Norway*. Luxembourg: Office of Official Publications of the European Communities.

Erb, H. P., Kruglanski, A. W., Chun, W. Y., Pierro, A., Mannetti, L., & Spiegel, S. (2003). Searching for commonalities in human judgment: The parametric unimodel and its dual mode alternatives. *European Review of Social Psychology, 14*, 1-48.

Fazio, R. H. (1990). Multiple processes by which attitudes guide behavior: The mode model as an integrative framework. In M. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 21, pp. 75-109). San Diego, CA: Academic Press.

Fehr, B. (1994). Prototype-based assessment of laypeople's views of love. *Personal Relationships, 1,* 309-331.

Fehr, B. (1999). Laypeople's conceptions of commitment. *Journal of Personality and Social Psychology, 76*, 90-103.

Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford University Press.

Festinger, L. (1987). Reflections on cognitive dissonance: 30 years later. In E. Harmon-Jones, & J. S. Mills (Eds.). (1999). *Cognitive Dissonance: Progress on a Pivotal Theory in Social Psychology*. Washington, DC: American Psychological Association.

Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal Psychology, 58*, 203-210.

Finkel, E. J., Rusbult, C. E., Kumashiro, M., & Hannon, P. A. (2002). Dealing with betrayal in close relationships: Does commitment promote forgiveness? *Journal of Personality and Social Psychology, 82*, 956–974.

Fishbach, A., Friedman, R. S., & Kruglanski, A. W. (2003). Leading us not unto temptation: Momentary allurements elicit overriding goal activation. *Journal of Personality and Social Psychology, 84,* 296–30

Fiske, S. T., & Taylor, S. E. (1991). *Social Cognition*. New York: McGraw-Hill.

Fletcher, G. J. O., Simpson, J. A., Thomas, G., & Giles, L. (1999). Ideals in intimate relationships. *Journal of Personality & Social Psychology, 76,* 72-89.

Freitas, A. L., Liberman, N., & Higgins, E. T. (2002). Regulatory fit and resisting temptation during goal pursuit. *Journal of Experimental Social Psychology, 38*, 291-298.

Freud, A. (1966). *The Ego and the Mechanisms of Defence* (rev. ed. of 1936). New York: International Universities Press.

Geen, R. G. (1995). The history of social psychology. In A. S. R. Manstead, & M. Hewstone (Eds.), *The blackwell encyclopaedia of social psychology*. Oxford: Blackwell.

Gollwitzer, P. M. (1996). The volitional benefits of planning. In P. M. Gollwitzer, & J. A. Bargh (Eds.), *The Psychology of action: Linking cognition and motivation to behavior* (pp. 287–312). New York: Guilford.

Gossop, M., Stewart, D., Browne, N., & Marsden, J. (2002). Factors associated with abstinence, lapse or relapse to heroin use after residential treatment: protective effect of coping responses. *Addiction, 97*, 1259-1267.

Gottman, J. M. (1998). Psychology and the study of marital processes. *Annual Review of Psychology, 49*,169-197.

Greenwald, A. G. (1968). Cognitive learning, cognitive response to persuasion and attitude change. In A. G. Greenwald, T. C. Brock, & T. M. Ostrom (Eds.), *Psychological foundations of attitudes*. New York: Academic Press.

Greenwald, A. G. (1989). Why attitudes are important: Defining attitude and attitude theory 20 years later. In A. R. Pratkanis, & S. J. Breckler (Eds.), *Attitude Structure and Function*, (pp. 429-440). Hillsdale, NJ: Lawrence Erlbaum.

Grilo, C. M., Shiffman, S., & Wing, R. R. (1989). Relapse crises and coping among dieters. *Journal of Consulting and Clinical Psychology, 57,* 488-95.

Hajek, P., & Belcher, M. (1991). Dream of absent-minded transgression: An empirical study of a cognitive withdrawal symptom. *Journal of Abnormal Psychology*, 100, 487-491.

Hanson, K., & Bussière, M. T. (1998). Predicting relapse: A meta-analysis of sexual offender recidivism studies. *Journal of Consulting and Clinical Psychology, 66,* 348-362.

Harmon-Jones, E. (2000). Cognitive dissonance and experienced negative affect: Evidence that dissonance increases experienced negative affect even in the absence of aversive consequences. *Personality and Social Psychology Bulletin, 26,* 1490-1501.

Harmon-Jones, E., & Mills, J. S. (Eds.). (1999). *Cognitive Dissonance: Progress on a Pivotal Theory in Social Psychology.* Washington, DC: American Psychological Association.

Harmon-Jones, E., Brehm, J. W., Greenberg, J., Simon, L., & Nelson, D. E. (1996). Evidence that the production of aversive consequences is not necessary to create cognitive dissonance. *Journal of Personality and Social Psychology, 70,* 5-16.

Herman, C. P., & Polivy, J. (1980). Restrained eating. In A. J. Stunkard (Ed.) *Obesity*, (pp. 208-225). Philadelphia: Saunders.

Herman, C. P., Polivy, J., Lank C. N., & Heatherton, T. F. (1987). Anxiety, hunger, and eating behavior. *Journal of Abnormal Psychology, 96*, 264-269.

Higgins, E. T. & Spiegel, S. 2004. Promotion and prevention strategies for self-regulation: A motivated cognition perspective. In R. F. Baumeister, & K. D. Vohs (Eds.) Handbook of self-regulation: Research, theory, and applications (pp. 171-187). New York: Guildford Press.

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52,* 1280-1300.

Higgins, E. T. (2000). Making a good decision: Value from fit. *American Psychologist, 55*, 1217-1230.

Higgins, E. T. (2001). Promotion and prevention experiences: Relating emotions to nonemotional motivational states. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 186-211). Mahwah, NJ: Erlbaum.

Higgins, E. T. (2002). How self-regulation creates distinct values: The case of promotion and prevention decision making. *Journal of Consumer Psychology, 12*, 177–191.

Higgins, E. T., Friedman, R., Harlow, R.E., Idson, L.C., Ayduk, O.L., & Taylor, A. (2001). Achievement orientations from subjective histories of success: promotion pride versus prevention pride. *European Journal of Social Psychology, 31*, 3-23.

Higgins, E. T., Roney, C., Crowe, E., & Hymes, C. (1994). Ideal versus ought predilections for approach and avoidance: Distinct self-regulatory systems. *Journal of Personality and Social Psychology, 66*, 276-286.

Higgins, E. T., Roney, C., Crowe, E., & Hymes, C. (1994). Ideal versus ought predilections for approach and avoidance: Distinct self-regulatory systems. *Journal of Personality and Social Psychology, 66*, 276-286.

Higgins, E. T., Shah, J., & Friedman, R. (1997). Emotional responses to goal attainment: Strength of regulatory focus as moderator. *Journal of Personality and Social Psychology, 72*, 515-525.

Hobson, J. A., Pace-Schott, E., & Stickgold, R. (2000). Dreaming and the brain: Toward a cognitive neuroscience of conscious states. *Behavioral and Brain Sciences, 23,* 783-842.

Hollon, S. D. (1996). The efficacy and effectiveness of psychotherapy relative to medications. *American Psychologist, 53,* 1025-1030.

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion*, New Haven: Yale University Press.

Idson, L. C., Liberman, N., & Higgins, E. T. (2000). Distinguishing gains from non-losses and losses from non-gains: A regulatory focus perspective on hedonic intensity. *Journal of Experimental Social Psychology, 36,* 252–274.

Irvin, J. E., Bowers, C. A., Dunn, M. E., & Wang, M. C. (1999). Efficacy of Relapse Prevention: A Meta-Analytic Review. *Journal of Consulting and Clinical Psychology, 67*, 563-570.

James, W. (1890). *Principles of Psychology*. New York: Holt.

Janis, I. L., King, B. T. (1954). The influence of role playing on opinion change. *Journal of Abnormal Psychology, 49,* 211-218.

Johnson, D. J., Rusbult, C. E. (1989). Resisting temptation: Devaluation of alternative partners as a means of maintaining commitment in close relationships. *Journal of Personality and Social Psychology, 57,* 967-980.

Johnson, R. W., Kelly, R. J., & LeBlanc, B. A. (1995). Motivational basis of dissonance: Aversive consequences or inconsistency. *Personality and Social Psychology Bulletin, 21,* 850-855.

Katz, D. (1960). The functional approach to the study of attitudes. *Public Opinion Quarterly, 24*, 163-204.

Kraus, S. J. (1995). Attitudes and the prediction of behavior: A meta-analysis of the empirical literature. *Personality and Social Psychology Bulletin, 21*, 58-75.

Krech, D., Crutchfield, R. S., & Ballachy, E. I. (1962). *Individual in Society*. New York: McGraw-Hill.

Kruglanski, A. W., & Thompson, E. P. (1999). Persuasion by a single route: A view from the unimodel. *Psychological Inquiry*, 10, 83-109.

Kruglanski, A. W., Fishback, A., Erb, H. P., Pierro, A., & Mannetti, L. (2004). The unimodel as a theory of persuasion. In G. Haddock, & G. R. Maio (Eds.), *Contemporary perspectives on the psychology of attitudes* (pp. 399-422). New York: Psychology Press.

Kruglanski, A.W., Thompson, E.P., & Spiegel, S. (1999). Separate or equal? Bimodal notions of persuasion and a single-process "unimodel". In S. Chaiken & Y. Trope (Eds.), *Dual-process theories in social psychology*, (pp. 293-313). New York: Guilford.

Kuhl, J. (1985). Volitional mediators of cognition-behavior consistency: self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckmann (Eds), *Action control: From cognition to behavior.* Berlin: Springer.

Kuhl, J., & Beckmann, J. (1994). *Volition and personality: Action versus state orientation*. Göttingen, Germany: Hogrefe.

Kunda, Z., & Sinclair, L. (1999). Motivated reasoning with stereotypes: Activation, application, and inhibition. *Psychological Inquiry, 10,* 12-22.

Lafay, L., Thomas, F., Mennen, L., Charles, M. A., Eschwege, E., Borys, J., & Basdevant, A. (2001). Gender differences in the relation between food cravings and mood in an adult community: Results from the Fleurbaix Laventie Ville Sante Study. *International Journal of Eating Disorders, 29,* 195-204.

Landman, J. (1988). Regret and elation following action and inaction: Affective responses to positive versus negative outcomes. *Personality and Social Psychology Bulletin, 13,* 524-536.

Laner, M. R., Benin, M. H., & Ventrone, N. A. (2001). Bystander attitudes toward victims of violence: Who's worth helping? *Deviant Behavior, 22,* 23-24.

Latimer, W. W., Winters, K. C., Stinchfield, R., & Traver, R. E., (2000). Demographic, individual, and interpersonal predictors of adolescent alcohol and marijuana use following treatment. *Psychology of Addictive Behaviors, 14,* 162-173.

Liberman, B. L. (1978). The role of mastery in psychotherapy: Maintenance of improvement and prescriptive change. In J. D. Frank, R. Hoehn-Saric, S. D. Imber, B. L. Liberman, & A. R. Stone (Eds.), *Effective ingredients of successful psychotherapy* (pp. 35-72). New York: Brunner/Mazel.

Liberman, N., Molden, D. C., Idson, L. C., & Higgins, E. T. (2001). Promotion and prevention focus on alternative hypotheses: Implications for attributional functions. *Journal of Personality and Social Psychology, 80,* 5-18.

Linder, D. E., Cooper, J., & Jones, E. E. (1967). Decision freedom as a determinant of the role of incentive magnitude in attitude change. *Journal of Personality and Social Psychology, 6,* 245-254.

Lydon, J. E., Fitzsimons, G. M., & Naidoo, L. (2003). Devaluation versus enhancement of attractive alternatives: A critical test using the calibration paradigm. *Personality and Social Psychology Bulletin, 29,* 349-359.

Lydon, J. E., Meana, M., Sepinwall, D., Richards, N., & Mayman, S. (1999). The commitment calibration hypothesis: When do people devalue attractive alternatives? *Personality and Social Psychology Bulletin, 25*, 152-161.

MacCallum, R. C., Zhang, S., Preacher, K. J., & Rucker, D. D. (2002). On the practice of dichotomization of quantitative variables. *Psychological Methods, 7,* 19-40.

Maio, G. R. and Thomas, G. (2005). *The epistemic-teleologic model of deliberate self-persuasion.* Cardiff University.

Maio, G. R., & Olson, J. M. (1998). Attitude dissimulation and persuasion. *Journal of Experimental Social Psychology, 34,* 182-201.

Maio, G. R., & Olson, J. M. (Eds.) (2000). *Why We Evaluate: Functions of Attitudes.* Mahwah, NJ: Erlbaum.

Manstead, A. S. R., & Fischer, A. H. (2000). Emotion regulation in full. *Psychological Inquiry, 11,* 188-191.

Maxwell, S. E., & Delaney, H. D. (1993). Bivariate median splits and spurious statistical significance. *Psychological Bulletin, 113,* 181-190.

Meichenbaum, D. (1994). *Clinical handbook of treatment of post traumatic stress disorder.* Waterloo, Ontario: Institute Press

Mellman, T. A., David, D., Bustamante, V., Torres, J., & Fins, A. (2001). Dreams in the acute aftermath of trauma and their relationship to PTSD. *Journal of Traumatic Stress*, 14, 241–247.

Mervis, C. B., & Rosch, E. (1981). Categorization of natural objects. *Annual Review of Psychology, 32,* 89-115.

Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative Commitment to the organization: A meta-analysis of antecedents, correlates, and consequences, *Journal of Vocational Behavior, 61,* 20–52.

Mikulincer, M. (1988). Freedom of choice, control, and learned helplessness. *Journal of Social and Clinical Psychology, 7,* 203-213.

Miller, R. S. (1997). Inattentive and contented: Relationship commitment and attention to alternatives. *Journal of Personality & Social Psychology, 73,* 758-766.

Mitchell, M., & Jolley, J. (2000). *Research design explained.* Fort Worth, TX: Harcourt College Publishers.

Monty, R. A., & Perlmuter, L. C. (1987). Choice, control, and motivation in the young and the aged. In M. L. Maehr, & D. L. Kleiber (Eds.), *Advances in motivation and achievement,* (pp. 99-122). Greenwich, CT: JAI.

Moser, A. E., & Annis, H. M. (1996). The role of coping in relapse crisis outcome: a prospective study of treated alcoholics. *Addiction, 91,* 1101-1114.

Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126,* 247-259.

Muraven, M., Collins, R. L., & Nienhaus, K. (2002). Self-Control and alcohol restraint: An initial application of the self-control strength model. *Psychology of Addictive Behaviors, 16,* 113–120.

Muraven, M., Tice, D. M., & Baumeister, R. F. (1998). Self-control as limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology, 74,* 774-789.

Murray, S. L. (1999). The quest for conviction: Motivated cognition in romantic relationships. *Psychological Inquiry, 10,* 23-34.

Musil, C., Jones, S., & Warner, C. (1998). Structural equation modeling and its relationship to multiple regression and factor analysis. *Research in Nursing and Health, 21,* 271-281.

Muzur, A., Pace-Schott, E., & Hobson, J. A. (2002). The prefrontal cortex in sleep. *Trends in Cognitive Sciences,* 6, 475–481.

National Mental Health Council (1996). A report of the national advisory council. Basic Behavioral Science Task Force.

Nisbett, R., & Wilson, T. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84,* 231-259.

Olson, J. M., & Maio, G. R. (2003). Attitudes in social behavior. In T. Millon & M. J. Lerner (Eds). *Handbook of Psychology: Personality and Social Psychology*, (pp. 299-325). New York: John Wiley & Sons.

Patterson, C. J., & Mischel, W. (1976). Effects of temptation-inhibiting and task-facilitating plans on self-control. *Journal of Personality and Social Psychology, 33*, 209-217.

Perlmuter, L. C., & Monty, R. A. (1977). The importance of perceived control: Fact or fantasy? *American Scientist, 65,* 759-765.

Perlmuter, L. C., Scharff, K., Karsh, R., & Monty, R. A. (1980). Perceived control: A generalized state of motivation. *Motivation and Emotion, 4,* 35-45.

Peters, E. R., Joseph, S., Day, S., & Garety, P. A. (2004). Measuring delusional ideation: the 21-item Peters et al. Delusions Inventory (PDI). *Schizophrenia Bulletin, 30,* 1005-1022.

Petty, R. E., & Cacioppo, J. T. (1996). *Attitudes and persuasion: classic and contemporary approaches.* Boulder, CO: Westview Press.

Petty, R. E., Brinol, P., & Zakary L. Tormala (2002). Thought confidence as a determinant of persuasion: The self-validation hypothesis. *Journal of Personality and Social Psychology, 82*, 722-741.

Petty, R. E., Ostrom, T. M., & Brock, T. C. (Eds.) (1981). *Cognitive responses in persuasion.* Hillsdale: Erlbaum.

Petty, R. E., & Wegener, D. T. (1999). The elaboration likelihood model: Current status and controversies. In S. Chaiken and Y. Trope (Eds.), *Dual-process theories in social psychology* (pp. 37-72). New York: Guilford Press.

Petty, R. E., Wheeler, S. C., & Bizer, G. Y. (1999). Is there one persuasion process or more? Lumping versus splitting in attitude change theories. *Psychological Inquiry, 10,* 156-163.

Petty, R.E., & Cacioppo, J.T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*, (Vol. 19, pp. 123-205). New York: Academic Press.

Polivy, J. (1990). Inhibition of internally cued behavior. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of Motivation and Cognition: Foundations of Social Behavior* (Vol. 2, pp. 131-147). New York: Guilford.

Preacher, K.J., & Hayes, A.F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, 36, 717-731.

Prislin, R., & Pool, G.J. (1996). Behavior, consequences, and the self: Is all well that ends well? *Personality and Social Psychology Bulletin, 22,* 933-948.

Reed, G. F. (1985). *Obsessional Experience and Compulsive Behaviour: A Cognitive-Structural Approach*. New York: Academic Press.

Reid, S.D., & Simeon, D.T. (2001). Progression of dreams in crack cocaine abusers as a predictor of treatment outcome: A preliminary report. *Journal of Nervous and Mental Disease, 189,* 854-857.

Reilly, J. J., & Dorosty, A. R. (1999). Epidemic of obesity in UK children. *The Lancet, 354*, 1874-1875.

Reis, H. T., & Shaver, P. (1988). Intimacy as an interpersonal process. In S. Duck (Ed.), *Handbook of personal relationships* (pp.367-389). Chichester: J. Wiley.

Robinson, M. D., & Clore, G. L. (2001). Simulation, scenarios, and emotional appraisal: testing the convergence of real and imagined reactions to emotional stimuli. *Personality and Social Psychology Bulletin, 27,* 1520-1532.

Rosenberg, M. (1979). Appendix A: New york self-esteem scale. In M. Rosenberg (Ed.), *Concerning the self.* New York: Basic Books.

Rosenberg, M. J., & Hovland, C. I. (1960). Cognitive, affective and behavioral components of attitudes. In C. I. Hovland & M. J. Rosenberg (Eds.). *Attitude Organization and Change* (pp.1-14). New Haven: Yale University Press.

Ross, M. (1989). Relation of implicit theories to the construction of personal histories. *Psychological Review, 96,* 341-357.

Rusbult, C. E., & Buunk, B. P. (1993). Commitment processes in close relationships: An interdependence analysis. *Journal of Social and Personal Relationships, 10,* 175-204.

Rusbult, C. E., Van Lange, P. A., Wildschut, T., Yovetich, N. A., & Verette, J. (2000). Perceived superiority in close relationships: why it exists and persists. *Journal of Personality and Social Psychology, 79*, 521-545.

Rusbult, C. E., Verette, J., Whitney, G. A., Slovik, L. F., Lipkus, I. (1991). Accommodation processes in close relationships: theory and preliminary empirical *Journal of Personality and Social Psychology, 60*, 53-78.

Sacco, W. P., & Beck, A. T. (1995). Cognitive theory and therapy. In E.E. Beckham & W. R. Leber (Eds.), *Handbook of depression* (pp. 329-351). New York: Guilford.

Safer, D., Lively, T. J., Telch, C. F., & Agras, W. S. (2002). Predictors of relapse following successful dialectical behavior therapy for binge eating disorder. *International Journal of Eating Disorders, 32,*155-163.

Schmidt, L. G., Dufeu, P., Kuhn, S., Rommelspacher, H. (1994). Relapse prevention in alcoholics with an anticraving drug treatment: first results of the Berlin Study. *Pharmacopsychiatry, 1*, 21-3.

Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. R. (2002). Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology, 83,* 1178-1197.

Shah, J., & Higgins, E. T. (1997). Expectancy X value effects: Regulatory focus as a determinant of magnitude and direction. *Journal of Personality and Social Psychology, 73*, 447-458.

Shah, J., Higgins, E. T., & Friedman, R. (1998). Performance incentives and means: How regulatory focus influences goal attainment. *Journal of Personality and Social Psychology, 74,* 285-293.

Sherman, S. J. (1970). Effects of choice and incentive on attitude change in a discrepant behavior situation. *Journal of Personality and Social Psychology, 15,* 245-252.

Simons, A. D., Lustman, P. J., Wetzel, R. D., & Murphy, G. E. (1985). Predicting response to cognitive therapy of depression: The role of learned resourcefulness. *Cognitive Therapy and Research, 9,* 79-89.

Simpson, J. A., Gangestead, S.W., & Lerma, M. (1990). Perception of physical attractiveness: Mechanisms involved in the maintenance of romantic relationships. *Journal of Personality and Social Psychology, 59*, 1192-1201.

Simpson, J. A., Ickes, W., & Blackstone, T. (1995). When the head protects the heart: Empathic accuracy in dating relationships. *Journal of Personality and Social Psychology, 69*, 629-641.

Slovic, P., Fischhoff, B., & Lichtenstein, S. (1979). Rating the risks. *Environment, 2,* 14-20.

Swann, W. B., Jr., & Pittman, T. S. (1977). Initiating play activity of children: The moderating influences of verbal cues on intrinsic motivation. *Child Development, 48*, 1128-1132.

Tafarodi, R. W., Mehranvar, S., Panton, R. L. & Milne, A. B. (2002). Putting oneself in the task: Choice, personalization, and confidence. *Personality and Social Psychology Bulletin, 28,* 648-658.

Tait, R., & Silver, R. C. (1989). Coming to terms with major negative life events. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended Thought* (pp. 351-382). New York: Guilford.

Tesser, A. (1978). Self-Generated attitude change. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (pp. 289–338). New York: Academic Press.

Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 21, pp. 181-227). New York: Academic Press.

Van Lange, P. A., & Rusbult, C. E. (1995). My relationship is better than - and not as bad as - yours is: The perception of superiority in close relationships. *Personality and Social Psychology Bulletin, 21*, 32-44.

Van Lange, P. A., Rusbult, C. E., Drigotas, S. M., Arriaga, X. B., & Witcher, B. S., (1997).Willingness to sacrifice in close relationships. *Journal of Personality and Social Psychology*, 72, 1373-1395.

Wagner, E. F. Myers, M. G., & McIninch, J. L. (1999). Stress-coping and temptation-coping as predictors of adolescent substance use. *Addictive Behaviors, 24,* 769-79.

Wegner, D. M. (1988). Stress and mental control. In S. Fisher, & J. Reason (Eds.), *Handbook of life stress, cognition and health* (pp. 683-697). John Wiley & Sons Ltd.

Wegner, D. M. (1992). You can't always think what you want: Problems in the suppression of unwanted thoughts. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 193-225). San Diego, CA: Academic Press.

Wegner, D. M. (1994). Ironic processes of mental control. *Psychological Review, 101,* 34-52.

Wegner, D. M., & Erber, R. (1992). The hyperaccessibility of suppressed thought. *Journal of Personality and Social Psychology, 63,* 903-912.

Wegner, D. M., & Pennebaker, J. W. (1993). *Handbook of Mental Control.* Englewood Cliffs, NJ: Prentice Hall.

Wegner, D. M., & Zanakos, S. (1994). Chronic thought suppression. *Journal of Personality, 62,* 615-640.

Wegner, D. M., Ansfield, M., Pilloff, D. (1998). The putt and the pendulum: ironic effects of the mental control of action. *Psychological Science, 9,* 196-99.

Wegner, D. M., Erber, R., & Zanakos, S. (1993). Ironic processes in the mental control of mood and mood-related thought. *Journal of Personality and Social Psychology, 65,* 1093-1104.

Wegner, D. M., Schneider, D. J., Carter, S. R., & White, T.L. (1987). Paradoxical effects of thought suppression. *Journal of Personality and Social Psychology, 53*, 5-13.

Wegner, D. M., Wenzlaff, R. M., & Kozak M. (2004). Dream rebound: The return of suppressed thoughts in dreams. *Psychological Science, 15*, 232-236.

Weingarten, H., & Elston, D. (1990). The phenomenology of food cravings. *Appetite, 15,* 231-246.

Wells, A., & Butler, G. (1997). Generalized anxiety disorder. In D. M. Clark, & C. G. Fairburn (Eds.), *Science and practice of cognitive behaviour therapy* (pp. 155-178). New York: Oxford University Press.

Wenzlaff, R. M., & Bates, D. E. (1998). Unmasking a cognitive vulnerability to depression: How lapses in mental control reveal depressive thinking. *Journal of Personality and Social Psychology, 75,* 1559-1571.

Wenzlaff, R. M., & Bates, D. E. (2000). The relative efficacy of concentration and suppression strategies of mental control. *Personality and Social Psychology Bulletin, 26*, 1200-1212.

Wenzlaff, R. M., & Luxton, D. D. (2003). The Role of Thought Suppression in Depressive Rumination. *Cognitive Therapy and Research, 27*, 293-308.

Wenzlaff, R. M., & Wegner, D. M. (2000). Thought Suppression. *Annual Review of Psychology, 51*, 59-91.

Wicklund, R. A., & Brehm, J. W. (1976). *Perspectives on cognitive dissonance.* New York: John Wiley.

Wilkinson, R., & Marmot, M. (Eds.) (1998). *The Solid facts - Social determinants of health.* Copenhagen: World Health Organization Regional Office for Europe.

Wills, T. A., & Hirky, A. E. (1996). Coping and substance abuse: A theoretical model and review of the evidence. In M. Zeichnec, & N.S. Eudler (Eds.), *Handbook of coping: Theory, research, and applications* (pp. 279-302). New York, NY: Wiley.

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology Monograph, 9*, 1-27.

Zanna, M. P., & Aziza, C. (1976). On the interaction of repression-sensitization and attention in resolving cognitive dissonance. *Journal of Personality, 44*, 577-593.

Zanna, M., & Cooper, J. (1974). Dissonance and the pill: An attribution approach to studying the arousal properties of dissonance. *Journal of Personality and Social Psychology, 29*, 703-709.

Zanna, M., & Rempel, J. K. (1988). Attitudes: A new look at an old concept. In D. Bar-Tal, & A. Kruglanski (Eds.), *The Social Psychology of Knowledge* (pp. 315-334). New York: Cambridge University Press.

Zanna, M., Higgins, E., & Taves, P. (1976). Is dissonance phenomenologically aversive? *Journal of Experimental Social Psychology, 12*, 530-538.

Zuckerman, M., Porac, J., Lathin, D., Smith, R., & Deci, E. L. (1978). On the importance of self-determination for intrinsically motivated behavior. *Journal of Social Psychology Bulletin, 4,* 443-446.

APPENDICES

Appendix 1. Epistemic written task (Study 1)

Please use the space below to give a comprehensive and detailed description of the drink presented earlier in your own words. What does this drink seem like? To help you do this task, imagine that your best friend knew nothing about this drink. How would you describe it to your best friend?

Think about some of the positive attributes of this drink. Please describe how you could re-label these attributes. For example, one person may see a drink as "common" rather than "popular"!

Think about some of the positive attributes of this drink. Describe the extent to which these attributes are offset by the negative attributes of the drink. For example, a drink can be refreshing but too sweet at the same time.

Describe the extent to which these positive attributes of the drink are related to, or partly a result of, the more negative attributes of the drink. For example, a drink can be tasty because it has a very high sugar content.

Describe how this drink compares to others. Your description may include attributes that are positive, negative or both.

Describe the extent to which the attributes of the drink are important to you. Your description may include attributes that are positive, negative or both.

Think about the positive attributes of this drink. Reconsider for a moment whether this drink really has these attributes. Is it possible that these positive attributes may not be true or are exaggerated?

How confident are you that the positive attributes of the drink are correct (circle the appropriate)?

Not confident at all									Completely confident
1	2	3	4	5	6	7	8	9	10

How confident are you that the negative attributes of the drink are correct (circle the appropriate)?

Not confident at all									Completely confident
1	2	3	4	5	6	7	8	9	10

Appendix 2. Drink thoughts suppression inventory (Study 1)

This survey is about thoughts. There are no right or wrong answers, so please respond honestly to each of the items below. Be sure to answer every item by circling the appropriate letter beside each.

A	B	C	D	E
Strongly Disagree	Disagree	Neutral or Don't Know	Agree	Strongly Agree

Think about the time while you were waiting in the room until now,

A B C D E I would prefer not to think about drinking or drinks.

A B C D E I thought about drinks and I couldn't stop.

A B C D E My thoughts frequently returned to the idea of drinking or drinks.

A B C D E I wished I could stop thinking of drinking or drinks.

A B C D E Thoughts of the drink kept jumping into my head.

A B C D E I tried not to have drink-thoughts.

A B C D E I wanted to stop thinking of drinks or drinking.

A B C D E I tried to distract myself from having drink thoughts.

A B C D E I tried to be busy just to keep drink thoughts from intruding my mind.

Appendix 3. Restraint scale (Study 2)

The following questions refer to your normal eating pattern and weight fluctuations.

Please answer accordingly. Circle one answer for each question.

How often are you dieting?

Never Rarely Sometimes Usually Always

What is the maximum amount of weight (in pounds) you have ever lost within one month?

0 - 4 5 – 9 10 – 14 15 - 19 20 +

What is your maximum weight gain within a week (in pounds)?

0 - 1 1.1 – 2 2.1 – 3 3.1 - 5 5.1 +

In a typical week, how much does your weight fluctuate (in pounds)?

0 - 1 1.1 - 2 2.1 – 3 3.1 - 5 5.1 +

Would a weight fluctuation of 5 lbs. affect the way you live your life?

Not at all Slightly Moderately Very much

Do you eat sensibly in front of others and splurge alone?

Never Rarely Often Always

Do you give too much time and thought to food?

Never Rarely Often Always

Do you have feelings of guilt after overeating?

Never Rarely Often Always

How conscious are you of what you're eating?

Not at all Slightly Moderately Very much

How many pounds over your desired weight were you at your maximum weight?

0 – 1 2 – 5 6 – 10 11 - 20 21 +

Appendix 4. Epistemic written task (Study 2)

Please write a comprehensive and detailed description of the **chocolates presented earlier**, in your own words. To help you do this task, we propose some ideas of thought.

Think about some of the positive attributes of Smooth and explore how you could re-label these attributes in a more negative way. For example, one person may see a type of chocolates as "popular" but another sees it as "common".

Think about how the positive attributes of Smooth can be offset by negative attributes. For example, a chocolate can be tasty but too sweet at the same time.

Think about how the positive attributes of Smooth are related to, or partly a result of, more negative attributes. For example, a chocolate can taste exotic because of its artificial flavourings.

Reconsider for a moment whether these chocolates really have the positive attributes that the manufacturers claim. Is it possible that these positive attributes may not be true or are exaggerated?

Describe how these chocolates compare to others. Your description may include attributes that are positive, negative or both.

Describe the extent to which the attributes of the chocolates are important to you. Your description may include attributes that are positive, negative or both.

Feel free to respond, as you like. We would like you to take a minute to think about these issues before we ask you to write your response on the next answer sheet.

Appendix 5. Psychological discomfort measure (Study 2)

Below are words that can describe different types of feelings. For each word, please indicate how much it describes **how you are feeling right now** by circling a number on the scales. "1" means "does not apply at all", and "7" means "applies very much" to how you are feeling right now. Don't spend much time thinking about each word, just give a gut-level response.

	DOES NOT APPLY AT ALL						APPLIES VERY MUCH
content	1	2	3	4	5	6	7
uncomfortable	1	2	3	4	5	6	7
angry at myself	1	2	3	4	5	6	7
shame	1	2	3	4	5	6	7
uneasy	1	2	3	4	5	6	7
negative	1	2	3	4	5	6	7
friendly	1	2	3	4	5	6	7
disgusted with myself	1	2	3	4	5	6	7
concerned	1	2	3	4	5	6	7
embarrassed	1	2	3	4	5	6	7
bothered	1	2	3	4	5	6	7
optimistic	1	2	3	4	5	6	7
annoyed at myself	1	2	3	4	5	6	7
frustrated	1	2	3	4	5	6	7
tense	1	2	3	4	5	6	7
disappointed with myself	1	2	3	4	5	6	7
happy	1	2	3	4	5	6	7
guilty	1	2	3	4	5	6	7

anxious	1	2	3	4	5	6	7
self-critical	1	2	3	4	5	6	7
energetic	1	2	3	4	5	6	7
distressed	1	2	3	4	5	6	7
regretful	1	2	3	4	5	6	7
good	1	2	3	4	5	6	7

Appendix 6. Commitment measure (Study 3)

Please read carefully the sentences below and rate your agreement with each using the scale at the right hand side. Circle or cross the number that best expresses your answer.

	Not at all								Extremely
To what extend do you feel:	↓								↓
Committed to your relationship?	1	2	3	4	5	6	7	8	9
Obligated to your relationship?	1	2	3	4	5	6	7	8	9
Attached to your relationship?	1	2	3	4	5	6	7	8	9
A sense of duty towards your relationship?	1	2	3	4	5	6	7	8	9
Enthusiastic about your relationship?	1	2	3	4	5	6	7	8	9

How relieved would you feel if the relationship were to end?

Not at all								Extremely
↓								↓
1	2	3	4	5	6	7	8	9

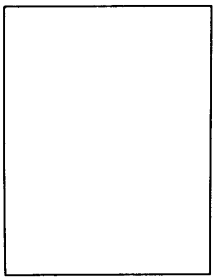
What is the likelihood that the relationship will end in the near future?

Not at all								Extremely
↓								↓
1	2	3	4	5	6	7	8	9

What is the desired length of your relationship?

A week or so								Decades
↓								↓
1	2	3	4	5	6	7	8	9

Appendix 7. Target's descriptive file (Study 3)



Name:_____ Age:____ Sex:____

(Please Print)

Height:_____ Weight:_____

Currently involved in a romantic relationship?_____(Y/N)

If yes, for how long? _____

Personality

_____

_____

_____

Interests

_____

_____

_____

Ideal Romantic Partner

_____

_____

_____

Appendix 8. Epistemic written task (Study 3)

Please write a comprehensive and detailed description of the **person presented earlier**, using your own words. To help you do this task, we propose some ideas of thought.

Think about some of the positive attributes of the person and explore how you could re-label these attributes in a more negative way. For example, one person may see another as shy, while others may see the same person as anti-social.

Think about how the positive attributes of the person can be offset by negative attributes. For example, someone can be beautiful but arrogant at the same time.

Think about how the positive attributes of the person are related to, or partly a result of, more negative attributes. For example, someone can be extremely nice just because she/he is interested in something you have.

Reconsider for a moment whether this person really has the positive attributes that she or he claims. Is it possible that these positive attributes may not be true or are exaggerated?

Describe how this person compares to others. Your description may include attributes that are positive, negative or both.

Describe the extent to which the attributes of this person are important to you. Your description may include attributes that are positive, negative or both.

Feel free to respond, as you like. We would like you to take a minute to think about these issues before we ask you to write your response on the next answer sheet.

Appendix 9. Target's evaluation sheet (Study 3)

Please rate the person presented using the scales below. Circle or cross the number that best expresses your answer.

	Extremely Negative ↓								Extremely Positive ↓
Personal Qualities	1	2	3	4	5	6	7	8	9
Physical Attractiveness	1	2	3	4	5	6	7	8	9
Similarity of Attitudes	1	2	3	4	5	6	7	8	9
Similarity of Interests	1	2	3	4	5	6	7	8	9
Compatibility	1	2	3	4	5	6	7	8	9

In general, to what degree are you attracted to this person?

Not at all								Extremely
↓								↓
1	2	3	4	5	6	7	8	9

All things considered, to what extent do you think this person would be an appealing romantic partner?

Not at all								Extremely
↓								↓
1	2	3	4	5	6	7	8	9

How interested would you be in going out on a date with this person?

Not at all								Extremely
↓								↓
1	2	3	4	5	6	7	8	9

Appendix 10. Regulatory focus questionnaire (Study 4)

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question by circling the appropriate number below it.

1.Compared to most people, are you typically unable to get what you want out of life?

1	2	3	4	5
never or seldom		sometimes		very often

2. Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?

1	2	3	4	5
never or seldom		sometimes		very often

3. How often have you accomplished things that got you "psyched" to work even harder?

1	2	3	4	5
never or seldom		sometimes		very often

4. Did you get on your parents' nerves often when you were growing up?

1	2	3	4	5
never or seldom		sometimes		very often

5. How often did you obey rules and regulations that were established by your parents?

1	2	3	4	5
never or seldom		sometimes		very often

6. Growing up, did you ever act in ways that your parents thought were objectionable?

1	2	3	4	5
never or seldom		sometimes		very often

7. Do you often do well at different things that you try?

1	2	3	4	5
never or seldom		sometimes		very often

8. Not being careful enough has gotten me into trouble at times.

1	2	3	4	5
never or seldom		sometimes		very often

9. When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.

1	2	3	4	5
never or seldom		sometimes		very often

10. I feel like I have made progress toward being successful in my life.

1	2	3	4	5
never or seldom		sometimes		very often

11. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.

1	2	3	4	5
never or seldom		sometimes		very often

Appendix 11. Example of a temptation scenario booklet (Study 4)

Imagine that you are a person who loves chocolate, but you are on a diet and seriously trying to lose weight. In addition, you work at a chocolate shop, which you really enjoy. Every day you have to face many different kinds of deliciously rich and smooth chocolate. The velvety brown colours and rich aroma drives you crazy.

This is a very uncomfortable situation for you.

Section A

What strategies would you use, and what do you think you would do to overcome this discomfort?

Please specify at least one; in case you specify more than one, please indicate the **order of importance** by giving to the most helpful strategy the number 1 and so on.

	Order
1	☐
2	☐
3	☐
4	☐
5	☐
6	☐
7	☐

Section B

Confronted with the situation described above, which of the following strategies would make you feel better?

In case you select *more* than one alternative, please indicate the order of importance by giving the most helpful strategy the number 1 and so on.

Strategy	Example	Tick	Order
1. Think about how the positive aspects of the chocolates could also be seen as negative.	"the chocolates are not nutritious, they are fattening".	☐	☐
2. Think about how the chocolates have negative aspects in addition to the positive aspects.	"the chocolates can be tasty but too rich at the same time".	☐	☐
3. Think about how the positive aspects of the chocolates are due to negative ones.	"the chocolates taste good because of the artificial flavourings".	☐	☐
4. Doubt that the chocolates really have such positive aspects.	"I doubt the chocolates taste so good as they look".	☐	☐
5. Compare the chocolates with other products that are much better.	"carrot cake is much better and healthier".	☐	☐
6. Reflect on the fact that the chocolates' positive aspects are not so important to you.	"taste is not as important as health".	☐	☐
7. Avoid thinking about the positive qualities of chocolates.	"I will not think about how good chocolates taste, because it may weaken my resolve against chocolate"	☐	☐

8. Focus your mind on things that are not associated with the positive qualities of chocolate.	"I will think about work instead of how good chocolates taste, because it will strengthen my resolve against chocolate"	☐	☐
9. Focus your mind on the negative qualities of chocolates.	"I will think about how bad chocolate can be for me, because it will strengthen my resolve against chocolate"	☐	☐
10. Avoid thinking about things that are associated with the positive qualities of chocolate.	"i will not think about food at all, instead of how bad chocolate can be for me, because it may weaken my resolve against chocolate"	☐	☐
11. Other? (Give example)		☐	☐

Section C

How familiar are you with a situation like this in your daily-life?

Not at all Moderately Extremely

1 2 3 4 5 6 7 8 9

How uncomfortable would this situation be to you?

Not at all Moderately Extremely

1 2 3 4 5 6 7 8 9

Section D

To what extent did you try to persuade yourself to dislike the chocolates in this situation?

Not at all Moderately Extremely

1 2 3 4 5 6 7 8 9

To what extent did you succeed at persuading yourself to dislike the chocolates?

Not at all Moderately Extremely

1 2 3 4 5 6 7 8 9

Do you consider this self-persuasion a good or a bad thing?

Good ☐ Bad ☐ Don't Know ☐

Please justify your answer:

_____

_____