The Processes through which Affect Infuses Judgments of Subjective Well-Being

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CANDIDATE DECLARATION

I certify that the thesis entitled

The Processes through which Affect Infuses Judgments of Subjective Well-Being

submitted for the degree of Doctor of Psychology (Clinical) is the result of my own work and that where reference is made to the work of others, due acknowledgment is given.

I also certify that any material in the thesis which has been accepted for a degree or diploma by any university or institution is identified in the text.

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Signed .....…….

Date.....…….

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Executive Summary

While it has been well established that judgments of global subjective well-being (SWB) are predominantly driven by affect, it remains unclear as to how affect influences such judgments. The two dominant theories of how affect may 'infuse' SWB judgments, as proposed by Veenhoven (1996), and Diener, Lucas, Oishi and Suh (2002), reflect arguments for heuristic and systematic processing strategies, respectively.

Study 1 investigates whether affective states infuse global SWB judgments through heuristic or systematic processing strategies. It is hypothesized that, due to the complexity of the global SWB question "how satisfied are you with your life as a whole?", the heuristic strategy will tend to be adopted to process the judgment. Analyses support these predictions, with affect found to influence global SWB predominantly via heuristic processing, and to a lesser extent via systematic processing.

The findings of previous studies indicate that individual factors can influence the degree that systematic or heuristic processing strategies are adopted. One individual factor which appears particularly likely to moderate the processing strategy is the level of 'need for cognition' (Cacioppo & Petty, 1982; Petty & Cacioppo, 1986b), which represents intrinsic motivation towards thinking. In Study 2, participants were separated into low and high need for cognition groups, based upon a K-Means Cluster analysis, and discriminant analysis. Analyses support the hypothesis, with affect influencing global SWB through heuristic processing more strongly for the low need for cognition group than the high need for cognition group, and through systematic processing more strongly for the high need for cognition group than the low need for cognition group.

There is also substantial evidence that the hedonic valence of an individual's affective state influences processing, with pleasant affects related to heuristic processing, and

unpleasant affects related to systematic processing. While research that has focused on the moderating effects of affective states has overwhelmingly focused on the effects of the hedonic valence of affective states, there is compelling evidence to suggest that affect is a two-dimensional structure characterized by a combination of hedonic valence and activation (for reviews see Larsen & Diener, 1992; Posner, Russell & Peterson, 2005). This research led to the development of the circumplex model of affect (Larsen & Diener, 1992; Russell, 1980, 2003). In Study 3, a predictive model of how the two dimensions combine to influence the likelihood of heuristic and systematic processing is developed. By separating participants into four groups, representing the four quadrants of the circumplex model, a unique understanding of the moderating influence of affective states is attained. These analyses indicate that hedonic valence and activation levels influence the strength of affect as a predictor of global SWB, and the processing route through which affect is influential.

With continued efforts to understand and research Quality of Life, this research has further clarified the often contentious link between affect and satisfaction, indicating that individuals commonly draw upon their current affective experiences when evaluating their overall satisfaction. While global SWB is largely driven by affect, this research has also indicated that the characteristics of affective states can moderate the strength of this effect. Furthermore, while affect predominantly influences global SWB directly, through heuristic processing, this effect is also found to be moderated by the characteristics of affective states, as well as individual levels of need for cognition.

CHAPTER 1: INTRODUCTION

Subjective Well-Being: an Affective and Cognitive Construct

It has been well established that subjective well-being (SWB) consists of affective and cognitive components (Andrews & Withey, 1976; Diener & Diener, 1996; Lucas, Diener & Suh, 1996; Seidlitz & Diener, 1993). That is, when required to evaluate satisfaction with a target, individuals tend to form judgments based upon a combination of their pre-existing affective states, and cognitive information that arises in memory during the judgment. There is strong evidence to suggest that the degree that affective or cognitive information informs judgments of SWB depends upon the features of the question the respondent is faced with, with the specificity of the question being particularly influential. Questions that ask the respondent to evaluate satisfaction with a specific target appear more likely to be informed by cognitive information, while questions that ask the respondent to evaluate global life satisfaction (e.g., satisfaction with "life as a whole") appear to be predominantly informed by affect (for a review see Schwarz & Strack, 1991, 1999). The influence of judgment specificity will now be discussed.

Specific Judgments

The theory that the specificity of satisfaction judgments influences the amount that cognitive or affective information informs satisfaction judgments has been conceptualized in the judgmental model of SWB proposed by Schwarz and Strack (1991, 1999). Embedded in this model is the notion that, when an individual is required to evaluate satisfaction with a specific judgmental target, the amount of information that is relevant to the judgment is limited. Accordingly, it would be possible to undertake a relatively complete search of

relevant information, and to use this information to form a judgment. This illustrates how judgments of satisfaction with a specific target can be largely informed by cognition.

The exact specificity of such judgments can vary from broad domains (e.g., satisfaction with your health), to being highly specific (e.g., satisfaction with your blood pressure, cholesterol). As the specificity of the question increases, the amount of information relevant to the judgment becomes restricted, and accordingly, the likelihood that the judgment will be based upon cognitive information increases**.**

In an effort to measure domain-specific satisfaction, the Personal Wellbeing Index (PWI) was developed (International Wellbeing Group, 2006). Consisting of seven items, the PWI was created as a first-level deconstruction of the global life satisfaction question "how satisfied are you with your life as a whole?" While the questions remain quite broad (e.g., satisfaction with your "personal relationships", "health"), the domains that are assessed within the PWI are nevertheless more specific than the global life satisfaction question. Accordingly, responses to the PWI should be more heavily informed by cognition than would judgments of global life satisfaction. The fact that the global life satisfaction question is unlikely to be based on cognition will now be discussed.

Global Judgments

Emphasized within the judgmental model of SWB (Schwarz & Strack, 1991, 1999) is the notion that judgments of global life satisfaction (e.g., satisfaction with "life as a whole") are not processed with the use of a systematic cognitive approach. Schwarz and Strack discussed two possible reasons for this processing trend. First, the question "how satisfied are you with your life as a whole?" lacks definition and is ambiguous. This leads respondents to be unclear regarding the criteria that they should use in order to form a judgment. Second, if a respondent adopts a systematic cognitive approach in evaluating satisfaction with one's "life as a whole", the amount of information relevant to this question is massive. Therefore,

adopting this approach would be extremely complex, arduous, and time-consuming. These two factors increase the likelihood that respondents will adopt "shortcuts" in coming to a judgment, rather than attempting to undertake a complete review of all the relevant details of their lives. As will be discussed in the next section, these shortcuts involve the use of information that is accessible and salient during the time of the judgment. This information can be temporarily accessible, or chronically accessible.

Which Information is most Accessible and Salient for Judgments of Global SWB?

Temporarily Accessible Information

When participants are asked to evaluate their global life satisfaction, the order in which the question is asked within the survey will effect the information that comes to mind when the global life satisfaction question is posed. As reviewed by Higgins (1996), information that is presented prior to a question can prime certain information and thereby increase its accessibility when forming a decision about the question. This phenomenon has been demonstrated by manipulating the order of questions. In one study, participants were asked to rate their general life satisfaction, and how frequently they go out for a date (Strack, Martin & Schwarz, 1988). When the life satisfaction question was asked first, the correlation between the two variables was found to be insignificant. However, when the dating question was asked prior to the satisfaction question, there was a significant correlation of moderate strength. This finding was replicated in another study, where marital satisfaction was found to correlate much more strongly with general life satisfaction when the marital question was asked prior to, rather than after, the general life satisfaction question (Schwarz, Strack, & Mai, 1991).

In addition to manipulating question order, research has also manipulated the content of information that individuals are exposed to prior to answering the global life satisfaction

question. In one experiment, participants were asked to think about positive or negative experiences in their past, and then rate their level of life satisfaction (Strack, Schwarz & Gschneidinger, 1985, Experiment 1). Participants who were asked to think about positive memories were found to rate their satisfaction as higher than participants who were asked to think about negative memories. This suggests that the information that was brought to mind acted as a primer on later evaluations of life satisfaction.

Together these findings suggest that certain information can be primed during survey administration, and this information can subsequently inform judgments of global life satisfaction. These findings have important implications for the order that questions should be presented within surveys, suggesting that the global life satisfaction question should precede the presentation of other questions. By adopting such administrative procedures, judgments of global life satisfaction are less likely to be influenced by information-priming, and more likely to be informed by chronically accessible forms of information.

Chronically Accessible Information

As discussed by Schwarz and Strack (1999), information that may be primed during survey administration is generally only temporarily accessible. In contrast, other types of information can be chronically accessible. Such chronically accessible information is consistently accessible when forming judgments, and can explain why a wide range of judgments, including judgments of global life satisfaction, generally remain stable across time. While there is a variety of information that has the potential to be chronically accessible, such as values and motives (for a review see Higgins, 1996), there is considerable evidence to suggest that an individual's mood state is the dominant form of information that is chronically accessible when forming judgments of global life satisfaction, as will be discussed.

Affect.

It is proposed within the judgmental model of SWB that judgments of global life satisfaction can be largely informed by current affective states (Schwarz & Strack, 1991, 1999). According to this view, how a participant is feeling during survey administration can be used to inform their decision of satisfaction with their "life as a whole", thereby simplifying the judgment. Indeed, there is considerable evidence to suggest that judgments of global life satisfaction are predominantly driven by affect. This evidence comes from research that has experimentally induced affective states (Schwarz & Clore, 1983, Experiment 1; Schwarz, Strack, Kommer & Wagner, 1987, Experiment 2), and observed naturally occurring fluctuations in affective states (Schwarz & Clore, 1983, Experiment 2). This research indicates that mood states can inform judgments of global life satisfaction, with happy individuals tending to rate their satisfaction more positively than individuals with less positive moods states. As would be expected, this finding appears to be limited to global life satisfaction and has not been found with specific targets such as satisfaction with work, income, or housing (Schwarz, et al., 1987). While these studies indicate that affective states influence global life satisfaction judgments, the strongest support for this theory so far has come from a recent study by Davern, Cummins and Stokes (2007; Study 1). In examining the amount of variance in global life satisfaction that could be accounted for by affect, this study found a very substantial 64% of this variance to be attributable to affect. Together, this research presents strong evidence that global SWB is largely informed by the current affective state of respondents.

While the dominance of affective states within the global SWB judgments is apparent, the processes through which affect influences this judgment remains unclear. Several prominent

SWB theorists have attempted to explain this influence (Diener, Lucas, Oishi & Suh, 2002; Oishi & Diener, 2001; Veenhoven, 1996). In arguing that "there can be top-down influences on how bottom-up information is used", Diener et al. (2002, p. 443) proposes that affective states can influence global life satisfaction judgments indirectly, by causing mood-congruent information to become salient and thereby inform the judgment. In a contrasting view, Veenhoven (1996) argues that affective states can directly influence judgments of global life satisfaction, in that "if we feel fine, we gather we must be satisfied" (p. 10). It is apparent that these two theories advocate two different processing strategies and, in order to ascertain which of these accounts is correct, the theories themselves must be fully understood. Before turning to an examination of these two views however, it is important to distinguish what is actually meant by the use of terms such as affect, mood, and emotions, and to explore the structure of affective experiences and its implications for research.

The Structure of Affective Experiences

While there remains to be total consensus about how best to define the constructs of mood, emotions, and affect, a certain level of agreement appears to have been reached (Fiedler & Forgas, 1988; Forgas, 1991; Frijda, 1986; Morris, 1999). In general, there appears to be agreement that a mood is a "general and pervasive feeling state that is not directed towards a specific target" (Wood, Saltzberg, & Goldsamt, 1990, p. 900). In contrast, emotions are generally considered to be short-lived and directed at something (e.g., anger directed towards a person, fear about a threatening situation, etc). The term affect has been used as a generic label, which encompasses both moods and emotions (e.g., Forgas, 1995), as has been done in the present thesis.

Research that has explored the influence that affect can have upon judgments, and upon processing strategies, has overwhelmingly focused on the influence of mood, and in

particular, the positivity of the mood state. That is, research has investigated the influence of levels of happiness or sadness upon the processing of evaluative judgments. However, there is compelling evidence to suggest that affect is a two-dimensional construct, composed of positivity and arousal (for reviews see Larsen & Diener, 1992; Posner, Russell & Peterson, 2005). Accordingly, research that examines the role of positivity may only be taking into account half of the picture.

The theory that affect is a two-dimensional construct originated from the consistently replicated finding that emotional experiences are inter-correlated, with analyses of these intercorrelations revealing the presence of two underlying dimensions of emotion. The two-dimensional structure of affect has been consistently replicated across a wide range of linguistic cultures (Almagor & Ben-Porath, 1989; Russell, 1991; Russell, Lewicka & Niit, 1989; Watson, Clark & Tellegen, 1984), age groups (Russell & Bullock, 1985; Russell & Ridgeway, 1983), and response formats (Russell, 1980; Watson, 1988). While the two underlying dimensions have been given different descriptive labels, the two dimensions that are consistently identified reflect hedonic valence (i.e., pleasantness-unpleasantness), and activation / arousal.

Examination of the two-dimensional structure of affect identified the presence of circular structure within these two dimensions, leading to the conceptualization of the circumplex model of affect (Russell, 1980), as depicted in Figure 1.1. The presence of circular structure was identified in a wide variety of research, with separate affects (e.g., happy, excited, sad, upset) found to congregate in a circular arrangement, with placement on the circumference determined by the hedonic valence and activation level of a given affect (for a review see Larsen & Diener, 1992). Affects tend to correlate highly with other affects that are positioned closely on the circumference, correlate near zero with those affects that are 90° away, and correlate inversely with affects on the opposite side of the circumference (i.e., 180° away).

This indicates that affective experiences are not discrete states, but that individuals tend to experience a blend of affects, with closeness on the circumference increasing the likelihood of which emotions will co-vary (Posner, Russell & Peterson, 2005; Watson & Clark, 1992). Therefore, people who feel happy are likely to also feel emotions such as contentment, excitement, and enthusiasm, while people who feel sad are likely to also experience emotions of similar hedonic valence and intensity.

According to the circumplex model of affect then, at any given moment an affective experience is an "integral blend of two dimensions" (Russell, 2003, p. 148), pleasantness-unpleasantness and high activation-low activation. Therefore, when conducting research with affect as a variable, the frequently used technique of measuring mood states by the positivity dimension alone (i.e., level of happiness or sadness), may be inadequate.

In proposing a two-dimensional affective construct, Russell (1980, 2003) introduced the construct 'core affect'. Core affect is defined as a "raw feeling" state that is a blend of the two dimensions, meaning that at any given moment an individual's core affect can be represented as a single point on the circumplex model, as depicted in Figure 1.1 (Russell, 2003, p. 148). Core affect is proposed not to be directed at any object, but to be free-floating as a mood state. Thus, core affect is not a cognitive construct, but is thought to exist much like temperature, with extreme levels becoming salient and the focus of attention, while less extreme levels usually blend into the background of everyday life, unless conscious attention is given to it.

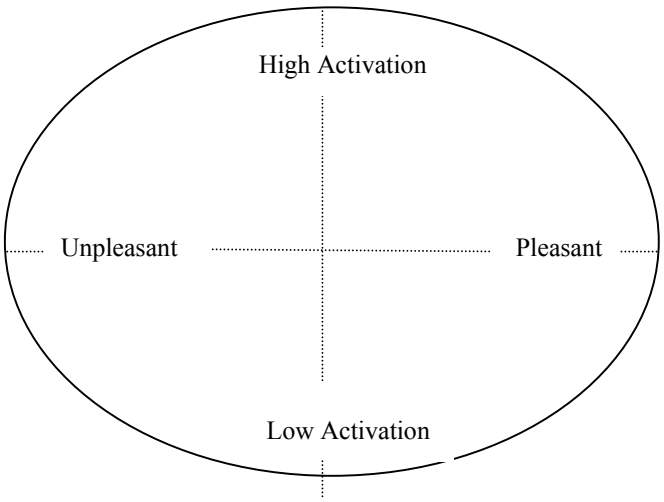


Figure 1.1. The circumplex model of affect: an integration of hedonic valence and activation.

The use of core affect as a variable introduces a new level of complexity to research. Instead of asking participants to simply rate their level of happiness, core affect is measured by the use of a number of different affects. These affects consist of different combinations on the hedonic valence and activation dimensions, thereby allowing the circumplex model of affect to be sampled. This method of using a range of affective adjectives to measure core affect will be employed in the present thesis, with the expectation that this will enable a more accurate and comprehensive measure of mood than would be the case if the positivity of an individual's affective experience was measured alone.

With an understanding of affective experiences, and the combined influence of hedonic valence and activation levels, this discussion now turns back to an exploration of how affect influences judgments. The research of significance in this area has overwhelmingly used measures of 'mood' or 'affect' that exclusively focus on the hedonic valence of these emotional experiences (e.g., happiness-unhappiness). Thus, beginning with a brief history of

the area, the discussion will turn to a description of affect as a construct essentially representing hedonic valence, and examine the two main theories of how affect influences evaluative judgments.

The Influence of Affective States – a Historical Account

At the beginning of the 20th century, Wilhelm Wundt argued that affect plays a primary role in information processing, stating:

> When any physical process rises above the threshold of consciousness, it is the affective elements which as soon as they are strong enough, first become noticeable. They begin to force themselves energetically into the fixation point of consciousness before anything is perceived of the ideational elements…the clear apperception of ideas in acts of cognition and recognition is always preceded by affect (1907, cited in Zajonc, 1980, p. 152).

The idea of affective primacy dominated throughout the first half of the 20th century, until the 1960's when the cognitive revolution erupted. Interestingly, it was within cognitive psychology that focus returned once again to affective components of experience, and more precisely its impact upon cognition. Of particular interest was the impact of affect upon the accessibility of information in memory. A notably influential paper was that of Isen, Shalker, Clark and Karp (1978), who found that inducing a pleasant mood produced a positive bias, whereby individuals made more positive judgments about products that they owned. The 'associative network theory' (Bower, 1981) was developed as an attempt to explain the influence of affect upon cognition, and to date, this cognitive-based theory continues to guide research. According to this theory, affect acts as a "memory unit that can enter into associations with coincident events" (Bower, 1981, p. 129), and subsequently, activation of an affective state causes associated memories to be retrieved.

While this resurgence of interest in affect focused upon the role of affect in cognition, research soon began to focus upon affect as an independent and influential entity, rather than simply as a cognitive association. This change in focus was stimulated by Zajonc (1980, 1984), who put forth the controversial theory that while affect and cognition can influence each other, they are essentially under the control of separate systems, and represent independent sources of influence upon information processing. By illustrating that information processing, in its most primitive form, has been dominated by affective reactions, Zajonc succeeded in re-igniting the affective primacy hypothesis.

Compelling evidence in support of the affective primacy hypothesis has subsequently emerged in several forms. In one study it was found that the subliminal presentation of affectively charged stimuli, in the form of happy or angry faces, influenced interpretations of subsequently viewed objects (Murphy & Zajonc, 1993). Thus, subliminal viewing of a happy face prior to a neutral object was related to increased fondness and preference for the neutral object, while the reverse pattern resulted from priming with an angry face. However, if the affective stimuli were presented for an increased amount of time, enabling conscious awareness of the stimuli, cognitive processes were found to mediate the influence of affect. For example, a happy face that is disheveled or unattractive was found to produce a positive perception when presented subliminally, but when presented at a conscious level, the affective reaction was contradicted and therefore diluted by the subsequent cognitive appraisal.

In a similar vein, Schwarz and Clore (1983, Experiment 2) reported a study in which individuals were contacted on sunny or rainy days. Consistent with previous research regarding the influence weather has upon mood (e.g. Cunningham, 1979), Schwarz and Clore found that ratings of life satisfaction were significantly influenced by the weather, except when the interviewer asked about the weather prior to the life satisfaction question. This indicates that affective reactions can inform judgments. However, if the informational value

of affective reactions is discredited, the influence that affect has upon judgments can be over-ridden by cognitive appraisals. Thus, following Veenhoven (1996), affect may be used as the basis of the judgment (i.e., "I feel sad, so therefore I must be dissatisfied with life"), unless there is reason to believe that a source other than the judgment has produced the affective state, in which case the informational value of the affect is discredited (i.e., "I am feeling sad because the weather is miserable, not because I am dissatisfied with life"). Similar findings have been discovered in other studies (e.g., Keltner, Locke & Audrain, 1993; Schwarz, Servay & Kumpf, 1985; Siemer & Reisenzein, 1998). Together these studies suggest that the influence of affect upon judgments is limited to situations where cognitive appraisals do not over-ride the informational value of affect.

Methodological Approaches to Studying the Influence of Affect

Mood Induction Studies

The experimental induction of moods is the most commonly employed technique to explore the influence that affect exerts on judgments. In mood induction studies, participants are exposed to a procedure that is intended to produce either a depressed or an elated mood. There are a variety of techniques to induce mood, including listening to happy or sad music, spending time in a pleasant or unpleasant room, providing detailed accounts of happy or sad events, and receiving free gifts.

A particular strength of mood induction studies is their relative purity in assessing the influence of mood upon memory. Unlike research based on naturally occurring moods, mood induction studies are not confounded by the possible causes of the mood states. For example, a finding that individuals exposed to a 'sad' mood induction condition recall more negative events could reasonably be attributable to biases in recall, rather than the presence of more adverse life situations. Also, as mood disorders are characterised by a complex assortment of

associated symptoms, extending into areas such cognition and personality, mood induction illustrates a method through which affective states can be assessed independent of such confounding characteristics.

Despite these apparent strengths of mood induction techniques, some concern has been expressed regarding whether the intended mood is actually being induced. As discussed by Blaney (1986), and Mayer, McCormick and Strong (1995), it is possible that mood induction techniques do not induce a valid version of a mood state, and participants may be responding in mood-congruent ways for other reasons. One possible explanation for mood congruent findings may be the demand characteristics of the mood induction studies. Many mood induction methods explicitly instruct the participant to try to 'feel' the specified mood, and therefore it is foreseeable that such instructions would provide a source of motivation for the participant.

Natural Mood Variation Studies

Another method for assessing mood-congruence is the analysis of individuals classified as depressed or non-depressed on the basis of a clinical diagnosis or self-report. However, interpretations that can be made from the use of clinical populations are controversial due to the fact that psychopathology is not clear-cut, but involves a complex array of symptoms. For example, mood-congruent findings relating to clinically depressed populations may be the result of a chronically negative affective state, or alternatively, to negative self-image, maladaptive cognitions, or one of the other associated features of the disorder. In spite of this major limitation, sampling clinical populations allows the assessment of authentic affective experiences that are not available through experimental induction procedures, and therefore they are a valued inclusion to mood-congruence research.

While interpretations based on clinical populations are somewhat restricted by the associated psychopathology, samples of non-clinical populations in everyday mood states

enable the assessment of authentic affective experiences without such restrictions. Unfortunately, despite the theoretical desirability of using samples of individuals experiencing natural mood states, there have been some failed attempts to detect mood-congruent recall in these samples (e.g. Mayer & Volanth, 1985; Parrott & Sabini, 1990). While these results might be interpreted as meaning that mood-congruence is not present in non-clinical populations, there is another, compelling explanation for this finding: the presence of asymmetric effects. That is, there appears to be a tendency for 'happy' individuals to exhibit mood-congruent recall, but for 'sad' individuals to exhibit a balance in recall of affectively-toned information (for reviews see Blaney, 1986; Isen, 1984; Matt, Vázquez, & Campbell, 1992; Singer & Salovey, 1988). Thus, the absence of mood-congruent recall exhibited by a sad group may in fact illustrate a diversion from the normal tendency to recall positively-valenced information. This premise was supported by a re-analysis of the data used in a study by Mayer and Volanth that failed to detect mood-congruent recall (Mayer et al., 1995). After splitting the sample according to affective state, it was found that the 'happy' group tended to recall positive information, while the 'unhappy' group tended to recall a comparable amount of positive and negative information. These findings reveal that mood-congruent recall is exhibited within samples experiencing natural mood states, and therefore, when attempting to investigate the influence that affect exerts upon judgments, the use of these samples seems desirable.

Summary of Methodological Approaches

Useful insights into the influence that affect can exert upon judgments has been gained by the use of different types of samples. While it is apparent that there are some potential confounding factors that may arise with the use of mood induction techniques or clinical populations in studying the influences of affect, the use of non-clinical populations appears to allow the study of affect without such limitations.

The Processes through which Affect Influences Judgments

The aforementioned studies provide support for the notion that affect and cognition influence information processing in distinctive ways, through at least partially independent systems. However, the means by which affective states influence evaluative judgments is still the subject of debate. There are two main views of how this may occur, termed the 'mood-congruent memory', and 'affect-as-information' theories. These two theories are distinguished by the pathways through which it is proposed that affect will influence or 'infuse' judgments. Specifically, the theory of mood-congruent memory is based on the premise that affective states influence cognitions, which consequently influence evaluative judgments. Meanwhile, the affect-as-information theory proposes that affective states impact evaluative judgments directly. These two pathways appear to be the most probable candidates in explaining the influence of affect upon evaluative judgments. Furthermore, these pathways parallel the theories regarding the influence of affect in SWB judgments, proposed by Diener et al., (2002), and Veenhoven (1996) respectively. The evidence for these pathways will now be discussed in turn.

Mood-Congruent Memory

Also known as 'affect-priming', the mood-congruent memory theory is based on the premise that the affective tone of information influences whether or not information is recalled. Information that has an affective tone consistent with the affective tone present during recall is thought to be easily accessible and therefore weighed more heavily when making judgments. In short, mood-congruent memory is based on the principles that: (1) when making evaluative judgments, there is the presence of various types of information that vary in affective tone, (2) judgments are not based on a systematic, unbiased processing of information, but rather some information is more easily accessible, and therefore more heavily weighted when making judgments, (3) affective states influence judgments through

causing mood-congruent information to be easily accessible and therefore heavily weighted when making judgments, and (4) as salience of information is determined by a match between affective tone at recall and the affective tone of the information, it is "not required or relevant" for mood at recall to be matched with mood experienced during the encoding of the information (Blaney, 1986, p. 229).

It can be seen that mood-congruent memory is conceptually similar to Bower's (1981) associative network theory. In both these theories affective states are believed to impact evaluative judgments indirectly, through influencing the salience of cognitive information. Despite this notable similarity, the associative network theory diverts from mood-congruent memory in its emphasis upon the role of affective state during encoding. This emphasis upon encoding reflects the fact that Bower's theory encompasses the notion of mood-dependent memory, which is concerned with matching the affective state during encoding with that at recall. Meanwhile, mood-congruent memory is not concerned with the affective state experienced at encoding, but rather, it focuses upon the affective characteristics of the information itself. While evidence for mood-dependent memory is equivocal (e.g. Bower & Mayer, 1985; Wetzler, 1985), mood-congruent memory has received much wider acceptance and has been strongly supported by a wide range of studies.

As demonstrated by reviews of mood-congruence research (e.g. Blaney, 1986; Matt et al., 1992), there is a multitude of research which has employed mood induction techniques or sampled individuals with naturally different mood states. This research overwhelmingly supports the mood-congruent memory theory, with 'happy' individuals consistently found to have a tendency towards recalling positive information, and 'sad' individuals tending to recall 'sad' information. As discussed, there were some studies that failed to detect this mood-congruent effect (e.g. Mayer & Volanth, 1985; Parrott & Sabini, 1990), but this appears to be explainable by the asymmetric effects of mood-congruent recall, whereby happy individuals

but not sad individuals are more likely to recall mood-congruent information (for reviews see Blaney, 1986; Isen, 1984; Matt, Vázquez, & Campbell, 1992; Singer & Salovey, 1988).

The failure to detect mood-congruent memory has also been found in studies where the affectively-toned information is interconnected in some way (for reviews see Blaney, 1986; Clore, Schwarz & Conway, 1994). In such studies, participants are presented with information containing positive and negative elements, embedded within the one narrative (Hasher, Rose, Zacks, Sanft & Doren, 1985; Mecklenbräuker & Hager, 1984). These findings indicate that, while mood-congruent memory is usually detected, this may not be the case when information is interconnected. In the present study, the information relevant to the global life satisfaction judgment will be unstructured and accordingly it is expected that it will provide a solid context in which to detect mood-congruent memory.

Affect-as-Information

Schwarz and Clore (1983, 1996) and Clore and Parrott (1991) have challenged the assumption inherent in mood-congruent memory that evaluative judgments are based on information retrieved from memory. In what they term the 'affect-as-information' hypothesis, these authors propose that affective states can influence evaluative judgments directly. That is, current affective states can be used as a heuristic short-cut as a means to simplify judgments, so that individuals make decisions about a target through asking themselves "how do I feel" about the target. In short, the affect-as-information hypothesis is based on the principles that: (1) because affective states are diffuse in nature, it is difficult to disentangle affective states from affective reactions to a judgmental target, (2) affective states can be mistaken as reactions to the judgmental target, and (3) the impact of affective states depends upon their perceived informational value, so that affective states attributed to sources other than the target are considered irrelevant and therefore their informational value is discredited. However, if the informational value of affective states is not discredited, but is perceived to be

reactions to a judgmental target, then these affective states will be considered as informative for subsequent evaluative judgments of the target. While discrediting the informational value of affective states often involves conscious awareness, it is important to note that the attribution of affects to a target appears to be largely an unconscious process (Schwarz, 1990)

There are two major findings that support the notion that affect can have a direct informational function. First, several studies have demonstrated that the influence of an affective state upon evaluative judgments can be reduced or eliminated if the informational value of the respective affective state is discredited (e.g. Keltner et al., 1993; Murphy & Zajonc, 1993; Schwarz & Clore, 1983; Schwarz et al., 1985; Siemer & Reisenzein, 1992). As discussed earlier, these studies indicate that affective states can unconsciously influence judgments, but that the presence of conscious material contradicting the attribution of an affective state to the judgmental target causes dilution of the affective influence. In order for the informational value of an affective state to be discredited, such contradicting material is only required to enter consciousness, and therefore the amount of this material is very minimal. The above studies illustrate this point through procedures that introduced the potentially discrediting information in indirect and, at times, seemingly irrelevant ways. A good example is the indirect priming condition employed by Schwarz and Clore (1983, Experiment 2) where participants were asked the apparently irrelevant question "by the way, how's the weather down there?" The simple mention of the weather introduced a plausible alternative cause for the affective state of participants, thereby illuminating the fact that the affective state is not a reaction to the judgmental target, and discrediting the informational value of using the affective state to inform the judgment (i.e., "My feelings of sadness are not due to dissatisfaction with my life, but due to the miserable weather"). As a consequence, affective states were no longer influential in subsequent judgments of life satisfaction.

The second source of support for the affect-as-information hypothesis comes in the form of evidence that suggests that affective states can serve informative functions, and can influence judgments independent of the non-affective content of the judgment (Johnson & Tversky, 1983; Mayer, Gaschke, Braverman & Evans, 1992). In one study, inducing a depressed mood by reading descriptions of a negative event such as cancer was found to increase the negativity of judgments for risk across a wide range of targets, with equally strong effects on perceived risk of cancer, car accidents, and divorce (Johnson and Tversky, 1983). Such studies seem to support the theory that affect and cognition can work through separate systems (Zajonc, 1980, 1984), with affect having the potential to play a direct informational role when making judgments, independent of cognition. However, the systems do not seem to be completely independent of one another, as cognitive information has the potential to discredit the informational value of affective states, in which case the non-affective content would impact the influence that affect has upon evaluative judgments.

Summary of the Processing Strategies

It has been suggested that the findings which provide substantial support for the affect-as-information hypothesis, also provide compelling evidence against mood-congruent memory (e.g. Clore et al., 1994; Schwarz & Clore, 1983, 1988). If affective states were to influence judgments by causing mood-congruent thoughts to become heavily weighted, then this thought-activation process should occur regardless of whether the affective states were attributed to another source. Furthermore, as these findings indicate that affective states can influence judgments, regardless of the content of the retrieved information, these findings are also inconsistent with the mood-congruent memory theory. Thus, the notion that mood-congruent memory may be solely responsible for the influence that affect has upon judgments is questionable in the light of these findings.

Because of this, it is possible that the affect-as-information hypothesis may be a more accurate account of the influence that affective states have upon judgments. However, as discussed by Forgas (1995), the affect-as-information hypothesis also appears to have some shortcomings. For example, this hypothesis implies that an affective state is either attributed to a target and completely informs related judgments, or the affective state is not attributed to the target and has no influence upon the judgment. This all-or-nothing assumption is counter to the finding that the features of the target, the features of the judgment, and available attentional resources all influence the degree that affect is influential (e.g. Bless, Bohner, Schwarz & Strack, 1990; Siemer & Reisenzein, 1998). Therefore, it makes sense that affect may have a direct informational function in situations where an all-or-nothing affective influence is possible. However other theories may more accurately explain the influence of affect within more complex judgments that involve effortful and gradual processing strategies.

This notion that the mood-congruent memory theory and the affect-as-information hypothesis may both be accurate reflections of how affect influences judgments is illustrated by dual-process theorists (e.g., Chaiken, 1980; Forgas, 1994, 1995; Petty & Cacioppo, 1986a, 1986b). According to this theory, the mood-congruent memory and affect-as-information hypotheses represent two different pathways through which affect may influence judgments, with certain circumstances determining which pathway is strongest. This theory will now be discussed in more detail.

Dual-Process Theories

As discussed by Forgas (1992, 1995) there are two approaches to explaining how affective states influence judgments. The first is concerned with understanding the role that affect has in judgments, with the affect-as-information and mood-congruent memory theories best reflecting this approach. The second approach lessens its focus upon the theories of how affect influences judgments, and focuses more upon how affect influences processing strategies, which ultimately has implications for judgments and decisions. Heuristic and systematic processing strategies are the focus of this second approach. The compatibility of these two approaches is illuminated in Forgas' (1992) multiprocess model, which was developed as an integration of these approaches and emphasizes the different processing strategies implicated in the affect-as-information and mood-congruent memory theories. As will be discussed, the affect-as-information and mood-congruent memory theories clearly implicate the presence of heuristic and systematic processing, respectively.

Heuristic Processing

The idea that the affect-as-information theory is linked to heuristic processing is not new. The affect-as-information theory is based on the premise that individuals can use their current affective states as a "simplifying heuristic strategy" (Schwarz & Clore, 1996, p. 445), rather than engaging in a detailed analysis of all the information that may be relevant to a judgment. Thus, it appears that, embedded within the affect-as-information theory is the idea that affect can influence judgments via heuristic processing.

The heuristic processing strategy is conceptualized by Chaiken (1980) within the 'heuristic-systematic model', which was developed as a theory of persuasion, and was later applied beyond the persuasion context as a general theory of processing (Chaiken, Liberman & Eagly, 1989). The heuristic processing strategy is analogous to the 'peripheral route' of persuasion, which was developed by Petty and Cacioppo (1986a, 1986b), and the heuristic

processing strategy, as conceptualized within Forgas' (1994, 1995) Affect Infusion Model. Each of these theories emphasize that, when an individual engages in heuristic processing, judgments are based upon peripheral cues. One such peripheral cue is the respondent's affective state that they are experiencing at the time of the judgment. Affect, as a peripheral cue, can then act as a heuristic short-cut and directly inform judgments, thereby allowing judgments to be made in the absence of extensive cognitive processing. The direct route through which affect would infuse judgments if heuristic processing was to be adopted is depicted in Figure 1.2.

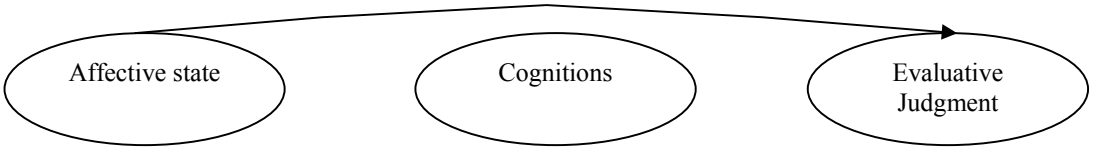


Figure 1.2. The heuristic processing strategy: affective states directly inform judgments

Systematic Processing

A second route through which affect can infuse judgments is reflected by the mood-congruent memory theory. According to this theory, while there is a wide variety of information that can be used in forming a judgment, mood-congruent information is more easily accessible and thereby more heavily weighted in the judgmental process. Thus, the judgmental process is not an unbiased and systematic consideration of all the information relevant to the judgment, but is more likely to be influenced by information that is congruent with the individual's affective state at the time of judgment.

While the accessibility of mood-congruent information is thought to be an "automatic, noneffortful" phenomenon (Blaney, 1986, p. 238), it appears that the mood-congruent information which is accessible becomes most influential when the person engages in effortful cognitive processing to form a judgment. That is, when engaging in cognitive

processing, the mood-congruent thoughts are weighted more heavily and decisions are based heavily upon this information. This view is shared with Forgas, who expressed the belief within his multiprocess model that mood-congruent memory "is unlikely when subjects do not use substantive (systematic) processing" (1995, p. 45).

The systematic processing strategy, as conceptualised in the heuristic-systematic model (Chaiken, 1980; Chaiken, Liberman & Eagly, 1989), is comparable to the 'central route' of persuasion developed by Petty and Cacioppo (1986a, 1986b), and the substantive processing strategy proposed by Forgas (1994, 1995). These theories maintain that individuals can process information by thoughtfully and deliberately evaluating the content of information, with judgments being informed by such content rather than peripheral cues. It is important to note that, while attempts are made to carefully and deliberately evaluate information, such attempts are "not always successful" (Petty & Cacioppo, 1986b, p. 129). That is, some judgments may be attached to an overly large amount of relevant information. In such cases, some information will be considered, while other information will be overlooked. As has been discussed, one factor which appears to influence whether information will be considered is the mood-congruence of the information. Consequently, while systematic processing attempts to process incoming information in a deliberate and detailed manner, such processing is inevitably biased by the mood-congruence of the information. Thus, affective states influence judgments indirectly, through their influence upon the cognitive details that are accessible. This relationship is depicted in Figure 1.3.

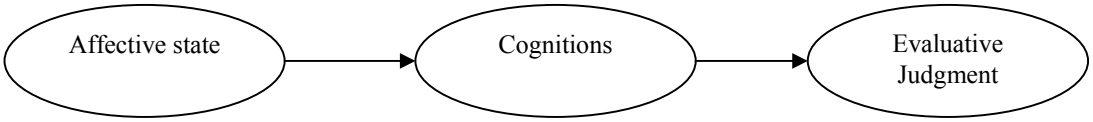


Figure 1.3. The systematic processing strategy: affective states influence judgments indirectly, via cognitions

Heuristic and Systematic Processing – Simultaneously or in Isolation?

While it remains unclear whether heuristic and systematic processing strategies necessarily operate in isolation or can operate simultaneously, Chaiken (1980) and Petty and Cacioppo (1986a, 1986b) have expressed the view that they are likely to overlap to some degree. According to Chaiken, when individuals use the systematic strategy they form judgments based primarily upon the content of information, and to a lesser extent upon peripheral cues which can "be used as aids in assessing the validity" of the information (Chaiken, 1980, p. 754). Meanwhile, Petty and Cacioppo expressed the view that the degree to which an individual actively evaluates information relevant to a judgment is best represented by a continuum. At the high end of the continuum, processing is dominated by systematic processing, while at the low end of the continuum processing is dominated by heuristic processing. According to this view, heuristic and systematic processing strategies are generally antagonistic, with increases in one strategy related to decreases in the other. However, this continuum perspective also suggests that the strategies have the potential overlap, and that this is most likely when processing is not dominated by either processing strategy.

While these theories provide some insight into the possible association between the two processing strategies, whether these strategies operate simultaneously or in isolation remains unknown and deserves further attention.

Conditions that Determine whether Heuristic or Systematic Processing is Adopted

It is apparent that heuristic and systematic processing represent two distinct pathways through which affect can infuse judgments. Whether an individual engages in one type of processing over the other has received considerable attention, and there has been a remarkable consensus on the view that it is an individual's motivation and processing capacity that

determines whether individuals engage in effortful systematic processing, or efficient heuristic processing (Bohner, Chaiken & Hunyadi, 1994; Branscombe & Cohen, 1991; Chaiken, et al., 1989; Petty & Cacioppo, 1986b; Petty, Gleicher & Baker, 1991). That is, the systematic strategy is adopted when an individual has both the capacity and the motivation to undertake this elaborate processing. However, when an individual lacks either the motivation or capacity to undertake elaborate processing the heuristic strategy will be adopted to simplify the judgment.

In terms of motivation, in order for individuals to use the systematic pathway, they must be sufficiently motivated to expend the effort and time that is necessary for this type of processing. Thus, whether they engage in systematic processing, or adopt the simplifying heuristic strategy is largely determined by the perceived importance of forming an accurate judgment, compared with the importance of forming a judgment quickly and with minimal effort. Because systematic processing requires considerably more time and effort than heuristic processing, if an individual is willing to sacrifice accuracy for efficiency, then the simpler heuristic strategy will be adopted.

In addition to motivation for processing, an individual's capacity for processing also plays an important role in determining the processing strategy adopted. That is, when processing capacity is impaired, the heuristic strategy is more likely to be adopted in order to process the information with minimal effort (Forgas, 1995; Mackie & Worth, 1991).

There are numerous factors that influence whether an individual has the motivation or processing capacity to undertake detailed processing. Some of these are individual factors, with variability between participants on factors such as current affective state, intrinsic motivation towards thinking, and intellectual ability influencing individual processing tendencies (Bless, Bohner, Schwarz & Strack, 1990; Cacioppo, Petty, Feinstein & Jarvis, 1996; Cacioppo, Petty, Kao, & Rodriguez, 1986). Studies 2 and 3 in this thesis will focus on

the influence of such individual factors. However, there are other factors which can also influence processing motivation and capacity. These are important to first understand, as they help to clarify the processing strategies likely to be implicated in the global life satisfaction question. These factors relate to the situation and the features of the judgment being made, which will be termed here as 'contextual factors'. The contextual factors which appears to be most influential upon processing motivation and capacity is the personal relevance of the judgment, and the complexity of the judgment.

Personal Relevance

When an individual is asked to make a judgment about something which they do not care about, and they expect that there will be no personal consequences resulting from their decision, they are not likely to be motivated to spend the time and effort required to process the judgment systematically (Branscombe & Cohen, 1991; Forgas, 1995). Instead, they are likely to use the heuristic strategy. The personal relevance of a judgment also has implications for an individual's processing capacity. When an issue is personally relevant the amount of accessible information relevant to the issue is likely to be high, and therefore the ability to form judgments through systematic processing is enhanced.

While motivational and capacity theories differ in the proposed mechanisms through which personal relevance is thought to influence judgments, they both converge on the notion that personally relevant judgments tend to promote systematic processing, while judgments of low personal relevance tend to be processed heuristically. Empirical support for this theory is strong (e.g. Chaiken, 1980; Axsom, Yates & Chaiken, 1987; Petty & Cacioppo, 1984; Petty, Cacioppo & Goldman, 1981; Petty, Schumann, Richman & Strathman, 1993).

Complexity

One factor that greatly influences whether an individual has the capacity to adopt systematic processing is the complexity of the judgment. The complexity of the judgment is largely determined by the characteristics of the judgmental target, with the specificity of the target being particularly influential. When a judgmental target is broad, as is the case with the global life satisfaction question, the amount of information relevant to the judgment is so large that it would be very time-consuming and arduous to use cognitive processing to form a judgment. This limits the capacity for systematic processing, and increases the likelihood that heuristic processing will be used to simplify the judgment. Time pressures and distractions are also thought to impair processing capacity, limiting the cognitive resources that an individual can devote to processing, and consequently increasing the likelihood of heuristic processing (Branscombe & Cohen, 1991; Forgas, 1995).

Do these Contextual Factors cause Influence or Dominance?

While contextual factors are expected to influence processing, there are some circumstances when contextual factors would cause one processing strategy to unconditionally dominate. As discussed by Cacioppo, Petty, Feinstein, and Jarvis (1996), several studies provide evidence that individual differences in processing are most evident when a judgment is not excessively high or low in personal relevance. That is, when a judgment is very low in personal relevance, participants tend to process the judgment heuristically, regardless of their individual disposition towards processing. The opposite appears to occur for judgments very high in personal relevance, with participants overwhelmingly processing the judgment systematically. It is when a judgment is neither too high nor too low on this contextual factor that individual differences are most apparent, with individual factors moderating the processing strategies adopted.

Implications for Current Study

In regards to the present thesis, the global life satisfaction question "how satisfied are you with your life as a whole?" is high in personal relevance, which may influence participants towards adopting systematic processing. Also increasing the likelihood of systematic processing is the administration of surveys via mail-out, which reduces the likelihood of time pressure and accordingly lessens the likelihood of impairment in processing capacity. However, one contextual factor that appears to increase the likelihood of heuristic processing is the high level of complexity of the global life satisfaction question, which is a consequence of the broadness of the question and causes a very large amount of information to be relevant to the judgment. Consistent with the judgmental model of subjective well-being (Schwarz & Strack, 1991, 1999), it is expected that the sheer complexity of the global life satisfaction question will lead to this being the most influential contextual factor, and thus, heuristic processing will tend to dominate.

As there are features of the global life satisfaction question which seem to encourage both types of processing, there appears to be the opportunity for individual differences to emerge. Thus, while core affect may infuse the global life satisfaction judgment predominantly via heuristic processing, it is not expected that heuristic processing will unconditionally dominate. Instead, individual factors are likely to moderate the degree to which heuristic and systematic processing will be adopted, as will be explored in later studies.

This thesis builds on the above ideas and involves a set of three connected studies. The first of these aims to identify whether heuristic and/or systematic processing are implicated in the influence that affect exerts upon judgments of global SWB. The next two studies will then examine whether these effects are moderated by individual factors.

Hypotheses for Study 1

1. Core affect, as measured by a selection of affective terms, will provide a better reflection of the affective component of subjective well-being than will the use of a single measure of hedonic valence (i.e., level of happiness). The use of a list of adjectives allows sampling of affective experiences that range in both hedonic valence and activation levels, which, consistent with the circumplex model of affect, should allow a more complete measure of affect. Hierarchical regression analyses will be used to test this hypothesis.

2. Affective states will tend to infuse global life satisfaction judgments via heuristic processing. The complexity of the question is likely to cause this processing strategy to dominate. However, the personal relevance and atypical nature may also influence participants towards systematic processing. Therefore, while heuristic processing is expected to dominate, it is expected that some systematic processing will also be observed. Structural equation modeling will be undertaken to test this hypothesis. After examining the adequacy of the models, the direct and indirect effects will be examined. Support for the theory that affect will influence the satisfaction judgment via heuristic processing would be indicated by a significant and strong direct effect. Support for the theory that affect will also influence the judgment via systematic processing would be indicated by a significant indirect effect, with cognitive appraisals of satisfaction mediating this effect.

CHAPTER 2: STUDY 1 METHOD

Participants

The Australian Unity Wellbeing Index is applied twice each year to measure the wellbeing of the Australian population. Each application involves a telephone survey of approximately 2000 individuals aged 18 years of age and over, with a new sample chosen each time through the use of random telephone numbers within defined geographic regions. The proportion of sampling in each region is proportional to that region's contribution to the national population. At the conclusion of each interview participants are asked whether they would like to join the longitudinal study, and if so they provide their name and postal address.

The current sample comprised of the 535 participants who completed the ARC 9 Survey (October 2006), as part of the longitudinal study. Of the participants, 53% joined the longitudinal study in 2003, and 47% joined the longitudinal study in October 2005. The sample comprises 44% males and 56% females. The sample ranges in ages from 20 to 86, with a mean age of 55.46 years and standard deviation of 15.15 years.

Materials

Global life satisfaction

The first question of the survey was "How satisfied are you with your life as a whole?" The placement of this question at the start of the questionnaire was important, as it ensured that responses would not be biased by the cognitive details that would be prompted in subsequent questions (i.e. satisfaction with "personal relationships", "health", etc.). As this measure of global life satisfaction is very abstract, the likelihood that the affective component of SWB would be reflected was substantial. That is, it is very likely that 'affect

infusion' would occur when answering this question, with the preexisting mood state informing the judgment. However, whether this affect infusion occurs via heuristic processing (i.e., "If I feel fine, I gather I must be satisfied"), and/or via systematic processing where mood-congruent information becomes salient and informs judgments, remains unclear. Because this question is not unduly high or low in personal relevance, complexity, or familiarity, it provides a context in which both processing strategies may emerge. Participants rated this item on an end-defined bipolar response scale of 0 ("completely dissatisfied") to 10 ("completely satisfied"). By multiplying scores by 10, these scores were then converted to a 0-100 range.

Cognitive-based appraisals of satisfaction

The Personal Wellbeing Index (PWI; International Wellbeing Group, 2006) is used as the measure of cognitive-based appraisals of satisfaction. The PWI requires participants to rate their satisfaction with seven domains: standard of living, health, achievements in life, personal relationships, safety, community connectedness, and future security. Each domain is assessed by one item (e.g., "How satisfied are you with…your standard of living?"), and ratings are made on an end-defined bipolar response scale of 0 ("completely dissatisfied") to 10 ("completely satisfied"). The PWI has been found to have desirable psychometric properties, as detailed in the PWI Manual which is available online (http://www.deakin.edu.au/research/acqol/instruments/wellbeing_index.htm). In the current study the seven items comprising the PWI were found to have good internal consistency (Cronbach's alpha = .84).

Because the PWI requires participants to rate their satisfaction with specific domains, these judgments are less abstract than the global life satisfaction "how satisfied are you with your life as a whole?" This means that participants are more likely to base their appraisals of domain satisfaction upon accessible cognitive details that are relevant to the domain. It is

acknowledged that the PWI is by no means a 'pure' measure of the cognitive component of satisfaction. It is however, more cognition-based that the "life as a whole" global satisfaction question. This issue will be discussed further in the summary section of the Results chapter.

Once scores for the 7 PWI domains are obtained, total PWI scores are derived by combining the 7 item scores, and converting the resulting score to a standard 0-100 point scale. The values derived from this process are termed 'percentage of scale maximum' (%SM). This conversion does not alter the statistical properties of the data, since the process is a simple linear conversion, but it has the advantage that data from the PWI and other scales can be directly compared in terms of their means and standard deviations. The statistical procedure through which the scores were converted to the standard 0 – 100 %SM are as follows:

$$\frac{X - k^{min}}{k^{max} - k^{min}} \times 100$$

X = the score or mean to be converted
k^{min} = the minimum score possible on the scale (0)
k^{max} = the maximum score possible on the scale (70)

Affect

While past research tends to simply measure affective states by asking participants to rate how "happy" or "good" they feel (e.g., Bless, et al., 1996; Bless, Mackie & Schwarz, 1992; Parrott & Sabini, 1990, Exp 2; Worth & Mackie, 1987), it now appears that a more valid representation of the affective component of SWB may be yielded by using a small group of adjectives (Davern, Cummins & Stokes, 2007). These researchers asked participants to rate their affective states across a range of adjectives that represented the four quadrants of the

circumplex model of affect (Russell, 1980; Russell & Feldman Barrett, 1999). That is, participants were asked how they feel on pleasant adjectives (e.g., "happy", "content"), unpleasant adjectives (e.g., "sad", "discontent"), activated adjectives (e.g., "aroused", "alert"), deactivated adjectives (e.g., "exhausted", "tired"), and adjectives which represent a combination of the dimensions (e.g., pleasant and activated adjectives such as "excited", unpleasant and activated adjectives such as "distressed"). The authors then identified which adjectives contributed unique variance to global life satisfaction, and found that five adjectives explained 64% of the variance. These unique contributors to SWB were termed 'core affect', and used as a measure of the affective component of SWB. In the following analyses the suitability of using core affect will again be tested, and if it is found to be suitable it will be used to represent the affective component of SWB.

The same approach was used as Davern and colleagues, with participants asked to "indicate how each of the following describes your feelings when you think about your life in general", on an end-defined unipolar response scale of 0 ("not at all") to 10 ("extremely"). Scores were then converted to the standard 0-100 form by being multiplied by 10. As depicted in Table 2.1, there were 23 affects used in the present study, which is fewer than used in Davern, Cummins and Stokes (2007, Study 1). The 23 affects were selected simply because they were sampled in the ARC9 survey. They had been selected to represent the four circumplex quadrants.

Table 2.1: A Comparison of the Significance and Magnitude of the Difference Between Mean Scores and Standard Deviations for the Affective Adjectives, as Obtained by Davern et al. (2007, Study 1), and Present Analyses.

	Davern, Cummins & Stokes (2007, Study 1)			**Present analyses**			**Independent-samples t-tests to compare mean scores**	
Adjective	**M**	**S.D**	**n**	**M**	**S.D**	**n**	**t**	**eta squared**
Happy	71.96	20.80	465	74.73	16.33	533	-2.32 *	.005
Content	70.30	21.88	463	71.84	17.75	532	-1.21	.001
Satisfied	68.37	21.68	465	71.54	17.24	533	-2.53 *	.006
At ease	66.35	22.01	457	68.83	19.75	532	-1.86	.003
Enthusiastic	66.13	22.29	457	68.61	17.04	532	-1.94	.004
Relaxed	65.15	22.76	460	65.43	20.39	521	-.20	.000
Serene	62.95	23.04	461	61.18	21.12	525	1.26	.002
Alert	62.22	22.75	463	71.01	18.02	533	-6.69 ***	.043
Energised	59.91	22.75	460	59.68	19.96	524	.17	.000
Lively	59.38	22.06	454	62.73	19.21	532	-2.51 *	.006
Delighted	58.52	22.92	452	66.07	17.82	529	-5.69 ***	.032
Excited	57.32	23.10	456	60.38	18.74	530	-2.25 *	.005
Tired	50.89	28.66	460	50.85	25.28	530	.02	.000
Fatigued	38.78	30.27	458	47.95	25.42	528	-5.11 ***	.026
Sleepy	37.51	28.15	453	46.81	24.93	526	-5.48 ***	.029
Sad	28.12	24.05	457	29.17	21.49	530	-.719	.000
Nervous	27.02	24.14	450	32.04	24.31	530	-3.23 **	.010
Annoyed	25.98	25.19	455	36.85	22.66	527	-7.12 ***	.049
Discontent	25.92	25.91	453	31.47	21.02	530	-3.65 ***	.013
Depressed	23.80	24.28	453	26.81	23.64	526	-1.96	.004
Upset	22.30	23.53	457	28.28	20.53	530	-4.22 ***	.018
Gloomy	22.12	23.65	453	25.60	22.11	527	-2.37 *	.006
Distressed	21.56	22.40	454	26.12	22.38	529	-3.18 **	.010
Pleased	66.67	21.11	460					
Calm	62.70	22.92	463					
Elated	52.76	23.69	453					
Aroused	43.43	25.91	455					
Stressed	37.34	27.56	455					
Exhausted	35.77	28.88	454					
Flat	28.83	27.30	453					
Bored	24.09	23.98	457					

Note: * $p<.05$, ** $p<.01$, *** $p<.001$

In order to ascertain whether the means and standard deviations for the affective adjectives were comparable across the two studies, a series of independent-samples t-tests were performed. While there were several significant differences in the mean scores, the magnitude of the differences was generally very small. According to the guidelines proposed by Cohen (1988), eta squared values of .01 represent a small effect, .06 represent a moderate effect, and .14 represent a large effect. It can be seen that the differences between most of the means for the affective adjectives are very small. The largest differences are on the adjectives "annoyed" and "alert", with the sample used in present analyses having higher means on both of these adjectives than the sample used by Davern and colleagues (2007). Overall, the mean differences never reach a level of magnitude beyond a small effect, which indicates that the means and standard deviations for the affects are generally comparable between the present study and that of Davern and colleagues.

Procedure

The ARC 9 Survey was mailed out to participants who, during a telephone interview, expressed interest in participating in the longitudinal study. This survey consisted of the items used in the present study, as well as a variety of other satisfaction-related questions that were not used in the current study. An enclosed letter accompanied the survey, informing participants that completion of the survey was voluntary, and that responses would be kept confidential. They were also informed that their responses may be used in future research, that any reports would always involve large numbers of participants, and that all participants would remain anonymous. A reply-paid envelope was enclosed for those participants who decided to complete the survey.

CHAPTER 3: STUDY 1 RESULTS

3.1 Data Screening and Examination of Assumptions

The assumptions of multivariate analyses were examined. Collinearity diagnostics indicated that no multicollinearity was evident. Several univariate outliers and multivariate outliers were detected, and analyses were run with and without the outliers. As the removal of outliers did not meaningfully alter the findings, final analyses were conducted with the original data. Some variables were found to be mildly negatively skewed. When these variables were transformed using the weakest transformation method, they were then found to be mildly positively skewed. Therefore, transformations were deemed unnecessary and final analyses were conducted with non-transformed variables.

3.2 Descriptive Statistics and Correlations

The means and standard deviations for all the affective adjectives used in the present study are depicted in Table 2.1. The mean scores for the global life satisfaction and PWI variables are depicted in Table 3.1, along with a comparison of the means obtained in the present study and the means obtained in the study by Davern and colleagues (2007). While the scores suggest that participants in the present study were more satisfied than participants in the study by Davern and colleagues, the differences between these scores was only of a small magnitude and therefore the mean scores on these variables are generally comparable.

Table 3.1: A Comparison of the Significance and Magnitude of the Difference Between Mean Scores and Standard Deviations for the Global Life Satisfaction and PWI Variables, as Obtained by Davern et al. (2007, Study 1), and Present Analyses.

	Davern, Cummins & Stokes (2007, Study 1)			Present analyses			Independent-samples t-tests to compare mean scores	
Variable	**M**	**S.D**	**n**	**M**	**S.D**	**n**	**t**	**eta squared**
Global L.S	72.24	18.31	478	76.60	17.30	532	-3.89 ***	.015
PWI	71.18	14.44	465	73.53	13.77	519	-2.60 **	.007

Note: Global L.S = Global life satisfaction. * p<.05, ** p<.01, *** p<.001

Pearsons correlations for all the variables are presented in Table 3.2. As expected, inter-correlations between the affective terms are significant, and consistent with the circumplex model of affect. That is, high positive correlations are found between affects proposed to be close to each other on the circumplex (e.g., content and happy, depressed and gloomy), and high negative correlations are found between affects proposed to be at opposing ends of the circumplex (e.g., content and gloomy). The weakest correlations are found between affects that are opposing in both the pleasant-unpleasant and activated-deactivated dimensions (e.g., delighted and tired). The inter-correlations between the affective terms and the global life satisfaction and PWI variables are also as expected.

Table 3.2: Pearsons Correlations for all variables used in Study 1.

	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
1. Global L.S	.74	.78	.75	.74	.51	.61	.53	.49	.35	.47	.52	.60	.43	-.19	-.23	-.20	-.53	-.32	-.31	-.50	-.54	-.51	-.54	-.49
2. PWI	1.00	.70	.69	.69	.53	.58	.50	.48	.35	.51	.50	.54	.43	-.25	-.30	-.28	-.53	-.38	-.36	-.49	-.54	-.52	-.50	-.51
3. Happy		1.00	.78	.75	.54	.69	.56	.52	.35	.50	.57	.66	.47	-.19	-.25	-.21	-.60	-.35	-.37	-.51	-.61	-.56	-.58	-.55
4. Content			1.00	.81	.56	.66	.57	.55	.35	.55	.58	.65	.49	-.23	-.28	-.25	-.65	-.38	-.40	-.57	-.63	-.59	-.61	-.60
5. Satisfied				1.00	.56	.64	.55	.59	.38	.59	.61	.67	.55	-.25	-.27	-.21	-.58	-.35	-.34	-.51	-.60	-.57	-.60	-.53
6. At ease					1.00	.47	.55	.47	.31	.38	.40	.44	.34	-.15	-.22	-.23	-.43	-.42	-.33	-.40	-.47	-.46	-.45	-.49
7. Enthusiastic						1.00	.46	.50	.41	.66	.67	.60	.60	-.20	-.26	-.24	-.48	-.30	-.25	-.40	-.52	-.43	-.45	-.47
8. Relaxed							1.00	.58	.35	.49	.51	.53	.44	-.28	-.34	-.28	-.47	-.42	-.38	-.42	-.49	-.44	-.42	-.48
9. Serene								1.00	.36	.51	.52	.54	.56	-.31	-.28	-.21	-.38	-.37	-.28	-.45	-.43	-.42	-.41	-.44
10. Alert									1.00	.52	.49	.33	.29	-.21	-.25	-.27	-.31	-.22	-.20	-.25	-.30	-.27	-.30	-.29
11. Energised										1.00	.79	.54	.54	-.42	-.42	-.35	-.41	-.30	-.37	-.36	-.45	-.34	-.38	-.37
12. Lively											1.00	.56	.55	-.33	-.35	-.33	-.43	-.26	-.25	-.33	-.46	-.35	-.40	-.39
13. Delighted												1.00	.63	-.15**	-.16	-.15**	-.44	-.27	-.28	-.40	-.48	-.39	-.45	-.40
14. Excited													1.00	-.12**	-.13**	-.11**	-.30	-.20	-.19	-.27	-.36	-.21	-.29	-.26
15. Tired														1.00	.64	.52	.26	.34	.27	.27	.31	.27	.26	.29
16. Fatigued															1.00	.59	.36	.27	.36	.33	.41	.35	.37	.36
17. Sleepy																1.00	.30	.26	.33	.28	.32	.34	.35	.38
18. Sad																	1.00	.48	.44	.57	.72	.69	.68	.65
19. Nervous																		1.00	.37	.43	.51	.48	.48	.54
20. Annoyed																			1.00	.39	.53	.61	.55	.54
21Discontented																				1.00	.61	.58	.61	.58
22. Depressed																					1.00	.69	.75	.70
23. Upset																						1.00	.79	.76
24. Gloomy																							1.00	.73
25. Distressed																								1.00

Note: n = 508 – 533. All correlations are significant at p<.001 level (two-tailed significance), except where indicated. **p<.01.
Global L.S = Global life satisfaction.

3.3 Deriving an Accurate Representation of the Affective Component of SWB

3.3.1 Affects as predictors of SWB

It is expected that those affective adjectives that contribute unique variance to global life satisfaction will together explain more variance in global life satisfaction than will the happiness variable alone. This would demonstrate that the composite construct of core affect does indeed yield a more accurate reflection of the affective component of SWB than does using a simple happiness variable. In order to assess this, hierarchical regression analyses were performed, with global life satisfaction entered as the dependent variable. In step 1 of the analyses, the affect "happy" was entered as the sole predictor of global life satisfaction, while the remaining affects were entered in step 2.

It was intended that those adjectives contributing unique variance to global life satisfaction would be used as a measure of core affect. Included in the original list of adjectives was the term "satisfied". However, there is a valid argument for the exclusion of "satisfied" from representing core affect, given that core affect is being used as a predictor of satisfaction. That is, it would be possible to argue that any increased variance explained by the remaining affects may be an artifact of the presence of "satisfied" within the list. Therefore, the hierarchical regression analysis was run once with "satisfied" included, and a second time with the "satisfied" excluded, to assess this possibility.

As shown in Table 3.3, happiness alone was found to explain 62% of the variance. When the remaining affects were entered they were found to explain an additional 7% or 6% of variance, to yield 69% or 68% explained variance in total (satisfied included and satisfied excluded, respectively).

Table 3.3: Hierarchical Regression with Happiness, and Affective Adjectives as Predictors of Global Life Satisfaction.

Variable

Step 1	**B**	**β**	**sr^2**
Happy	.82***	.79	.62
			R^2 = .62
			R = .79***

Step 2	**B**		**β**		**sr^2**	
	Satisfied included	Satisfied excluded	Satisfied included	Satisfied excluded	Satisfied included	Satisfied excluded
Happy	.41***	.47***	.40	.44	.04	.05
Content	.18**	.28***	.18	.28	.00	.02
Satisfied	.26***	-	.26	-	.02	-
At ease	.01	.03	.02	.04	.00	.00
Enthusiastic	.01	.06	.01	.06	.00	.00
Relaxed	.04	.02	.05	.03	.00	.00
Serene	.01	.01	.01	.01	.00	.00
Alert	.03	.03	.04	.04	.00	.00
Energised	-.06	-.04	-.07	-.05	.00	.00
Lively	-.01	.00	-.01	.00	.00	.00
Delighted	.03	.05	.03	.05	.00	.00
Excited	-.04	-.04	-.04	-.04	.00	.00
Tired	.01	.00	.01	.00	.00	.00
Fatigued	-.01	-.00	-.01	-.01	.00	.00
Sleepy	-.01	-.01	-.01	-.01	.00	.00
Sad	.01	.01	.01	.01	.00	.00
Nervous	.00	.00	.00	.01	.00	.00
Annoyed	.03	.05	.04	.07	.00	.00
Discontent	-.04	-.04	-.04	-.04	.00	.00
Depressed	.03	.03	.04	.04	.00	.00
Upset	-.00	-.05	-.00	-.05	.00	.00
Gloomy	-.03	-.04	-.04	-.05	.00	.00
Distressed	.01	.03	.02	.03	.00	.00
				Satisfied included		Satisfied excluded
				$R^2 \Delta$ = .07		$R^2 \Delta$ = .06
				R^2 = .69		R^2 = .68
				R = .83***		R = .82***

Note: n = 479, * p<.05, ** p<.01, *** p<.001

It is notable that the removal of "satisfied" from the list of affects has caused the strength of "content" and "happy" to increase as predictors of global life satisfaction. Furthermore, the removal of "satisfied" has not reduced the predictive strength of the affects. This indicates that, for theoretical purposes "satisfied" can be removed from the list of affects, without the predictive strength of the affects weakening as a consequence.

Overall, these results support the use of several adjectives rather than the happiness variable alone, as a measure of affect. In particular, it appears to be the inclusion of "content" that has contributed to explaining variance additional to that explained by the adjective "happy". Thus, the two affects "happy" and "content" will be used as indicators of core affect.

3.3.2 Issue: Should an activated affect be included in core affect?

The current findings that "happy" and "content" were the only affects to contribute unique variance to global life satisfaction contrasts with the findings of Davern et al (2007, Study 1) which found that five affects contributed unique variance to global life satisfaction. These affects were happy (β=.24), content (β=.29), satisfied (β=.17), energised (β=.07) and stressed (β=-.07). After the removal of satisfied and stressed from representing core affect for theoretical reasons (i.e., the similarity of "satisfied" with the dependent variable, and the ambiguity of the term "stressed" as a measure of affect), happy, content and energised remained as a measure of core affect.

The current study is consistent with that of Davern and colleagues (2007) in the finding that only a very small set of pleasant affects contribute unique variance to global life satisfaction, and that happy and content are the strongest predictors of global life satisfaction, thus indicating that these two affects best represent core affect. However, in the current study

there was no third pleasant-activated term (such as energized) found to represent core affect. One reason for this may be that the large number of affects included in the regression analysis may have masked the effect of a third term, which is likely to be weaker than that of the first two affects. To test this possibility the regression analysis was rerun with a smaller set of affects included as predictors of global life satisfaction. The affects that were selected were the two affects that have been found to contribute unique variance, along with the pleasant-activated terms that were sampled (e.g., alert, energised, lively, excited). The pleasant-activated terms enthusiastic and delighted were not included in the analysis because it was decided that they were not free-floating mood states, but were directed at objects, which means that they are no longer primitive elements of mood, but have become complex and linked with cognition (Oatley & Johnson-Laird, 1987; Russell, 2003).

Table 3.4: Hierarchical Regression with Happiness, and Pleasant-Activated Adjectives as Predictors of Global Life Satisfaction.

Variable			
Step 1	**B**	**β**	**sr^2**
Happy	.83***	.78	.61
			$\underline{R}^2$ = .61
			$\underline{R}$ = .78***
Step 2	**B**	**β**	**sr^2**
Happy	.05***	.48	.08
Content	.03***	.35	.04
Alert	.00	.05	.00
Energised	-.00	-.01	.00
Lively	.00	.01	.00
Excited	.00	.02	.00
			$\underline{R}^2 \Delta$ = .05 $\underline{R}^2$ = .66 $\underline{R}$ = .82***

Note: $\underline{n}$ = 519, * $\underline{p}$<.05, ** $\underline{p}$<.01, *** $\underline{p}$<.001

As displayed in Table 3.4, none of the pleasant-activated terms were found to contribute unique variance to global life satisfaction. The term that was closest to reaching significance was "alert". It is a possibility that the effect of alert is being masked by the other pleasant-activated terms, and that it may reach significance once these terms are excluded. In order to check this possibility, the regression analysis was rerun with only happy, content and alert entered as predictors of global life satisfaction. As displayed in Table 3.5, after the exclusion of all terms except for happy, content, and alert, it was again found that no pleasant-activated term added to the unique variance that was accounted for happy and content. This provided strong support for the use of these two adjectives as a measure of core affect.

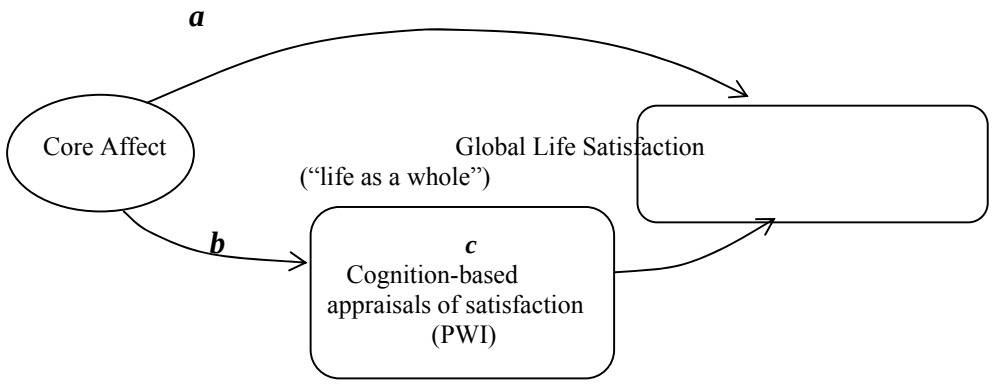
Table 3.5: Hierarchical Regression with Happy, Content, and Alert as Predictors of Global Life Satisfaction.

Variable	**B**	**β**	**sr^2**	
Step 1				
Happy	.83***	.78	.61	
				$\underline{R}^2 = .61$
				$\underline{R} = .78***$
Step 2	**B**	**β**	**sr^2**	
Happy	.05***	.49	.09	
Content	.03***	.34	.04	
Alert	.00	.05	.00	
				$\underline{R}^2 \Delta = .05$
				$\underline{R}^2 = .66$
				$\underline{R} = .81***$

Note: $\underline{n} = 531$, * $\underline{p}<.05$, ** $\underline{p}<.01$, *** $\underline{p}<.001$

3.4 Does Core Affect Infuse Global Life Satisfaction via Systematic or Heuristic Processing?

Figure 3.1 illustrates the anticipated processing routes through which core affect will infuse judgments of global life satisfaction. Core affect is anticipated to infuse perceived global life satisfaction predominantly via heuristic processing. This would be indicated by a significant and strong direct effect (pathway *a*). It is also expected that, due to the personally relevant and atypical nature of the global life satisfaction question, core affect may also influence the judgment via systematic processing. This would be indicated by core affect influencing the judgment indirectly, via cognitive appraisals of satisfaction (i.e., the PWI), as illustrated in pathways *b* and *c*.



a = Core affect influences global SWB via heuristic processing
b + ***c*** = Core affect influences global SWB via systematic processing

Figure 3.1. Path model of how core affect may infuse judgments of global life satisfaction.

In order to include the latent 'core affect' construct in the model as depicted in Figure 3.1, structural equation modeling (SEM) was used. These analyses were performed using the AMOS 6.0 statistical program, and maximum likelihood estimation.

3.4.1 SEM: Measurement model

These analyses conform to the commonly accepted two-step procedure in SEM whereby the measurement portion of the model is assessed first, and if this is found to be adequate fitting, the structural portion of the model is then added (Anderson & Gerbing, 1988; Kline, 1998). The measurement portion of the model comprises the two affective terms (happy and content) which are to be used as indicators, and the latent variable of core affect. With only two affective terms being used as indicators, this measurement model is underidentified, meaning that it cannot be satisfactorily estimated, and the goodness-of-fit of this model is not identifiable. Despite this, the suitability of using the two affective terms as indicators of the latent construct can be assessed by performing a reliability analysis, and examining the Cronbach's alpha coefficient and the inter-item correlation between the adjectives. A reliability analysis indicated that the two affective terms have good internal consistency (Cronbach's alpha = .87), with this coefficient being particularly high considering only two items are included in this analysis. The two affective terms were also found to be highly correlated ($\underline{r} = .78$), which supports the presence of a common underlying factor. Therefore, these results provide support for the use of these two terms as indicators of the latent variable core affect. As the measurement model appears to be adequate, the structural portion of the model can now be added.

3.4.2 SEM: Structural model

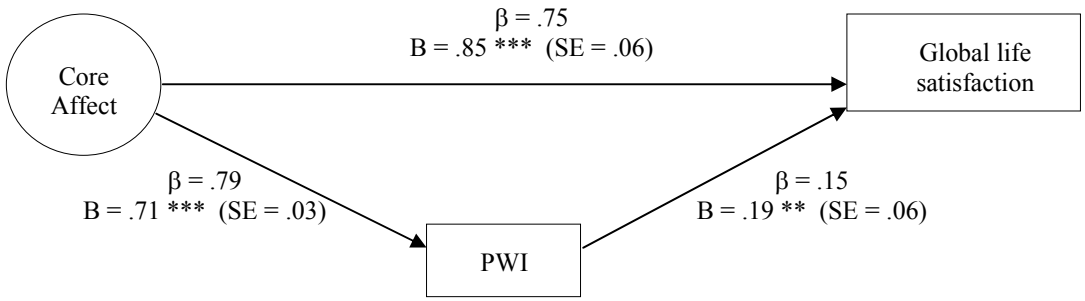
Evaluating model fit

In accordance with recommendations (e.g., Hu & Bentler, 1999), in addition to the normal chi-squared (χ^2) test of model fit, the fit of the structural model will be evaluated by the use of an incremental fit index and an absolute close-fit index. The incremental fit index that will be used is the comparative fit index (CFI). While the normed fit index (NFI) has been the

incremental fit index of choice for many years, there is now evidence that this index underestimates fit in small sample sizes (Bearden, Sharma & Teel, 1982; Bentler, 1990). Thus, the NFI was revised to take sample size into account, leading to the development of the CFI, which is now heralded as the index of choice (Bentler, 1990). CFI values above .90 were originally proposed to be indicative of a well-fitting model, however this has since been revised to a cutoff value of .95 (Hu & Bentler, 1999). The standardized root mean square residual (SRMR) is the most highly recommended absolute close-fit index by Hu and Bentler (1999), and thus will be reported in these analyses. In accordance with recommendations, SRMR values of less that .08 will be considered to indicate an adequate fitting model, with values close to zero reflecting a well-fitting model. The root mean square error of approximation (RMSEA) will also be reported. As discussed in Byrne (2001), the RMSEA index has recently been recognized as one of the most informative criteria in SEM, with desirable qualities such as sensitivity to model complexity. RMSEA values of .05 to .06 are indicative of good fit, while values ranging from .08 to .10 are indicative of mediocre fit, and those above .10 are indicative of poor fit (Browne & Cudeck, 1993, MacCallum, Browne & Sugawara, 1996). A well fitting model would also be indicated by a χ^2/df ratio less than 3.0. An assessment of the matrix of standardized residual covariances will also be performed, with a well-fitting model indicated by the presence of at least 95% of the residuals being less than 2.0. As the presence of missing values causes the non-computation of some fit statistics, listwise deletion was performed, with all cases with one or more missing values on the four indicators in the model ("happy", "content", "PWI", or "satisfaction with life as a whole") omitted from further analyses.

The model depicted in Figure 3.2 was tested with a sample size of 517 after the listwise deletion of missing data. The results were indicative of a very well-fitting model (χ^2 (1) =.522, p=.47, χ^2/df ratio = .566, CFI = 1.000, SRMR = .002, RMSEA = .000). An

examination of the matrix of standardized residual covariances did not reveal any large values, providing further support for the good fit of this model. As the model appears well fitting, the estimates of the direct and indirect effects can now be examined.



* p<.05, ** p<.01, *** p<.001

Figure 3.2. Estimates of the direct (heuristic) and indirect (systematic) influence of core affect upon global life satisfaction

Evaluating the direct effect

As displayed in Figure 3.2, core affect was found to exert a strong and significant direct effect upon global life satisfaction (β = .75, p<.001). This finding suggests that 75% of the variance in global life satisfaction is explainable by the direct influence of core affect. This is consistent with hypotheses, indicating that core affect influences the satisfaction judgment largely via heuristic processing.

Evaluating the indirect effect

While it was expected that core affect would predominantly influence the satisfaction judgment via heuristic processing, it was also anticipated that it would also have some influence via systematic processing. Thus, it was expected that core affect would exert a significant indirect effect upon global life satisfaction (via the PWI), although this effect would be much weaker than the direct effect. Support for this hypothesis would be indicated by several findings.

First, it would be expected that the standardised beta coefficient from the PWI to global life satisfaction would be weaker than that in the direct pathway (i.e., core affect to global life satisfaction). As this coefficient essentially represents the influence of core affect upon global life satisfaction, through the PWI, assessment of this statistic provides a solid reflection of the indirect effect. It can be seen that this coefficient reaches significance but is very weak (β = .15, $\underline{p}$<.01), indicating support for the hypothesis.

A second method for evaluating the indirect effect is to examine the change in the standardised beta coefficient between core affect and global life satisfaction that occurs when the PWI is removed. After removing the PWI, this model solely contains the direct pathway between core affect and global life satisfaction. The standardised beta coefficient in this model is indicated as β = .87 (B=.99, SE = .04, $\underline{p}$<.001). This coefficient is notably stronger than that indicated in the model depicted in Figure 3.2 (β = .75). This indicates that core affect does not influence the satisfaction judgment solely through its direct effects, but that some of the influence that core affect exerts is indirect, mediated by cognitive appraisals of satisfaction. Again, these results suggest that core affect predominantly influences the

satisfaction judgment directly, although it also exerts a significant indirect effect upon the judgment.

Overall, these findings suggest that core affect infuses global life satisfaction predominantly via heuristic processing, and to a lesser extent via systematic processing, which is consistent with the hypothesis.

Evaluating the total effect

An estimation of the total effects in global life satisfaction that are accounted for by core affect is derived from the model that was rerun with the omission of the PWI. This model solely contains the pathway between core affect and global life satisfaction, and thus indicates the amount of variance explained by core affect regardless of whether this variance is attributable to direct or indirect effects. As discussed, the standardised beta coefficient obtained in this model is indicated as $\beta = .87$, indicating that 87% of the variance in global life satisfaction is explainable by the total effects of core affect. This finding indicates that core affect explains a very large amount of the variance in global life satisfaction.

3.5 Summary

3.5.1 Issue: Is the PWI reflecting cognition or affect?

The total PWI score has been used in these analyses as a measure of appraisals of satisfaction that are influenced more by cognition than is global life satisfaction. The PWI requires respondents to rate their satisfaction with specific domains (e.g., health, personal relationships, etc), while the global life satisfaction requires respondents to rate their satisfaction with "life as a whole?" While the broadness of the later question makes cognitive processing improbable, the questions in the PWI are fairly specific, providing the opportunity for participants to draw upon specific cognitions that are of relevance.

It is acknowledged that the PWI is by no means a 'pure' measure of the cognitive component of satisfaction. However, it is thought to be more cognition-based that the "life as a whole" global satisfaction question. In order to test this assumption two Standard Regression Analyses were performed, with the two terms that represent core affect (happy and content) entered as predictors of global life satisfaction, and predictors of the total PWI score. As depicted in Appendix A, the findings indicate that core affect is a weaker predictor of the PWI, compared to the global life satisfaction. As it is well established that SWB comprises both affective and cognitive components, demonstrating that the PWI is less driven by the affective component would infer that it is more driven by the cognitive component. Thus, the use of the PWI as a measure of cognitive appraisals of satisfaction appears acceptable.

While the above analyses indicate that the PWI is less driven by core affect than is the global life satisfaction question, there is nevertheless a large amount of variance ($R^2 = .54$) in the PWI that is explainable by core affect. Thus, while the PWI may reflect more cognition than the global life satisfaction question, the possibility exists that the PWI may be largely driven by core affect, such that it may be assessing a general mood state, probably best measured by the term "satisfied". In order to test this possibility a hierarchical regression analysis was run, with the core affect terms (happy and content) and the term "satisfied" included as predictors of global life satisfaction in Step 1 of the regression. The PWI was then included as a predictor in Step 2. If the PWI was simply reflecting the affective component of SWB, the inclusion of the PWI in Step 2 should fail to account for any additional variance in global life satisfaction beyond that accounted for by "satisfied".

As displayed in Appendix B, the inclusion of the PWI in Step 2 accounted for an additional 4% of the variation in global life satisfaction, which is a significant increase ($F\Delta$ (1, 512) = 65.28, $p<.001$). This indicates that the PWI is not simply reflecting a general affective

state, but is indeed sampling something unique. When this finding is considered in the light of the vast amount of research that has established that SWB comprises of affective and cognitive components, these results indicate that the PWI is reflecting a cognitive construct, at least to some degree. Thus, in the presence of core affect the PWI can be used as a measure of the cognitive component of SWB.

3.5.2 Summary of the results

Overall, the findings from Study 1 support hypotheses. First, the findings indicate that the affective component of SWB is better represented by a selection of affective terms, rather than a single happiness variable. Second, this affective component, referred to here as 'core affect', appears to predominantly influence the satisfaction judgment via heuristic processing. Also as expected, it is not exclusively through heuristic processing that core affect seems to influence the satisfaction judgment. Rather, core affect also influences the judgment via the PWI, indicating the presence of systematic processing, albeit to a much lesser degree.

CHAPTER 4: STUDY 1 DISCUSSION

The results of Study 1 have provided support for the hypothesis that the affective component of SWB would be better represented by core affect than by the use of a single happiness variable. The results also support the hypothesis that affective states infuse global life satisfaction predominantly via heuristic processing. These findings will be discussed.

The Affective Component of SWB

The overall aim of this thesis is to gain an understanding of how affective states inform judgments of global life satisfaction. Therefore, an important initial phase of this research is to assess whether the measure of affect being employed is a good representation of the affective component of SWB. In order to test this, affective adjectives were entered as predictors of global life satisfaction. These adjectives ranged in their hedonic valence and their activation levels. Consistent with past research (Davern, Cummins & Stokes, 2007), it was found that the adjectives that were significant predictors of global life satisfaction (i.e., happy and content) were characterized by pleasant hedonic valence.

While it was expected that a small set of adjectives would contribute unique variance to global life satisfaction, it comes as somewhat of a surprise that only two adjectives are significant predictors of global life satisfaction, and that neither of these two adjectives seem to reflect the activation dimension. Additional analyses were undertaken to explore whether an activated adjective would emerge as a significant predictor of global life satisfaction once the list of adjectives was reduced. However, these analyses found that no activated adjectives became a significant predictor, suggesting that for the present study the affective component of SWB is best represented by the two pleasant adjectives (happy and content) alone, without the inclusion of an activated adjective such as alert. These results are quite

consistent with the findings of Davern, Cummins and Stokes (2007), which found that, of the three affects that contributed unique variance to global life satisfaction, the two pleasant affects (happy and content) were by far the strongest predictors, while the activated affect was much weaker, and only just reached significance.

The findings that hedonic valence has more influence than activation upon the global life satisfaction judgment also has implications for understanding the structure of affective experiences. That is, consistent with past research that suggests that the two-dimensional circumplex model of affect is dominated by the hedonic valence dimension (e.g., Feldman, 1995a, 1995b), the present findings indicate that the two dimensions are not equally influential. Thus, as has been described elsewhere (Feldman, 1995b), the inequality of the two dimensions may be best represented by an elliptical, rather than circular, model of affect, displayed in Figure 4.1.

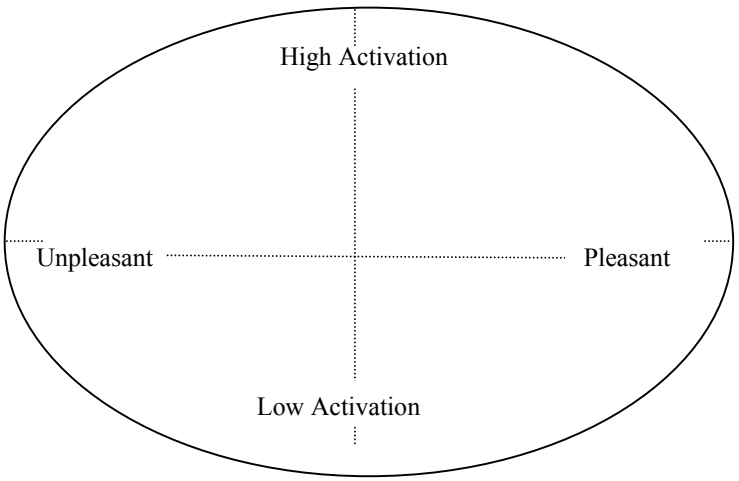


Figure 4.1. The circumplex model of affect: hedonic valence and activation are arranged on an elliptical rather than circular circumplex.

In addition to furthering our understanding of the circumplex model of affect, the findings of the present study have primarily served the intended purpose of identifying a sound measure of the affective component of SWB, which will be used in subsequent analyses.

The Route through which Core Affect infuses Global SWB

The second section of Study 1 explores whether core affect influences global life satisfaction via heuristic or systematic processing. It was expected that, while both types of processing would be detected, heuristic processing would dominate due to the complexity of the global life satisfaction question (Schwarz & Strack, 1991, 1999). This hypothesis was supported. Using structural equation modeling, it was found that core affect was a strong predictor of global life satisfaction. While exerting both direct and indirect effects upon the satisfaction question, the influence of core affect was predominantly through its direct effect, indicating the dominance of heuristic processing and much weaker presence of systematic processing.

Overall, the findings from Study 1 support the hypotheses. Consistent with the judgmental model of subjective wellbeing proposed by Schwarz and Strack (1991, 1999), when respondents were asked to rate their global life satisfaction, responses to this non-specific target did not tend to be based upon a careful evaluation of relevant information (e.g., satisfaction with the different domains, as measured by the PWI). Instead, respondents formed their judgment based predominantly upon how they were feeling at the time of answering, with their affective states acting as heuristic cues for the judgment. Thus, in indicating that core affect predominantly influences global SWB via heuristic processing, support is provided for the affect-as-information theory that affective states can be used directly as information when forming judgments (Clore & Parrott, 1991; Schwarz & Clore, 1983, 1996).

However, the fact that core affect did not infuse the global life satisfaction judgment exclusively via heuristic processing also indicates that, consistent with dual-process theories (e.g., Chaiken, 1980; Forgas, 1994, 1995; Petty & Cacioppo, 1986a, 1986b), affective states can influence judgments through both of the heuristic and systematic pathways. Therefore, while the nature of the global life satisfaction question may encourage heuristic processing, there appears to be the potential for individuals to adopt systematic processing. Study 2 will begin to explore the role that individual factors have in moderating this effect.

CHAPTER 5: STUDY 2 INTRODUCTION

Is the Affect Infusion of Global SWB Moderated by Individual Factors?

The findings from Study 1 suggest that core affect infuses judgments of global life satisfaction (satisfaction with "life as a whole") predominantly through heuristic processing. While this form of processing may have dominated due to the features of the global life satisfaction question (i.e., the abstract, non-specific nature of the question), research also indicates that dispositional factors influence the degree that individuals adopt systematic or heuristic processing strategies (Cacioppo & Petty, 1982; Petty & Cacioppo, 1986a). Therefore, the next study will explore whether dispositional factors influence the dominance that heuristic processing appears to have upon the affect infusion involved in global life satisfaction, or whether the abstract nature of the question will cause heuristic processing to dominate regardless of such individual differences.

Need for Cognition

In developing the 'need for cognition' construct, Cacioppo and Petty (Cacioppo & Petty, 1982; Petty & Cacioppo, 1986a) succeeded in demonstrating that, in addition to situational factors (such as the specificity or abstractness of a question), dispositional factors also influence the degree that individuals adopt systematic or heuristic strategies. The need for cognition (NFC) construct represents an individual's intrinsic motivation to engage in effortful cognitive-based processing strategies. Put simply, it represents "the tendency of an individual to engage in and enjoy thinking" (Cacioppo & Petty, 1982, p. 116). Need for cognition appears to be a stable construct, with individuals ranging on a continuum from low to high levels (for a review see Cacioppo et al., 1996). While need for cognition is distinct from cognitive ability, these constructs have been found to be positively correlated, which can be explained by the fact that people with high need for cognition would be more likely to

engage in effortful cognitive processes, acquire knowledge, and become more skilled at using their cognitive abilities than those low in need for cognition (Tidwell, Sadowski & Pate, 2000).

Is Need for Cognition more Important to Processing than Cognitive Ability?

While need for cognition and cognitive ability appear to be associated, the former appears to be most influential in determining whether an individual engages in detailed systematic processing, or adopts more efficient heuristic strategies. In a study by Cacioppo et al (1986), both need for cognition and cognitive ability were found to contribute unique variance to the amount of information participants were able to recall. However, it was only need for cognition which predicted the amount of cognitive effort that participants expended on the processing the information. Thus, while both of these constructs have implications for processing, it is need for cognition that appears to have the greatest influence on whether an individual will exert the cognitive effort necessary to engage in systematic processing.

Evidence that Need for Cognition Moderates Processing

Considerable research has demonstrated that, after the presentation of information, individuals with high levels of need for cognition tend to be able to recall information and make judgments based on the quality of information, better than individuals with low levels of need for cognition. Moreover, in an effort to form judgments while utilising minimal cognitive resources, people with low levels of need for cognition have been found to rely more heavily upon information that is irrelevant to the judgement but that can be used to simplify the judgment (for a review see Cacioppo et al., 1996). As will be discussed, these findings indicate that low need for cognition is associated to the adoption of heuristic processing, while high need for cognition is associated to the adoption of systematic processing.

(i) Recall of information.

A meta-analysis performed by Cacioppo and colleagues (1996) found that, across numerous different contexts, individuals with high need for cognition are able to recall more of the information to which they are exposed (e.g., written or visually presented information, evidence from a trial, faces presented on a slide, names of products and brands, etc) than individuals with low need for cognition. This is consistent with the expectation that individuals with high need for cognition would devote more cognitive effort to processing information and, accordingly, would be able to remember this information better than individuals with low need for cognition. As discussed by Cacioppo et al (1996), while this finding was consistent across numerous studies, there was an exception. This was when the information presented was sufficiently simple to recall that it was recalled with little difficulty by all participants (including those with low need for cognition levels), or when the information presented was so complex that it was not able to adequately remember by the vast majority of participants (including those with high need for cognition levels). This suggests that, in order for need for cognition to influence the type of processing adopted, the opportunity for heuristic and systematic processing to be undertaken must exist.

(ii) Responsiveness to argument quality.

In order to test whether level of need for cognition also influences responsiveness to argument quality, a second meta-analytic comparison was performed by Cacioppo et al (1996). A total of 11 studies were included in the meta-analysis, where participants were exposed to, and asked to evaluate a persuasive message. It was expected that, compared to participants with low levels of need for cognition, high need for cognition participants would be more likely to exert the cognitive effort necessary to process the quality and merits of information. The meta-analysis supported this proposition, with high need for cognition participants being more influenced by the quality of the information they were exposed to,

compared to participants with low need for cognition. While this finding was consistently replicated across studies, there was an exception. When there was an overt motivation for participants to think about the content of information (e.g., when participants were lead to be suspicious of the source of the message and were therefore motivated to evaluate the truth of the message), all participants tended to base their evaluations upon the quality of information, regardless of level of need for cognition. In the absence of such a strong motivational influence though, individuals with low need for cognition were consistently less likely to evaluate the quality of information than individuals with high need for cognition. Overall, these findings provide compelling evidence that high levels of need for cognition are associated with the more detailed and effortful processing which is embodied in the systematic strategy.

(iii) Use of peripheral vs. central cues.

Given that individuals with low levels of need for cognition tend not to base their decisions upon the content or quality of information (unless compelled to do so), what do these individuals base their decisions upon? As discussed by Branscombe and Cohen (1991), and exemplified in the models proposed by Forgas (1994, 1995), Petty and Cacioppo (1986a, 1986b), and Chaiken (1980), when a person lacks either the capacity or the motivation to engage in systematic processing, they tend to engage in heuristic processing. That is, they are more likely to base their decisions upon simple cues that are irrelevant to the task (peripheral cues), rather than the information which is more relevant to the task (central cues). Such peripheral cues might include the attractiveness or credibility of the person providing the information, or the affective state of the respondent. Research supports this theory, with findings indicating that individuals with low levels of need for cognition tend to rely more upon peripheral cues, than do individuals with high need for cognition levels (e.g., Haugtvedt, Petty, and Cacioppo, 1992; Petty et al., 1993).

Summary of the evidence.

Together, these findings indicate that level of need for cognition tends to influence which strategies are used to process information. The research has provided compelling evidence that high levels of need for cognition are associated with the use of systematic processing, while low need for cognition is associated with heuristic processing. Further evidence for this theory is provided by path analyses performed by Petty et al (1993). In this study a median split was performed to create low and high need for cognition groups. It was found that an induced mood state had a direct effect upon evaluative judgments for the low need for cognition group, but not the high need for cognition group. For the high need for cognition group, the effect of mood upon judgments was indirect, with cognitive details about the issue mediating the effect. Thus, these findings again suggest that individuals with high need for cognition tend to engage in detailed cognitive processing, while individuals with low need for cognition tend to process information heuristically, with the use of judgment-irrelevant peripheral cues. Further support for this effect comes from a series of studies by Chaiken (1987). In this research, undergraduate students were required to rate their level of agreement with items that assessed level of need for cognition, and tendencies towards heuristic and systematic processing. The results indicated that individuals with low levels of need for cognition were more likely to endorse items depicting heuristic processing, while individuals with high need for cognition were more likely to endorse items depicting effortful systematic processing.

Aims of Study 2

In Study 1 it was found that affective states have a substantial influence on judgments of global life satisfaction, and that they influenced the judgment predominantly through

heuristic, and to a lesser extent through systematic processing. Study 2 will extend these analyses to examine whether need for cognition moderates the presence of heuristic and systematic processing in the affect infusion of global life satisfaction. The findings discussed provide strong evidence that, for people with low levels of need for cognition, affect is likely to influence the global life satisfaction judgment via heuristic processing. That is, these individuals are likely to use their "feelings as information" (Schwarz & Clore, 1983, 1996) and, accordingly, their affective states are expected to directly influence their responses to the global life satisfaction question. Meanwhile, people with high levels of need for cognition appear likely to exhibit systematic processing, with affect indirectly influencing the judgment, with cognitions mediating this effect.

Hypotheses for Study 2

1. It is hypothesised that affect will infuse judgments of global life satisfaction to a similar degree for high and low need for cognition groups.

2. It is hypothesised that, while affect will have a similar influence on global life satisfaction between the groups, the route through which affect influences global life satisfaction will differ between the groups. That is, individual levels of need for cognition are expected to moderate the use of heuristic and systematic processing through which affect infuses judgments of global life satisfaction. It is predicted that affect infusion for people with low levels of need for cognition will be dominated by heuristic processing, while for those with high levels of need for cognition affect infusion will be dominated by systematic processing.

These hypotheses will be tested by splitting the sample into two groups (representing low and high levels of need for cognition), with the use of the K-Means Cluster procedure and Discriminant Analyses. The analyses performed in Study 1 will then be performed separately with these two groups, with hierarchical regression analyses used to derive an accurate measure of core affect, and structural equation modeling performed to examine the direct and indirect effects of core affect upon global life satisfaction.

CHAPTER 6: STUDY 2 METHOD

Participants

The sample for Study 2 comprised of the 560 participants who completed the ARC 10 Survey (November 2006), as part of the longitudinal study. Of the participants, 25% joined the longitudinal study in 2003, 33% joined the longitudinal study in 2004, and 42% joined the longitudinal study in 2005. The sample comprises 40.5% males and 59.5% females. The sample ranges in ages from 19 to 90, with a mean age of 56.09 years and standard deviation of 14.82 years.

Materials

Global life satisfaction, and Cognitive-based appraisals of satisfaction

The measures of global life satisfaction and cognitive-based appraisals of satisfaction that were used in Study 1 will be used for Study 2. The question "How satisfied are you with your life as a whole?" was again intentionally placed at the start of the survey, and is used in the current study as a measure of global life satisfaction. Additionally, the total PWI score was again used as a measure of cognitive-based appraisals of satisfaction. The seven items comprising the PWI were again found to have good internal consistency (Cronbach's alpha = .86).

Affect

Like Study 1, a list of affective adjectives is again used as a measure of affect. While there were 23 affects used in Study 1, only 9 affects are used in Study 2. While the list was shortened largely for administrative purposes, it was anticipated that the list would be sufficient for the representation of the affective component of SWB. That is, with research consistently indicating that "happy" and "content" are the affects that primarily predict global

life satisfaction, the list of affects used in this study include these adjectives, and therefore should provide a good representation of the affective component of SWB. The list of affects that were used in this study are displayed in Table 7.1, along with a comparison of the means and standard deviations for the affects obtained in Study 1 and 2.

The affects were rated by participants using the same approach as in Study 1, with participants asked to "indicate how each of the following describes your feelings when you think about your life in general", on an end-defined unipolar response scale of 0 ("not at all") to 10 ("extremely"). Scores were then converted to the standard 0-100 form by being multiplied by 10. As was done in Study 1, the affects that contribute unique variance to global life satisfaction will be used as a measure of the affective component of SWB.

Need for Cognition

The Need for Cognition Scale was developed by Cacioppo and Petty (1982), and later shortened from 34 to 18 items (Cacioppo, Petty, & Kao, 1984). In more recent years many studies have used modified versions of the scale which consist of a small selection of items chosen because they have been found to have the highest loadings in Cacioppo and Petty's (1982) research. Adequate to high internal consistencies have been reported in studies using the 18 and 34 item scales, as well as studies that have used a smaller number of items. The scale has also consistently been found to exhibit good split-half and test-retest reliability, and desirable convergent and discriminant validity properties (for a review see Cacioppo et al., 1996). While this past research has predominantly been undertaken with American samples, Forsterlee and Ho (1999) have found comparable results with an Australian sample.

In the present study, need for cognition was measured with the use of 5 items selected on their factor loadings in the two studies by Cacioppo and Petty (1982), and the study by Cacioppo et al (1984). In all three studies, the same 5 items were found to have the highest loadings, indicating that they can be reliably used as a measure of the need for cognition

construct. These items are depicted in Table 6.1. This 5-item scale requests participants to rate each item on an end-defined unipolar response scale of 0 ("strongly disagree") to 10 ("strongly agree"), according to their level of agreement with the item. Total need for cognition scores are produced by reversing the scores of negatively-coded items, and summing the scores from the 5 items. The total score is then converted to a standard 0 – 100 %SM form, by using the statistical procedure described in Study 1. The total need for cognition score has the potential to range from 0 to 100, with higher scores indicated higher levels of need for cognition. This 5-item scale was found to demonstrate moderately high internal consistency in the present study (Cronbach's alpha = .80).

Table 6.1: The 5-item version of the Need for Cognition Scale used in Study 2.

Item number	Item wording
1.	I would prefer complex to simple problems.
2.	I like to have the responsibility of handling a situation that requires a lot of thinking.
3. ^	Thinking is not my idea of fun.
4. ^	I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.
5. ^	I try to anticipate and avoid situations where there is likely chance I will have to think in depth about something.

Note: ^ reverse-scored.

Procedure

Study 2 followed the same procedures as that of Study 1, with the ARC 10 survey mailed out to participants who expressed interest in participating in the longitudinal study. This survey consisted of the items used in the present study, as well as a variety of other satisfaction-related questions. An enclosed letter accompanied the survey, informing

participants that completion of the survey was voluntary, and that responses would be kept confidential. They were also informed that their responses may be used in future research, that any reports would always involve large numbers of participants, and that all participants would remain anonymous. A reply-paid envelope was enclosed for those participants who decided to complete the survey.

CHAPTER 7: STUDY 2 RESULTS

7.1 Data Screening and Examination of Assumptions

The assumptions of multivariate analyses are tested with the whole sample to be used in Section 7.2, and the two groups to be derived in Section 7.3 and used in all subsequent analyses for this study. No major violations of skewness were detected, and collinearity diagnostics detected no multicollinearity. Several univariate outliers and multivariate outliers were detected, and analyses were run with and without the outliers. While the removal of univariate outliers did not meaningfully alter the findings, the removal of multivariate outliers did alter some of the findings. Upon examination of these influential outliers, it was found that none of these cases displayed the characteristics of outliers that should be eliminated (Hair, Anderson, Tatham & Black, 1998). That is, none of these outliers were displaying extreme scores or unrealistic patterns of scores. Therefore, it was decided to perform the final analyses with the original data.

7.2 Descriptive Statistics and Correlations

Means and standard deviations for the variables used in Study 2 are shown in Table 7.1. In order to ascertain whether these are comparable between Studies 1 and 2 a series of independent-samples t-tests were performed. While there are a few significant differences in the mean scores, according to the guidelines proposed by Cohen (1988), the eta squared values obtained in these analyses, which are all .009 or below, indicate that the mean differences are very small. Thus the means and standard deviations between Studies 1 and 2 appear to be comparable. In terms of the means and standard deviations for the need for cognition (NFC) items, overall there seems to be a moderate preference for cognitive processing.

Table 7.1: Means and Standard Deviations for the Variables used in Study 2, and a Comparison with that of Study 1.

	Study 1			Study 2			Independent-samples t-test to compare mean scores	
Variable	**M**	**S.D**	**n**	**M**	**S.D**	**n**	**t**	**eta squared**
Affects								
Happy	74.73	16.33	533	72.74	17.07	554	1.96	.003
Content	71.84	17.75	532	72.71	17.95	560	-.81	.000
Enthusiastic	68.61	17.04	532	71.27	17.52	559	-2.54 *	.006
Relaxed	65.43	20.39	521	68.29	18.97	560	-2.38 *	.005
Lively	62.73	19.21	532	65.92	17.68	557	-2.86 **	.007
Energetic	-	-	-	64.76	19.78	559	-	-
Sad	29.17	21.49	530	33.45	22.75	554	-3.18 **	.009
Discontented	31.47	21.02	530	32.81	23.30	558	-.998	.000
Depressed	26.81	23.64	526	27.63	24.48	553	-.563	.000
Satisfaction								
Global L.S	76.60	17.30	532	75.03	17.63	560	1.48	.002
PWI	73.53	13.77	519	73.06	14.69	549	.81	.000
NFC Items								
1.	-	-	-	4.61	2.71	557	-	-
2.	-	-	-	5.84	2.47	557	-	-
3. ^	-	-	-	3.02	2.46	557	-	-
4. ^	-	-	-	3.15	2.49	559	-	-
5. ^	-	-	-	3.12	2.59	558	-	-
Total NFC	-	-	-	62.31	18.82	554	-	-

Note: Global L.S = Global life satisfaction, NFC = Need for cognition.
^ NFC Items 3, 4 and 5 are to be reverse-coded, and thus low scores are indicative of high NFC.
* p<.05, ** p<.01, *** p<.001

Pearsons correlations for all the variables are presented in Table 7.2. Similarly to Study 1, inter-correlations between the affective terms are significant, and consistent with the circumplex model of affect. Also as expected, the inter-correlations between the affective terms and the global life satisfaction and PWI variables are also consistent with Study 1. The need for cognition items and total score are very weakly correlated with the affect terms and the global life satisfaction and PWI variables. There appears to be a slight trend for need for cognition to be positively related to satisfaction and pleasant affective states.

Table 7.2: Pearsons Correlations for all variables used in Study 2.

	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1. Global L.S	.75 ***	.66 ***	.75 ***	.63 ***	.49 ***	.39 ***	.36 ***	-.34 ***	-.40 ***	-.44 ***	.00	.10*	-.12**	-.04	-.10*	.10*
2. PWI	1.00	.65 ***	.73 ***	.69 ***	.50 ***	.50 ***	.46 ***	-.36 ***	-.42 ***	-.47 ***	-.03	.09*	-.16 ***	-.11*	-.17 ***	.13**
3. Happy		1.00	.75 ***	.74 ***	.64 ***	.59 ***	.59 ***	-.40 ***	-.43 ***	-.55 ***	-.01	.09*	-.13**	-.12**	-.10*	.11**
4. Content			1.00	.78 ***	.60 ***	.50 ***	.45 ***	-.41 ***	-.49 ***	-.52 ***	-.00	.12**	-.15 ***	-.09*	-.10*	.12**
5. Enthusiastic				1.00	.56 ***	.63 ***	.58 ***	-.36 ***	-.42 ***	-.50 ***	.01	.20 ***	-.20 ***	-.16 ***	-.15 ***	.20 ***
6. Relaxed					1.00	.45 ***	.45 ***	-.33 ***	-.32 ***	-.40 ***	.05	.13**	-.16 ***	-.12**	-.07	.14**
7. Lively						1.00	.77 ***	-.24 ***	-.26 ***	-.37 ***	.02	.09*	-.11*	-.11**	-.13**	.12**
8. Energetic							1.00	-.24 ***	-.24 ***	-.37 ***	.03	.12**	-.14**	-.11*	-.15 ***	.14**
9. Sad								1.00	.68 ***	.70 ***	-.07	-.12	.24 ***	.18 ***	.21 ***	-.22 ***
10. Discontent									1.00	.65 ***	.01	-.08	.22 ***	.16 ***	.18 ***	-.17 ***
11. Depressed										1.00	.07	-.14**	.18 ***	.14**	.18 ***	-.19 ***
12. NFC Item 1											1.00	.60 ***	-.30 ***	-.27 ***	-.24 ***	.66 ***
13. NFC Item 2												1.00	-.45 ***	-.40 ***	-.37 ***	.76 ***
14. NFC Item 3 ^													1.00	.51 ***	.54 ***	-.75 ***
15. NFC Item 4 ^														1.00	.67 ***	-.77 ***
16. NFC Item 5 ^															1.00	-.76 ***
17. NFC Total																1.00

Note: n = 543 - 560. * p<.05, ** p<.01, *** p<.001 (two-tailed significance). Global L.S = Global life satisfaction. NFC = need for cognition.
^ NFC Items 3, 4 and 5 are to be reverse-coded, and thus low scores are indicative of high NFC.

7.3 Assignment of Cases to the Low and High Need for Cognition Groups

In order to separate the sample into low and high levels of need for cognition, a K-Means Cluster is performed. The sample is clustered into two groups, based on their scores on the 5 need for cognition items. As displayed in Table 7.3, the two groups that are produced from this cluster analysis exhibit mean differences on the 5 items that are consistent with low and high levels of need for cognition. In order to test the effectiveness of this assignment of cases to the two groups, a discriminant analysis was performed, with the 5 need for cognition items entered simultaneously into the equation. The two groups identified through the cluster analysis are distinguished reliably by the discriminant function (Wilks' Lambda =.28, χ^2 (5)= 677.86, p<.001). The function correctly reclassified 98.5% of the cases, showing a very good level of classification accuracy.

7.3.1 Descriptive statistics and correlations for the low and high NFC groups

Table 7.3 displays the means and standard deviations for the low and high need for cognition groups, across the variables used in the present study. To assess how the two groups identified through the cluster and discriminant analyses differ on the need for cognition items, a single factor within-subjects multivariate analysis of variance (MANOVA) was conducted. A significant multivariate effect between the two groups on the need for cognition items is evident (Pillai's Trace = .72, F(5,532) = 272.70, p<.001, effect size= .72). Follow-up analyses of variance (ANOVAs) reveal that the two groups differ significantly on all of the need for cognition items. The low need for cognition group are less likely than the high need for cognition group to endorse items that stated a preference for complex problems (Item 1: F(1,536)=138.22, p<.001, partial η^2=.20), or an enjoyment for thinking (Item 2: F(1,536)=334.57, p<.001, partial η^2=.38). They are also more likely than the high need for cognition group to endorse the items that stated that thinking was not enjoyable (Item 3: F(1,536)=401.08, p<.001, partial η^2=.43), preferable (Item 4: F(1,536)=543.53, p<.001,

partial η^2=.50) or desirable (Item 5: F(1,536)=469.70, p<.001, partial η^2=.47). Overall, these analyses indicate that the low and high need for cognition groups exhibit the expected profile of scores, with the high need for cognition group displaying more of a preference and enjoyment towards thinking than the low need for cognition group.

In order to ascertain whether the mean scores on the affect and satisfaction variables are significantly different between the two groups, a series of independent samples t-tests are performed. The two groups are found to significantly differ on their mean scores for each of these variables. Compared to the low need for cognition group, the high need for cognition group report higher scores on positive affects (e.g., happy, content, relaxed) and the satisfaction variables, and lower scores on negative affects (e.g., sad, discontented). In accordance with the guidelines in interpreting the eta squared statistic as proposed by Cohen (1988), where .01 represents a small effect, .06 represents a moderate effect, and .14 represents a large effect, it can be seen that the magnitude of the differences between the means was small to moderate for each of the affect and satisfaction variables. While the differences between the groups on the affect and satisfaction variables are small to moderate in their magnitude, they are nevertheless important to consider. It could be argued that any differences observed between the groups in upcoming analyses are the product of these mean differences, rather than due to need for cognition. Once analyses have been conducted I will return to this issue and its potential implications.

Table 7.3: A Comparison of the Significance and Magnitude of the Difference between Mean Scores and Standard Deviations on the Variables for the Low and High NFC Groups.

	Low NFC			High NFC				
Variable	**M**	**S.D**	**n**	**M**	**S.D**	**n**	**t**	**eta squared**
Affects								
Happy	70.38	17.44	262	75.00	16.82	270	-3.11 **	.018
Content	70.08	18.68	264	75.15	17.10	274	-3.28 **	.019
Enthusiastic	67.76	17.72	264	74.87	16.91	273	-4.75 ***	.040
Relaxed	65.57	19.35	264	70.77	18.53	274	-3.18 **	.018
Lively	63.66	17.95	262	68.39	17.12	273	-3.12 **	.018
Energetic	62.17	19.93	263	67.63	19.23	274	-3.23 **	.019
Sad	38.21	23.39	262	29.33	21.60	270	4.54 ***	.037
Discontented	37.04	24.02	264	29.23	22.39	273	3.90 ***	.028
Depressed	31.61	25.23	260	24.10	23.50	271	3.55 ***	.023
Satisfaction								
Global L.S	72.95	17.84	264	76.64	17.47	274	-2.42 *	.011
PWI	70.71	15.03	258	75.00	14.33	272	-3.36 **	.021
NFC Items								
1.	3.37	2.27	264	5.85	2.59	274		
2.	4.28	2.14	264	7.37	1.77	274		
3. ^	4.68	2.12	264	1.43	1.61	274		
4. ^	4.98	1.97	264	1.40	1.57	274		
5. ^	4.96	2.10	264	1.40	1.70	274		
Total NFC	46.08	10.40	264	77.97	10.59	274		

Note: Global L.S = Global life satisfaction, NFC = Need for cognition.
^ NFC Items 3, 4 and 5 are to be reverse-coded, and thus low scores are indicative of high NFC.
* p<.05, ** p<.01, *** p<.001

Pearsons correlations between the variables, for the two groups, are included in Appendix C. The inter-correlations between the variables are comparable between the low and high NFC groups. Similarly to Study 1, inter-correlations between the affective terms are significant and consistent with the circumplex model of affect. That is, high positive correlations are found between affects proposed to be close to each other on the circumplex (e.g., content and happy, depressed and sad), and high negative correlations are found between affects proposed to be at opposing ends of the circumplex (e.g., happy and depressed). The inter-correlations between the affective terms and the global life satisfaction and PWI variables are also as expected, with pleasant affects correlating positively, and unpleasant affects correlating negatively with the satisfaction variables.

7.4 Deriving an Accurate Representation of the Affective Component of SWB, for the Low and High NFC Groups

As was done in Study 1, the affective terms that contribute unique variance to global life satisfaction will be used to represent core affect. Standard regression analyses were performed separately for the two groups, with global life satisfaction entered as the dependent variable, and the affective terms entered as independent variables. As displayed in Table 7.6, in both groups "happy" and "content" were the only affective terms to contribute unique variance to global life satisfaction. These findings are consistent with Study 1, indicating that core affect is best represented through these two terms.

Table 7.6: Standard Regression with Affective Terms as Predictors of Global Life Satisfaction, Performed Separately for Low and High NFC Groups.

	Low NFC			High NFC		
Variable	**B**	**β**	**sr^2**	**B**	**β**	**sr^2**
Happy	.25**	.24	.01	.26**	.25	.02
Content	.62***	.65	.09	.54***	.53	.10
Enthusiastic	-.11	-.11	.00	.12	.11	.00
Relaxed	.04	.04	.00	-.02	-.03	.00
Lively	-.05	-.05	.00	.05	.05	.00
Energetic	.00	.00	.00	-.13	-.13	.00
Sad	.00	.01	.00	.07	.08	.00
Discontented	.01	.02	.00	-.03	-.04	.00
Depressed	-.06	-.09	.00	-..01	-.01	.00
			$\underline{R}^2$ = .63			$\underline{R}^2$ = .58
			$\underline{R}$ = .79***			$\underline{R}$ = .76***

Note: NFC = need for cognition. Low NFC $\underline{n}$ = 255, High NFC $\underline{n}$ = 265.
* $\underline{p}$<.05, ** $\underline{p}$<.01, *** $\underline{p}$<.001

These regression findings indicate that the predictive strength of the affects upon global life satisfaction was comparable between the two groups. This is consistent with the hypothesis that affect would infuse judgments of global life satisfaction to a similar degree for the low and high need for cognition groups. While these findings indicate that affect infusion is present, upcoming analyses will serve to clarify the processing strategies through which this affect infusion is occurring.

Before progressing to examine the presence of the processing strategies between the groups, analyses comparable to those of Study 1 will be undertaken where it will be considered whether a pleasant-activated term should be included with "happy" and "content" in representing core affect.

7.4.1 Issue: Should an activated affect be included in core affect?

Like Study 1, the findings that "happy" and "content" are the only affects to contribute unique variance to global life satisfaction contrasts with the findings of Davern, Cummins and Stokes (2007, Study 1), where a third pleasant-activated term was also found to reach significance as a predictor. As was done in Study 1, the regression analyses are rerun with a smaller set of affective terms included as predictors of global life satisfaction, to assess whether the significance of a pleasant-activated term may have been masked by the number of terms. The affects that were selected were the two affects that have been found to contribute unique variance, along with the pleasant-activated terms that were sampled (e.g., lively, energetic). Consistent with Study 1, the pleasant-activated term enthusiastic was not included in the analysis because it was decided that this was not an object-free mood state, but was directed at an object, which means it is linked with cognition and does not represents a primitive mood state (Oatley & Johnson-Laird, 1987; Russell, 2003). These analyses were performed separately for the two groups.

As displayed in Table 7.7, none of the pleasant-activated terms are found to be significant predictors of global life satisfaction, despite the reduction in the number of affects included in the regression analyses. This finding is consistent with Study 1, and provides compelling evidence for the argument that "happy" and "content", without the inclusion of any other terms, can be used as a measure of core affect.

Table 7.7: Standard Regression with Happy, Content, and Pleasant-Activated Adjectives as Predictors of Global Life Satisfaction, Performed Separately for Low and High NFC Groups.

	Low NFC			High NFC		
Variable	**B**	**β**	**sr^2**	**B**	**β**	**sr^2**
Happy	.28***	.27	.02	.26***	.25	.02
Content	.58***	.61	.14	.58***	.57	.15
Lively	-.12	-.12	.00	.07	.06	.00
Energetic	.03	.03	.00	-.09	-.09	.00
			$\underline{R}^2$ = .61			$\underline{R}^2$ = .56
			$\underline{R}$ = .78***			$\underline{R}$ = .75***

Note: NFC = need for cognition. Low NFC $\underline{n}$ = 259, High NFC $\underline{n}$ = 269.
* $\underline{p}$<.05, ** $\underline{p}$<.01, *** $\underline{p}$<.001

7.5 Does Level of NFC Moderate whether Core Affect will Infuse Global Life Satisfaction via Systematic or Heuristic Processing?

Using AMOS 6.0, and maximum likelihood estimation, the relationships between core affect, cognitive-based appraisals of satisfaction (PWI), and global life satisfaction were explored separately for the two groups. The measurement models and structural models being examined are the same between the groups, and identical to that of Study 1. Like Study 1, the models will be evaluated according to the two-step procedure where the measurement model is evaluated first, and if this is found to be adequate fitting, the structural portion of the model will be evaluated.

7.5.1 SEM: Measurement model

As in Study 1, the measurement portion of the model comprises two affective terms (happy and content) which are to be used as indicators, and the latent variable of core affect. For both groups the suitability of using these two affective terms as indicators is assessed by

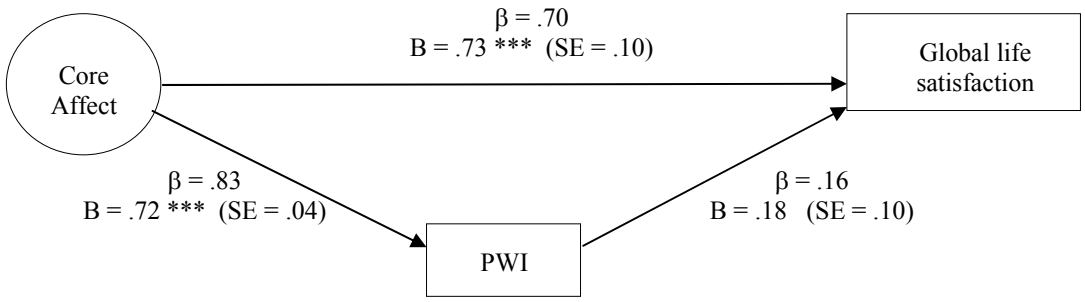
performing reliability analyses and examining the Cronbach's alpha coefficient and the inter-item correlation between the affect terms. Reliability analyses indicate that, for both the low and high NFC groups, the two affective terms have good internal consistency (Cronbach's alpha = .87, and .84 respectively). This coefficient is particularly high considering only two items are included in this analysis. The two adjectives were also found to be highly correlated for both the low need for cognition and high need for cognition groups ($\underline{r}$ = .77, and .72 respectively), which supports the presence of a common underlying factor. Therefore, these results provide support for the use of these two affective terms as indicators of the latent 'affect' variable for both the low and high need for cognition samples. As the measurement model appears to be adequate, the structural portion of the model can now be added.

7.5.2 SEM: Structural model

Evaluating model fit

After the listwise deletion of missing data, the low need for cognition group has a sample size of 257 and the high need for cognition group has a sample size of 268. The results indicate that the model is very well-fitting across the two groups (χ^2 (2) = 4.405, $\underline{p}$=.111, χ^2/df ratio=2.203, CFI = .998, SRMR = .009, RMSEA = .048). An examination of the standardized residual covariances reveals that 100% of the residuals are less than 2.0, further supporting the good fit of this model. Thus, as the fit of the model appears adequate, the estimates for the two groups can now be examined.

a) Low NFC Group



* p<.05, ** p<.01, *** p<.001

Figure 7.1. Estimates of the direct (heuristic) and indirect (systematic) influence of core affect upon global life satisfaction: Low NFC Group.

Evaluating the direct effect

It is hypothesised that core affect would predominantly influence the global life satisfaction judgment via heuristic processing for this group. Support for this hypothesis would be indicated by core affect exerting a strong and significant direct effect upon global life satisfaction. As displayed in Figure 7.1, core affect appears to exert a strong direct effect upon perceived global life satisfaction for this group, with 70% of the variance in global life satisfaction explainable by the direct influence of core affect, which is a significant (β = .70, p<.001).

Evaluating the indirect effect

It was hypothesised that core affect would tend not to influence the judgment via systematic processing. Thus, it was expected that the indirect effect of core affect upon

global life satisfaction, via the PWI, would be relatively weak for this group. Support for this hypothesis would be indicated by several findings.

First, it would be expected that the standardised beta coefficient from the PWI to global life satisfaction would be weak and insignificant. As this coefficient essentially represents the influence of core affect upon global life satisfaction, through the PWI, assessment of this statistic provides a solid reflection of the indirect effect. It can be seen that, for this group, this coefficient is weak and insignificant ($\beta = .16$, $\underline{p} = .06$), indicating support for the hypothesis.

A second method for evaluating the indirect effect is to examine the change in the standardised beta coefficient between core affect and global life satisfaction that occurs when the PWI is removed. After removing the PWI, this model solely contains the direct pathway between core affect and global life satisfaction. The standardised beta coefficient in this model is indicated as $\beta = .82$ (B=.85, SE = .05, $\underline{p}<.001$). This coefficient is notably stronger than that indicated in the model depicted in Figure 7.1 ($\beta = .70$). Thus, the inclusion of the PWI into the model has reduced the amount of variance that is explainable by the direct influence of core affect. This indicates that, while the direct effect of core affect appears to account for the vast majority of the variance in global life satisfaction, the indirect effect of core affect upon the judgment, via the PWI, appears to account for some, albeit it a much smaller amount, of the influence.

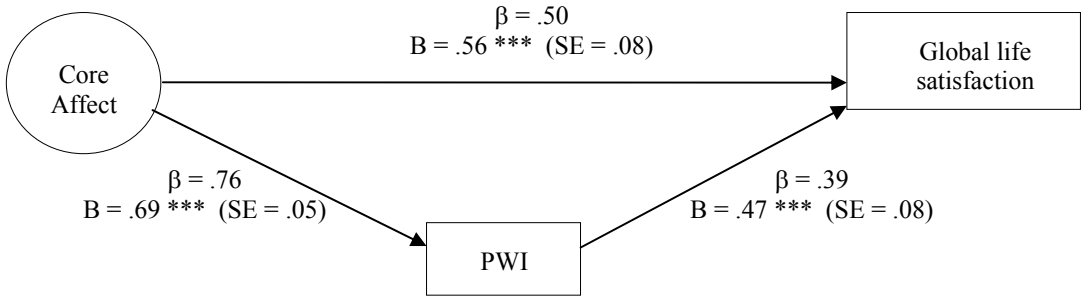
Overall, these findings suggest that, for people with low levels of need for cognition, affect infuses global life satisfaction predominantly via heuristic processing, which is consistent with the hypothesis.

Evaluating the total effect

It was anticipated that, while the route through which core affect influences the satisfaction judgment would vary between the groups, the overall predictive strength of core

affect would remain high for both groups. As in Study 1, an estimation of these total effects is derived from the model that was rerun with the omission of the PWI. In this model, for the low NFC group the standardised beta coefficient between core affect and global life satisfaction was estimated at β = .82, indicating that 82% of the variance in global life satisfaction is explainable by the total effects of core affect. This finding is consistent with the hypothesis, indicating that the total influence that core affect has upon global life satisfaction is strong for this group.

b) High NFC Group



* p<.05, ** p<.01, *** p<.001

Figure 7.2. Estimates of the direct (heuristic) and indirect (systematic) influence of core affect upon global life satisfaction: High NFC Group.

Evaluating the direct effect

For the high NFC group it was hypothesised that core affect would not influence the judgment via heuristic process as much as was the case in the low NFC group. Support for this hypothesis would be indicated by core affect exerting a weaker direct effect upon global life satisfaction for this group, compared to the low NFC group. As displayed in Figure 7.2,

this was found to be the case. The direct influence that core affect has upon perceived satisfaction with global life satisfaction is considerably weaker for the high NFC group than it is for the low NFC group (β = .50, compared to β =.70). Furthermore, this direct effect is weaker than that detected with the whole sample used on Study 1 (β = .75). These findings indicate that high levels of NFC tend to decrease the amount of heuristic processing through which core affect influences global life satisfaction.

While the strength of the direct effect is weaker for the high NFC group, it is nonetheless significant and considerable in strength. Thus, while high NFC appears to reduce the amount of heuristic processing, it is apparent that heuristic processing continues to be the dominant route through which core affect influences the judgment.

Evaluating the indirect effect

It was hypothesised that core affect would exert a relatively strong influence upon the judgment via systematic processing. Thus, it was expected that the indirect effect of core affect upon global life satisfaction, via the PWI, would be relatively strong for this group. Support for this hypothesis would be indicated by several findings.

First, it would be expected that the standardised beta coefficient from the PWI to global life satisfaction, which provides a good reflection of the indirect effect, would be significant and considerable in strength. This was found to be the case (β = .39, p<.001), indicating that core affect does indeed influence the judgment via systematic processing for this group. The strength of this coefficient is notably stronger than that detected in the low NFC group (β = .16) or the whole sample used in Study 1 (β = .15), indicating that high levels of NFC may increase the tendency for core affect to influence the judgment via systematic processing.

Second, it would be expected that the standardised beta coefficient between core affect and global life satisfaction would be considerably stronger when the PWI is not included in

the model. This would indicate that a considerable portion of the influence that core affect has upon the judgment is through the PWI, as a mediating variable. As expected, this was found to be the case. When the model is rerun with the omission of the PWI, the standardised beta coefficient between core affect and global life satisfaction is indicated as β = .80 (B=.90, SE = .06, p<.001). This coefficient is much stronger than that found when the PWI is included in the model, as depicted in Figure 7.2 (β = .50). Thus, the inclusion of the PWI into the model has reduced the amount of variance that is explainable by the direct influence of core affect. This indicates that, while the vast majority of the influence that core affect has upon global life satisfaction is attributable to the direct effect, the indirect effect of core affect upon the judgment, via the PWI, also appears to account for a large amount of the influence.

Overall, these findings suggest that, for people with high levels of need for cognition, core affect exerts a considerable influence upon global life satisfaction via systematic processing. The presence of systematic processing is notably larger than that detected in either the low NFC group, or the whole sample used in Study 1. While systematic processing appears to increase with higher NFC levels, heuristic processing still seems to be the dominant processing strategy through which core affect exerts its influence. However, it is notable that the presence of heuristic processing is notably less than that detected in either the low NFC group, or the whole sample of Study 1.

Evaluating the total effect

As with the low NFC group, it was expected that the overall predictive strength of core affect would be high for this group. As with the low NFC group, this hypothesis is supported by the findings of the model that was rerun with the omission of the PWI. In this model the standardised beta coefficient between core affect and global life satisfaction was estimated at

$\beta = .80$, indicating that 80% of the variance in global life satisfaction is explainable by the total effects of core affect.

7.6 Summary

7.6.1 Issue: Are the findings the result of differences in affect and satisfaction, rather than NFC?

In section 7.3.1 the mean differences between the groups on the affect and satisfaction variables were assessed. These analyses found that the two groups differed significantly on all of these variables, with the high NFC reporting higher scores on pleasant affects (e.g., happy, content) and the satisfaction variables, and lower scores on the unpleasant affects (e.g., sad, discontented) than the low NFC group.

While these significant mean differences were all small-moderate in magnitude, the possibility exists that the findings may have been caused by these differences, rather than being the product of different levels of NFC. However, there is strong evidence that makes this possibility unlikely. In particular, there is considerable evidence that the pleasantness of affective states can influence processing, with pleasant affective states promoting heuristic processing, and unpleasant affective states promoting systematic processing (for reviews see Clore, Schwarz & Conway 1994; Mackie & Worth, 1991; Schwarz & Bless, 1991). Therefore, if it is argued that the processing differences observed between the groups were due to their differences in affect and satisfaction, it would be expected that the happier group (high NFC) would exhibit more heuristic processing and less systematic processing than the less happy group (low NFC). However, the opposite pattern of findings was detected, with the high NFC group exhibiting more systematic processing and less heuristic processing than the low NFC group. This provides strong support for the argument that the differences

observed in this study are the product of differences in NFC and not differences on the other variables.

Indeed, it appears likely that the mean differences on the affect and satisfaction variables may have encouraged the presence of heuristic processing in the high NFC group, and systematic processing in the low NFC group. Therefore, if there had been no meaningful differences between the groups on the affect and satisfaction variables, it is likely that the tendency for the high NFC group to exhibit increased systematic processing and reduced heuristic processing compared to the low NFC group would have increased. Thus, rather than the mean differences on the affect and satisfaction variables being responsible for the findings of the current study, they are more likely to have reduced the magnitude of the reported effects.

7.6.2 Summary of the results

Overall, the findings from Study 2 support hypotheses. As hypothesized, the low need for cognition group are found to exhibit affect infusion predominantly through heuristic processing. This is consistent with the hypothesis that this group would have a reduced preference and motivation towards a systematic approach to processing. However, opposite to expectations, heuristic processing is also found to dominate for the high need for cognition group. While this finding might suggest that the hypothesis is not supported, the fact that the dominance of heuristic processing diminishes, and the presence of systematic processing increases for this group (compared to both the low need for cognition group, and the whole sample of Study 1), supports the hypothesis that high need for cognition promotes affect infusion via systematic processing. Together these findings indicate that level of need for cognition does indeed moderate whether core affect influences global life satisfaction judgments via systematic or heuristic processing.

CHAPTER 8: STUDY 2 DISCUSSION

The results of Study 2 have extended upon the findings of Study 1 in two respects. First, the findings indicate that core affect is a strong predictor of global life satisfaction, regardless of level of need for cognition (NFC). This is consistent with Study 1, and provides strong support for the argument that global life satisfaction is largely driven by affect. Second, the findings indicate that, while core affect influences global life satisfaction predominantly though heuristic processing, this effect can be moderated by individual factors such as NFC. These findings will be discussed in turn.

The Strength of Core Affect as a Predictor of Global SWB

Consistent with hypotheses, core affect was found to be a strong predictor of global life satisfaction, regardless of level of need for cognition. In combination with the findings from Study 1, in which core affect was also found to account for a very substantial amount of the variance in global life satisfaction, these findings provide strong support for the argument that judgments of global life satisfaction are largely informed by an individual's current affective experiences (Davern, Cummins & Stokes, 2007; Schwarz & Strack, 1991, 1999).

Perhaps the most compelling support for the argument that core affect drives the global life satisfaction judgment comes from the fact that, for the high NFC group, who by definition are likely to engage in systematic processing, core affect was still found to explain a very large amount of the variance in global life satisfaction. Thus, even for participants who prefer to process information cognitively, when confronted with the global life satisfaction question there is tendency to base the judgment upon current affective states rather than a comprehensive evaluation of the details relevant to the judgment. The reasons for this finding are likely to reflect the high level of complexity of the judgment, whereby the

amount of information relevant to the question "how satisfied are you with your life as a whole?" is so large that any attempt to undertake a thorough evaluation of the information relevant to the judgment would be unduly time-consuming and arduous (Schwarz & Strack, 1991, 1999). As a consequence the capacity for cognitive processing is likely to be limited for all participants, regardless of their motivation towards processing.

While the global life satisfaction judgment was found to be strongly driven by core affect, regardless of level of NFC, the route through which core affect influenced the judgment did vary according to level of NFC, as will be discussed.

The Route through which Core Affect infuses Global SWB

The hypotheses that core affect would predominantly influence the satisfaction judgment via heuristic processing for the low NFC group, and via systematic processing for the high NFC group was partially supported. For both groups core affect was found to predominantly influence the satisfaction judgment directly, and to a lesser extent, indirectly. This indicates that heuristic processing dominated for both groups, while systematic processing was also present, but to a lesser extent.

In assessing the strength of the direct and indirect effects, it is apparent that level of NFC does appear to moderate the processing strategy through which core affect influences global life satisfaction. The direct effect between core affect and global life satisfaction was substantially stronger for the low NFC group, compared to the high NFC group. This indicates that level of NFC moderates the extent to which core affect influences the satisfaction judgment through heuristic processing, with low NFC levels increasing the use of heuristic processing, as was predicted. Also consistent with the hypotheses is the finding that the indirect effect between core affect and global life satisfaction, mediated by cognitive appraisals of satisfaction, was substantially stronger for the high NFC group. This indicates

that level of NFC moderates the extent that core affect influences the satisfaction judgment through systematic processing, with the high levels of NFC related to an increase in systematic processing.

The finding that low NFC is associated with heuristic processing, while high NFC is associated with systematic processing is consistent with the findings of past studies (for a review see Cacioppo et al., 1996). The fact that individuals who report that they prefer and enjoy thinking (i.e., the high NFC group) tend to process judgments in a more cognitive manner than other individuals comes as no great revelation. Thus, while these findings are consistent with NFC-related research, and provide little additional insight into the construct of NFC, these findings do provide important insights for the SWB field, as was intended.

Overall, these findings indicate that, while core affect influences global SWB predominantly via heuristic processing, this effect can be moderated by individual levels of intrinsic motivation towards cognitive processing. While this intrinsic motivation moderated the presence of heuristic and systematic processing, it is notable that the dominance of heuristic processing persisted, regardless of level of NFC. This dominance is particularly striking given that it was even detected in the sample who reported high levels of enjoyment and preference towards cognitive processing (i.e., the high NFC group).

Summary

This study has shown that individual levels of NFC can moderate the strength of the processing routes through which core affect influences global SWB. A second individual factor that appears to have a moderating influence upon processing is affective states. The moderating influence of affective states will be explored in Study 3.

CHAPTER 9: STUDY 3 INTRODUCTION

The Moderating Effects of Affective States

The findings from Studies 1 and 2 suggest that, while core affect infuses judgments of global life satisfaction predominantly via heuristic processing, individual factors can moderate the degree that systematic or heuristic processing strategies are adopted. While Study 2 has explored the moderating influence of 'need for cognition', Study 3 aims to explore the moderating influence of a second individual factor, affective states.

Hedonic Valence as a Moderator

There is considerable evidence to suggest that the level of positivity, also known as hedonic valence, of affective states influences processing (for reviews see Clore, et al., 1994; Mackie & Worth, 1991; Schwarz, Bless & Bohner, 1991). While there is compelling evidence to suggest that pleasant affective states predispose people to heuristic processing and unpleasant affective states predispose people to more detailed processing, the reasons for this effect remain unclear and are the subject of much debate (e.g., Bless, et al., 1990; Mackie & Worth, 1989; Wegener, Petty & Smith, 1996). The main arguments can be separated into two separate classes. One class focuses on the role of motivation, and the second class focuses on the role of processing capacity.

Motivational explanations

In terms of motivation, two separate theories have been proposed. First, Wegener and Petty (1994) proposed that happy individuals are unlikely to engage in cognitive processing because of the consequences that this is likely to create. That is, when a person is happy, there is a heightened risk that their mood will become lowered as a consequence of interacting with environmental influences. As a result, the person is likely to scrutinize the hedonic

consequences of their actions, and is unlikely to process information in a detailed manner unless they feel confident that their mood will not be lowered.

The second theory proposes that pleasant affect reduces the motivation a person has towards processing. According to this theory, unpleasant affective states signal that the current situation is problematic, while pleasant affective states signal that the current situation is safe (Schwarz, 1990). Consequently, unpleasant affective states will motivate a person towards detailed systematic processing, in an effort to handle or 'repair' the situation. Meanwhile, pleasant affective states will not motivate an individual in this way, and there will be a tendency to adopt simpler heuristic processing rather than exerting the effort necessary for more detailed processing.

While these two theories differ notably in the motivational role that they ascribe to affect, they converge on the view that the hedonic valence of affective states influences processing styles via motivation, and not because of changes in cognitive capacity for processing.

Evidence supporting the motivational explanations

Providing support for the motivational theory is a study in which processing motivation was manipulated by the use of instructions to "pay attention to the quality of information provided" (Bless et al., 1990, Experiment 1, p. 334). The results indicated that participants who were exposed to a sad mood induction condition tended to make decisions based on cognitive processing (i.e., strong arguments about an issue were more influential than weak arguments) regardless of whether they were presented with the motivation manipulation. On the other hand, those exposed to a happy mood induction condition were less likely to employ cognitive processing (i.e., strong and weak arguments were both influential), unless the motivation manipulation was also present. In this case cognitive processing increased, with decisions being influenced predominantly by strong arguments. These findings indicate that pleasant mood states are related to a tendency to engage in easier heuristic processing, due to

a lack of motivation towards more detailed processing. However, when provided with an overt motivation for adopting more deliberate processing strategies, participants in a pleasant mood demonstrated a tendency to shift from the easy heuristic strategy to more careful systematic processing.

These findings are consistent with another study which found that participants exposed to happy mood induction procedures had a tendency to use stereotypes as a heuristic strategy in forming judgments, unless they were given a compelling reason to undertake more detailed processing (i.e., being informed that they would be held accountable for their judgment). In the presence of this overt motivation for deliberate processing, these happy participants increased their use of systematic processing (Bodenhausen, Kramer, & Süsser, 1994).

Path analyses have also found comparable results, with people in pleasant mood states displaying a tendency to use their mood states to inform a judgment about product advertisements, indicating that mood states were influencing the judgment via heuristic processing (Petty et al., 1993, Experiment 2). However, when the motivation to undertake more detailed processing was enhanced by increasing the personal relevance of the product, cognitions about the product were found to mediate the relationship between mood and the judgment, indicating the adoption of systematic processing.

Together, this research suggests that happy individuals tend to adopt heuristic processing strategies unless there is a compelling reason not to. When required, happy individuals are able to undertake systematic processing, and thus the heuristic tendencies of happy individuals do not seem to be due to deficits in processing capacity, but rather, due to a lack of motivation.

Evidence opposing the motivational explanations

Despite the support provided by these studies, some caution is required in asserting that the heuristic processing tendencies related to happiness, and the systematic processing tendencies related to unhappiness, are attributable to motivation. Notably, Worth, Mackie and Asuncion (1989, cited as an unpublished manuscript in Mackie & Worth, 1991) manipulated motivation by informing participants that it was very important to evaluate the issue of acid rain in a thorough, accurate, and complete manner, and that they would receive monetary payments in proportion to how well they performed. While the results indicated that this manipulation was successful in motivating participants towards putting effort into the task, and believing the task to be important, it failed to motivate happy participants to process the issue systematically. Instead, the heuristic strategy was universally adopted by happy participants, with weak and strong arguments being equally influential, regardless of whether motivation was manipulated.

While this finding may indicate that the heuristic tendencies of happy people may not be due to a lack of processing motivation, another explanation has been put forth which focuses on the implications of using acid rain as the issue to be evaluated. In accordance with the first motivational theory discussed, Wegener et al (1996) argued that the topic of acid rain could be quite threatening to the current affect of happy participants. Thus, happy participants may scrutinize the hedonic consequences of thinking about the topic, may come to the conclusion that this bleak topic has the potential to lower their mood, and accordingly may avoid processing the issue further.

Summary of the evidence for the motivational explanations

In summary, while the evidence for the role of processing motivation remains equivocal, the findings discussed here do provide compelling support for the theory that the adoption of heuristic or systematic processing is, at least in some part, the result of processing motivation.

Happy people appear to have a tendency to engage in heuristic processing, unless they are presented with something that motivates them to adopt more effortful systematic processing. Thus, the tendency for happy individuals to engage in heuristic processing may be the result of a lack of motivation for more effortful methods. However, a contrasting view is expressed by theorists who claim that it is an inability to engage in systematic processing, rather than a lack of motivation, that leads happy individuals to engage in heuristic processing.

Processing capacity explanations

The processing capacity theory is based on the notion that pleasant affective states increase the accessibility of positively-toned information in memory, which interferes with the capacity to undertake other tasks that require extensive processing (Isen, Means, Patrick, & Nowicki, 1982; Mackie & Worth, 1989). As a result, heuristic strategies are adopted as a means to deal with the deficits in processing capacity.

Evidence supporting the processing capacity explanation

The two most significant studies to assess capacity theory were undertaken by Mackie and Worth (1989). They reasoned that, if the adoption of heuristic strategies by happy individuals was the result of reduced processing capacity, then increasing the amount of time that an individual had to process a message would compensate for the processing deficits caused by the mood itself. Their findings provided support for this theory, with limited time conditions related to the use of heuristic strategies for participants of a pleasant, but not neutral mood. For participants who were given an unlimited amount of time to process the message, it was found that participants in pleasant and neutral mood states both processed the message systematically.

Summary of the evidence for the processing capacity explanation

The findings from the studies conducted by Mackie and Worth (1989) seem to indicate that the ability to engage in systematic processing is compromised by pleasant affective states,

which reduce processing capacity. While this research provides important insights into the way that affective states may influence our capacity for processing, its focus on processing capacity, while overlooking processing motivation appears to be a significant weakness. That is, this research focuses upon whether an individual has the ability to undertake systematic processing, without necessarily taking into account whether they possess the motivation or willingness to engage in this more effortful processing strategy. Consequently, the most valuable insights from this research are perhaps found when this research is considered in combination with research that focuses on processing motivation.

Overview

The mechanisms by which affective states influence processing approaches remain unclear. By focusing on processing ability and willingness, respectively, it is apparent that the capacity and motivational theories focus upon two different routes through which affective states may influence processing (Branscombe & Cohen, 1991). The evidence suggests that both motivation and processing capacity are implicated in the moderating influence of affective states. Accordingly, it appears likely that both these mechanisms contribute to the influential role that affective states can have upon processing.

Although further research into this area seems warranted, attempting to untangle the mechanisms through which affective states are moderating the use of processing strategies is beyond the scope of the present thesis. Whether affective states moderate the use of processing strategies due to motivational or capacity reasons is not my concern because the consequences are expected to be the same, with pleasant affective states likely to increase heuristic processing, and unpleasant affective states likely to increase systematic processing. The current study will focus on the moderating role that affective states have upon the processing strategies through which core affect infuses judgments of global life satisfaction.

This study will extend the prior research that has explored the moderating influence of hedonic valence, to consider the influence of a second dimension of affect, activation.

Activation Level as a Moderator

Research that has focused on how affective states moderate the use of heuristic and systematic processing have overwhelmingly focused on the hedonic valence of affective states. However, consistent with the circumplex model of affect (Larsen & Diener, 1992; Russell, 1980, 2003), compelling evidence suggests that affective states are two-dimensional (for reviews see Larsen & Diener, 1992; Posner, Russell & Peterson, 2005). Therefore, research that examines the moderating effects of hedonic valence is only focusing on one dimension of affect, while overlooking the moderating effects that activation levels can also exert.

There are some theorists who have argued that an individual's arousal or activation levels strongly predict which processing strategies are adopted (Clark, Milberg & Erber, 1984; Gendolla, 2000; Paulus & Lim, 1994). In particular, there is strong evidence to suggest that high activation levels are related to the adoption of heuristic strategies, while low activation levels are related to more detailed systematic processing. This evidence predominantly comes from research that has employed procedures to manipulate the levels of activation that participants experience, as will be discussed.

Evidence that activation influences processing

In a study where exam apprehension and loud white noise were used to manipulate levels of arousal, Paulus and Lim (1994) found that evaluations of acquaintances and famous people became more polarised for participants exposed to high rather than low arousal conditions. While participants exposed to the low arousal condition tended to systematically process judgments, participants exposed to the high arousal condition did not tend to process the

cognitive details of the judgmental target and thus evaluations became "relatively stronger as secondary dimensions are discarded" (p. 89). Exercise has also been used to manipulate arousal levels (Clark, Milberg & Ross, 1983), which was followed by participants receiving either positive feedback or no feedback about their performance, and being requested to complete a survey about the favourability of their university. It was found that, while the evaluations made by 'low arousal' participants did not seem to be heavily influenced by whether positive feedback was received or not, the evaluations made by 'high arousal' participants were influenced by this judgment-irrelevant cue. These findings suggest that, as arousal levels increase, there seems to be a "qualitative switch from analytic…to heuristic" strategies (Paulus & Lim, 1994, p. 97). It is evident that this 'switch' serves an adaptive purpose, whereby low arousal seems to signal the opportunity to undertake detailed processing, while high arousal signals the need to undertake more time-efficient processing.

While this research has dealt with arousal as a construct separate from affective states, a comparable form of arousal can result from affective states themselves. That is, affective states can be experienced at varying levels of intensity, with low intensity affective states producing considerably less arousal than affective states of high intensity. Accordingly, it seems intuitive that not only does the hedonic valence of affective states influence processing, but the intensity or arousal levels associated with affective states can also be influential.

The Moderating Effects of Affective States, According to the Circumplex Model

Consistent with the circumplex model of affect, it is likely that the moderating influence of affective states will depend on a combination of hedonic valence and activation. That is, while each dimension may separately moderate the processing strategy through which affect infuses judgments, a consideration of both dimensions together seems fundamental. One way

to explore this is to examine the processing tendencies of participants whose affective states fall within each of the four quadrants.

Predictions as to which processing strategies will dominate for each quadrant can be drawn from the research findings that have focused on the two dimensions separately. As is depicted in Figure 9.1, for two of the quadrants, both of the dimensions that characterize that quadrant appear to promote the use of one processing approach (e.g., pleasant hedonic valence and high activation both promote heuristic processing), and therefore it would be expected that this processing strategy would be dominant for individuals within these quadrants. For the other two quadrants, where the combined dimensions appear to promote different processing strategies (i.e., pleasant hedonic valence promotes heuristic processing, combined with low activation which promotes systematic processing), the processing strategies that are anticipated to dominate are less clear, as will be discussed.

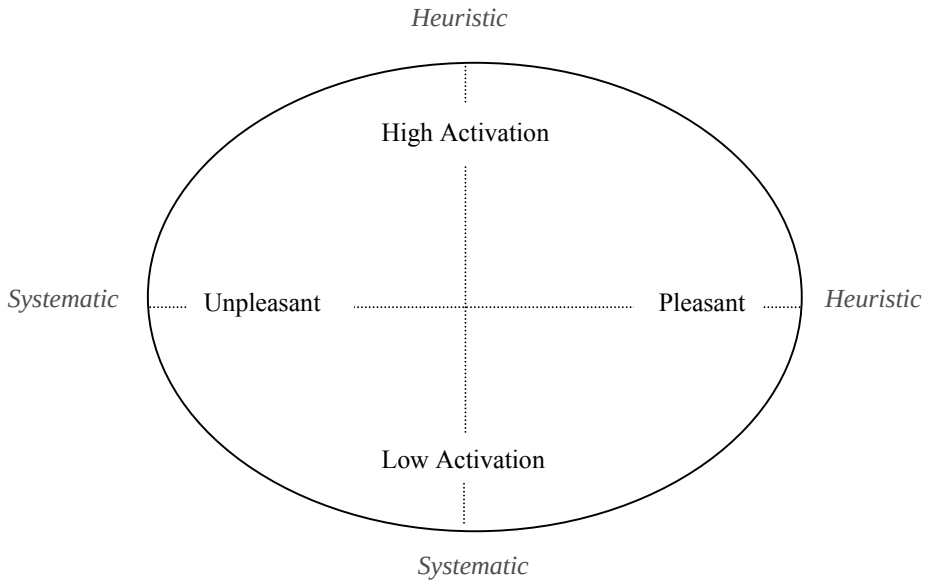


Figure 9.1. The processing implications of combining the hedonic valence and activation dimensions within the circumplex model of affect.

Processing Implications of the Circumplex Model of Affect

Quadrant 1: Unpleasant hedonic valence and low activation ('Unpleasant-LowAc')

Since evidence indicates that unpleasant affective states and low activation levels both seem to be associated with systematic processing, it seems that the combination of these two dimensions may produce exceptionally strong systematic processing tendencies.

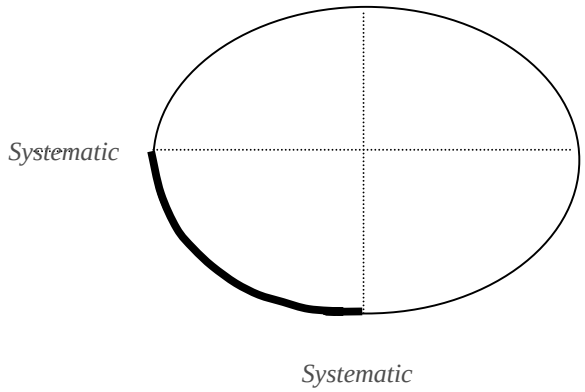


Figure 9.2. Unpleasant hedonic valence and low activation: processing implications.

Quadrant 2: Unpleasant hedonic valence and high activation ('Unpleasant-HighAc')

Evidence indicates that unpleasant affective states are associated with systematic processing, and high activation is associated with heuristic processing. However, when these two elements are combined, it is anticipated that high activation levels will actually enhance the systematic processing tendencies related to unpleasant affect. This proposition is based on motivational theories, whereby unpleasant affective states are thought to signal to an individual that the current situation is potentially detrimental, and thus systematic processing

is required in order to overcome this situation (Schwarz, 1990). Thus, it is foreseeable that high activation levels would enhance the motivation towards systematic processing.

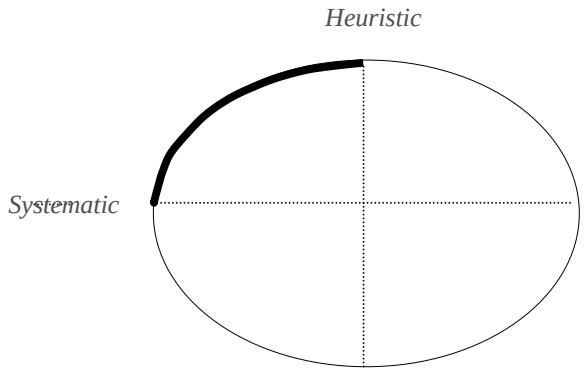


Figure 9.3. Unpleasant hedonic valence and high activation: processing implications.

Quadrant 3: Pleasant hedonic valence and low activation ('Pleasant-LowAc')

In the case of pleasant hedonic valence combined with low activation levels, whether heuristic or systematic processing is adopted is ambiguous. While pleasant affective states seem to enhance heuristic processing, low activation levels have been linked to more systematic processing strategies (Clark et al., 1983; Paulus & Lim, 1994).

The manner in which pleasant affect and low activation may interact is illustrated by the theoretical underpinnings of heuristic processing. In particular, the heuristic strategy is based on the understanding that affective states represent peripheral, judgment-irrelevant cues which can directly inform judgments. According to this theory, affective states serve as information for judgments and are processed in the same manner as any other form of

information (Schwarz, 1990). In a sense, affective states are competing with other sources of information that also have the potential to serve as peripheral cues. Therefore in order for affective states to infuse judgments through the heuristic pathway, there seems to be a certain level of activation required in order for the affective state to become competitive against other sources of information, and thus to become influential when forming judgments. Accordingly, it is anticipated that pleasant affective states of a low activation level would only minimally infuse global life satisfaction judgments. However, this is not to say that such judgments would be processed in an unbiased manner. As discussed, there is such a vast amount of information relevant to global SWB judgments that it is impossible to undertake purely cognitive, unbiased processing to form judgments. Rather, it seems that heuristic cues other than affective states, such as environmental stimuli, may inform judgments.

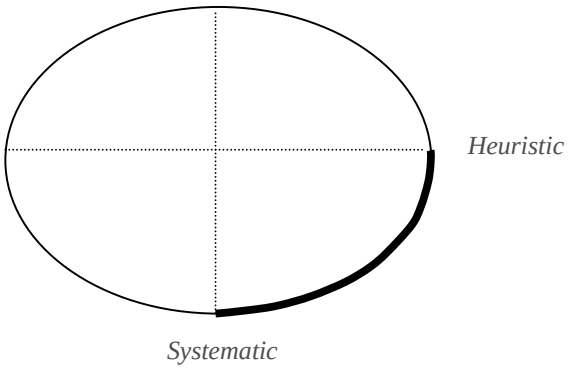


Figure 9.4. Pleasant hedonic valence and low activation: processing implications.

Quadrant 4: Pleasant hedonic valence and high activation ('Pleasant-HighAc')

It is foreseeable that high activation levels would intensify heuristic tendencies. That is, the apparent processing capacity deficits and the low motivation for cognitive processing associated with pleasant affective states would become exacerbated when the affective state is highly activated. Thus, high activation levels combined with pleasant hedonic valence would enhance the heuristic processing tendencies, as explainable by the capacity and motivational factors respectively.

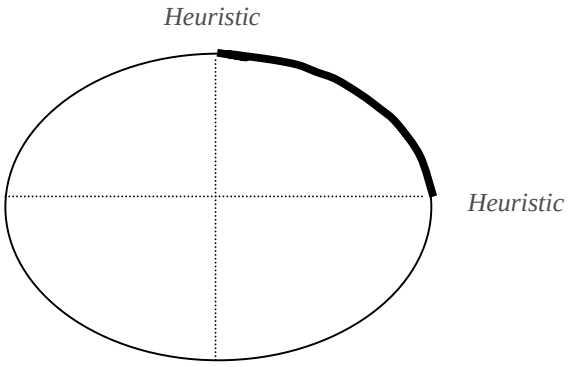


Figure 9.5. Pleasant hedonic valence and high activation: processing implications.

Hypotheses for Study 3

1. Core affect will tend to infuse global life satisfaction judgments via systematic processing for participants who are experiencing unpleasant affects. This tendency towards systematic processing is expected to occur regardless of level of activation.

2. Core affect will tend to infuse global life satisfaction judgments via heuristic processing for participants who are experiencing affects of pleasant hedonic valence. This tendency towards heuristic processing is expected to be most likely when activation levels are high. When activation levels are low it is likely that heuristic processing will be much less prominent. Furthermore, for people experiencing pleasant affects of a low level of activation, the overall influence that core affect will exert upon global life satisfaction is expected to be weaker than is the case in the other quadrants

These hypotheses will be tested by splitting the sample into four groups (representing the quadrants) with the use of the K-Means Cluster procedure and Discriminant Analyses. The analyses performed in Studies 1 and 2 will then be performed separately with these four groups, with hierarchical regression analyses used to derive an accurate measure of core affect, and structural equation modeling performed to examine the direct and indirect effects of core affect upon global life satisfaction.

CHAPTER 10: STUDY 3 METHOD

Participants

The sample for Study 3 comprised the participants who had completed either the ARC 8 or the ARC 9 Surveys (August 2006, and October 2006, respectively), as part of the longitudinal study. The reason for combining the two samples is to allow sufficient cell sizes once participants have been split into four groups. In total there were 895 participants from ARC 8 and 535 participants from ARC 9, yielding a total sample size of 1430. As these two surveys had been administered to different sets of participants, no participant completed both ARC 8 and ARC 9. Of the participants, 9% joined the longitudinal study in each of 2001 and 2002, 31% joined the longitudinal study in 2003, 14% joined the longitudinal study in 2004, and 37% joined the longitudinal study in 2005. The sample comprises 44% males and 56% females. The sample ranges in ages from 18 to 91, with a mean age of 56.10 years and standard deviation of 14.99 years.

Materials

Global life satisfaction, and Cognitive-based appraisals of satisfaction

The same measures of global life satisfaction and cognitive-based appraisals of satisfaction, which were used in Studies 1 and 2, are used again in Study 3. The question "How satisfied are you with your life as a whole?" is used to measure global life satisfaction, while the PWI is used to measure cognitive-based appraisals of satisfaction. The seven items comprising the PWI were again found to have good internal consistency (Cronbach's alpha = .87).

Affect

Like Studies 1 and 2, a list of affective adjectives is again to be used as a measure of the affective component of SWB. While there were 23 affects measured in Study 1, and 9 affects in Study 2, only 7 are used for Study 3. These comprise the central core affect items happy and content, plus five other affects common to both the ARC 8 and ARC 9 samples. The list of affects is displayed in Table 11.1, along with a comparison of the means and standard deviations.

As in Studies 1 and 2, participants were asked to "indicate how each of the following describes your feelings when you think about your life in general", on an end-defined unipolar response scale of 0 ("not at all") to 10 ("extremely"). Scores were then converted to the standard 0-100 form by being multiplied by 10. As was done in Studies 1 and 2, the affects that contribute unique variance to global life satisfaction will be used as a measure of the affective component of SWB.

Dimension of affect: Hedonic valence

The present study will attempt to categorise participants according to whether they are reporting pleasant or unpleasant affects. Thus, the sample will be clustered according to the hedonic valence of affective states. The affective terms "happy" and "content" will be used as a measure of the pleasantness or positivity of reported affects. It is acknowledged that these terms are by no means pure measures of hedonic valence, and that these terms, particularly "happy", are likely to also reflect activated states rather than states of low activation. Despite this limitation, it is thought that these two terms will provide a good representation of the pleasant end of this dimension.

Dimension of affect: Activation

Participants will also be grouped according to the level of affective activation they report. The affective terms "alert" and "energised" will be used as measures of this dimension. Again, while these terms are not proposed to be pure measures of the high activation end of this dimension, they are expected to be solid measures of this construct.

Procedure

Study 3 follows the same procedures as the preceding studies. Both the ARC 8 and ARC 9 surveys had been mailed out to participants who expressed interest in participating in the longitudinal study. An enclosed letter accompanied the surveys, informing participants that completion of the survey was voluntary, and that responses would be kept confidential. They were also informed that their responses may be used in future research, that any reports would always involve large numbers of participants, and that all participants would remain anonymous. A reply-paid envelope was enclosed for those participants who decided to complete the survey.

CHAPTER 11: STUDY 3 RESULTS

11.1 Data Screening and Examination of Assumptions

The assumptions of multivariate analyses were tested with the whole sample to be used in Sections 11.3 and 11.4, and the four groups to be derived in Section 11.5 and used in all subsequent analyses for this study. Collinearity diagnostics detected no multicollinearity. Several univariate outliers and multivariate outliers were detected, and analyses were run with and without the outliers. As the removal of outliers did not meaningfully alter the findings, final analyses were conducted with the original data. No major violations of skewness were detected.

11.2 Descriptive Statistics and Correlations

Means and standard deviations for all variables are shown in Table 11.1. One-way analyses of variance (ANOVAs) revealed that there were no significant differences between the three studies on the mean scores on the affect items "happy" (F (2,2510)=2.15, p=.12), "content" (F (2,2515)=1.04, p=.35), "depressed" (F (2,2493)=.17, p=.84), the global life satisfaction measure (F (2,2514)=1.69, p=.18), or the total PWI score (F (2,2439)=.40, p=.67). Several of the affect items were not sampled in Study 2, and therefore independent-samples t-tests were used to compare the mean differences on these items between Studies 1 and 3. These analyses revealed that there were no significant differences on any of these affect items, with the mean scores on "excited" (t (1947)=1.44, p=.15), "upset" (t (1947)= -.02, p=.98), "alert" (t (1957)=-.04, p=.96), and "energised" (t (1938)=-.72, p=.48) all found to be comparable between the samples used in Studies 1 and 3. These analyses indicate that the means and standard deviations for all of the variables used in Study 3 were comparable with those obtained in Studies 1 and 2.

Table 11.1: Means and Standard Deviations for the Variables used in Study 3, and a Comparison with that of Studies 1 and 2.

	Study 1			Study 2			Study 3		
	M	**S.D**	**n**	**M**	**S.D**	**n**	**M**	**S.D**	**n**
Affects									
Happy	74.73	16.33	533	72.74	17.07	554	74.27	17.40	1426
Content	71.84	17.75	532	72.71	17.95	560	73.15	17.89	1426
Alert	71.01	18.02	533	-	-	-	71.05	17.40	1426
Excited	60.38	18.74	530	-	-	-	58.98	19.16	1419
Energised	59.68	19.96	524	-	-	-	60.39	19.54	1416
Upset	28.28	20.53	530	-	-	-	28.31	21.56	1419
Depressed	26.81	23.64	526	27.63	24.48	553	27.13	23.38	1417
Satisfaction									
Global L.S	76.60	17.30	532	75.03	17.63	560	76.59	17.83	1425
PWI	73.53	13.77	519	73.06	14.69	549	73.38	14.38	1378

Note: Global L.S = Global life satisfaction. * $p<.05$, ** $p<.01$, *** $p<.001$

Pearsons correlations for all the variables used in Study 3 are presented in Table 11.2. Similarly to Studies 1 and 2, correlations between the affective terms were significant, and consistent with the circumplex model of affect. These correlations provide support for the use of "happy" and "content" as representative of the pleasant end of the hedonic valence dimension, with these terms found to be strongly correlated, and to have inverse correlations with terms that appear to represent the low end of this dimension (i.e., upset and depressed). The correlations also provide some support for the use of "alert" and "energised" as representative of the high end of the activation dimension, since they are strongly correlated. The correlations between the affective terms and the global life satisfaction and PWI variables were consistent with Studies 1 and 2.

Table 11.2: Pearsons Correlations for all variables used in Study 3.

Note: n = 1878 - 2514. All correlations are significant at p<.001 level (two-tailed significance).

	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. Global L.S	.76	.75	.76	.43	.38	.49	-.49	-.49
2. PWI	1.00	.71	.73	.44	.43	.54	-.51	-.50
3. Happy		1.00	.81	.52	.43	.55	-.55	-.58
4. Content			1.00	.50	.43	.56	-.57	-.57
5. Excited				1.00	.36	.58	-.20	-.30
6. Alert					1.00	.58	-.29	-.31
7. Energised						1.00	-.34	-.40
8. Upset							1.00	.72
9. Depressed								1.00

Global L.S = Global life satisfaction.

11.3 Deriving Four Groups, Representing the Quadrants of the Circumplex Model

11.3.1 Splitting the sample by hedonic valence and activation

In order to assign cases to one of four groups, representing the four quadrants of the circumplex model, the K-Means Cluster procedure was used. First, participants were clustered into two groups based on their scores on the terms "happy" and "content". The two groups that were produced from this cluster analysis exhibit mean differences that are consistent with hedonic valence of low (Happy: M =48.85, S.D=16.44, n=287; Content: M =46.48, S.D=15.16, n=287) and high levels (Happy: M =80.68, S.D=10.34, n=1137; Content: M =79.88, S.D=10.88, n=1137).

This procedure was repeated for the "alert" and "energised" items, which were used to represent the activation dimension. The two groups that were produced from this cluster analysis exhibit mean differences that are consistent with activation of low (Alert: M =55.28,

S.D=15.10, n=549; Energised: M =42.35, S.D=15.03, n=549) and high levels (Alert: M =81.02, S.D=9.66, n=866; Energised: M =71.82, S.D=11.99, n=866).

The findings of both these cluster analyses were assessed using discriminant analyses. The two hedonic valence groups (Wilks' Lambda =.40, χ^2 (2)= 1283.71, p<.001) and the two activation groups (Wilks' Lambda =.34, χ^2 (2)= 1537.88, p<.001) identified through the cluster analyses were both distinguished reliably by the discriminant functions. The discriminant functions correctly reclassified 94.9% and 100% of the cases in the hedonic valence and activation groups respectively, showing a good level of classification accuracy.

11.3.2 Classifying cases into the four groups

In order to represent the four quadrants of the circumplex model, participants were classified into one of four groups, based upon their membership in the hedonic valence and activation groups. Unfortunately, the group sizes were very unequal and the sample for the second group ('Unpleasant-HighActivation') comprised only 58 participants, which is inadequate for further analysis. It is appears that this has been caused by a small sample being clustered into the unpleasant hedonic valence group (n = 287) compared to the high hedonic valence group (n = 1137). Thus, it seems possible that the high hedonic valence group is representing 'normal' variability in affect, while the low hedonic valence group may be experiencing significant lowered affect, perhaps suggestive of depression. Therefore, in order to derive groups of reasonable size, while screening out participants who are reporting scores suggestive of depression, the cluster and discriminant analyses were rerun with the exclusion of participants who reported scores of 50 or below on the global life satisfaction question. The use of 50 as a cut-off score was based on the remarkably stable finding that Western population samples score an average mean score of approximately 75, with standard deviation of approximately 12 (Cummins, Woerner, Tomyn, Gibson, & Knapp, 2007). Thus, using two standard deviations to define the normative range of 51-99%SM, it can be seen

that scores less than or equal to 50 fall outside of the normative range, and may be indicative of depression. Therefore, in an attempt to achieve adequate sample sizes, participants scoring 50 or below on this measure were filtered out.

11.3.3 Deriving four groups, after the removal of participants with very low Global SWB

Following the above procedures for adjusting group sizes, two K-Means Cluster Analyses were again performed. The findings were then assessed with the use of discriminant analyses. The high and low hedonic valence groups (Wilks' Lambda =.39, χ^2 (2)= 1199.21, p<.001) and the high and low activation groups (Wilks' Lambda =.35, χ^2 (2)= 1322.67, p<.001) identified through the cluster analyses were both distinguished reliably by the discriminant functions. The functions correctly reclassified 100% and 95.9% of the cases in the hedonic valence and activation groups respectively, showing a good level of classification accuracy.

In order to represent the quadrants of the circumplex model, participants were classified into one of four groups, based upon their membership in the hedonic valence and activation groups. The sample sizes between the four groups were still somewhat unequal, as displayed in Table 11.3, but all groups were sufficiently large to be included in further analyses.

11.3.4 Descriptive statistics and correlations for the four groups

To assess how the four groups differed on the affective items, a single-factor within-subjects multivariate analysis of variance (MANOVA) was performed. Table 11.3 presents a summary of these results. A significant multivariate effect between the four groups on the affective items was detected (Pillai's Trace = 1.16, F(21, 3696)=111.24, p<.001, effect size = .39). Univariate effects were examined with the use of Bonferroni post-hoc tests, which allowed adjustment of the significance level to account for the presence of multiple comparisons. These analyses revealed that the four groups differed significantly on each of the affective items.

An examination of how the groups differed on the global life satisfaction question and the total PWI score was also undertaken with the use of two one-way between groups analyses of variance (ANOVAs). These analyses revealed that the four groups differed significantly and strongly on global life satisfaction (F (3, 1253)=207.78, p<.001, η^2=.33) and the PWI (F (3, 1217)=237.20, p<.001, η^2=.37).

Bonferroni post-hoc comparisons were performed to clarify how the groups differed in their mean scores. The findings of these comparisons are displayed in Table 11.3, and discussed in the following section.

Table 11.3: A Comparison of the Significance and Magnitude of the Difference Between Mean Scores and Standard Deviations on the Variables for the Four Groups.

	'Unpleasant-LowAc' Unpleasant Hedonic Valence and Low Activation		**'Unpleasant-HighAc'** Unpleasant Hedonic Valence and High Activation		**'Pleasant-LowAc'** Pleasant Hedonic Valence and Low Activation		**'Pleasant-HighAc'** Pleasant Hedonic Valence and High Activation		
Variable	**M**	**S.D**	**M**	**S.D**	**M**	**S.D**	**M**	**S.D**	**F**
Affects									
Happy	62.85 [bcd]	10.96	66.88 [acd]	8.15	81.34 [abd]	7.54	85.84 [abc]	8.14	532.12***
Content	60.91 [cd]	11.24	64.52 [cd]	10.22	81.44 [abd]	8.20	85.05 [abc]	8.64	522.85***
Alert	56.93 [bd]	14.35	76.50 [acd]	8.76	60.48 [bd]	15.74	82.03 [abc]	9.75	362.18***
Excited	48.69 [bcd]	14.44	59.74 [ad]	14.93	55.35 [ad]	15.46	69.02 [abc]	16.29	120.04***
Energised	43.07 [bcd]	12.70	66.62 [acd]	8.88	47.70 [abd]	13.62	74.94 [abc]	10.38	635.09***
Upset	38.21 [cd]	18.93	35.73 [cd]	19.55	23.05 [ab]	17.31	18.68 [ab]	17.84	90.86***
Depressed	37.85 [cd]	20.40	34.39 [cd]	21.64	21.39 [ab]	16.89	16.32 [ab]	18.65	97.13***
Satisfaction									
Global L.S	71.88 [cd]	9.07	73.90 [cd]	8.41	82.91 [abd]	9.08	86.68 [abc]	9.35	207.78***
PWI	65.66 [bcd]	10.53	70.25 [acd]	8.92	76.11 [abd]	9.13	82.34 [abc]	8.39	237.20***
n	274; 276; 272.		157; 159; 154.		187; 189; 183.		622; 633; 612.		

Note: significant mean differences are at p<.001 significance level. ***p<.001. Global L.S = Global life satisfaction.
[a] = significantly different to the 'Unpleasant-LowAc' group; [b]= significantly different to the 'Unpleasant-HighAc' group;
[c]= significantly different to the 'Pleasant-LowAc' group; [d]= significantly different to the 'Pleasant-HighAc' group.
For each group, the first n quoted is from the MANOVA with affects, the second is from the ANOVA with Global L.S, and the third is from the ANOVA with PWI.

Group differences on the affect items

The profiles of scores on the affect items indicate that the four groups appear to be characterised by the expected pattern of affects. The 'Unpleasant-LowAc' group is significantly less happy, content, or excited, and more depressed and upset than the groups characterised by pleasant hedonic valence. This group is also significantly less alert or energised than the groups characterised by high activation.

The 'Unpleasant-HighAc' group is significantly less happy or content, and more depressed and upset than the groups characterised by pleasant hedonic valence. This group is also more alert and energised than the groups characterised by low activation, although not as alert or energised as the 'Pleasant-HighAc' group.

The 'Pleasant-LowAc' group is significantly happier and more content, and less depressed and upset than the groups characterised by unpleasant hedonic valence. However, this group is not as happy or content as the 'Pleasant-HighAc' group. This group is also less alert or energised than the groups characterised by high activation.

The 'Pleasant-HighAc' group appears to be the happiest and most activated group of all. This group is significantly more happy, content, and excited than any other group, and less depressed or upset than the groups characterised by unpleasant hedonic valence. This group is also significantly more alert and energised than any of the other groups.

In summary, a comparison of mean differences on the affect items has revealed patterns that are consistent with expectations. Each of the groups appear to represent the intended quadrant of the circumplex model, and thus will be used in upcoming analyses to represent the four affective quadrants.

Group differences on the satisfaction measures

The mean scores on the satisfaction measures also differed significantly between the groups. The 'Unpleasant-LowAc' group appears to be the least satisfied of all the groups, with cognitive appraisals of satisfaction (i.e., total PWI score) lower than all other groups, and global life satisfaction lower than the groups characterised by pleasant hedonic valence. The 'Unpleasant-HighAc' group also appears somewhat dissatisfied, with global life satisfaction and cognitive appraisals of satisfaction significantly lower than the groups characterised by pleasant hedonic valence. However, their cognitive appraisals of satisfaction are significantly higher than that of the 'Unpleasant-LowAc' group. The 'Pleasant-LowAc' group appears to be quite satisfied, with global life satisfaction and cognitive appraisals of satisfaction significantly higher than the groups characterised by unpleasant hedonic valence. However, satisfaction on these two measures was significantly lower than for the 'Pleasant-HighAc' group. The 'Pleasant-HighAc' group appears to be the most satisfied group of all. Global life satisfaction and cognitive appraisals of satisfaction were significantly higher for this group than any of the other groups.

Overall the patterns of mean scores on the satisfaction measures reflect the close association between affect and satisfaction. Groups that report feeling happy and content are more likely to report feeling satisfied. Activation levels also appear to be related with satisfaction, with satisfaction likely to be higher for people who report feeling alert and energised.

Summary of the group differences

In summary, an assessment of the mean differences between the groups reveals that the groups exhibit patterns on the affect items that are consistent with expectations, indicating that they are representing the intended quadrants of the circumplex model. Thus, analyses will now proceed with these four groups. Before proceeding with an assessment of how

these groups differ in the strength and route through which core affect influences judgments of global life satisfaction, correlations between the variables will be examined for each of the groups.

Correlations for the four groups

Pearsons correlations between the variables, for the four groups, are included in Appendix D. For all the groups, correlations between the affective terms are significant and consistent with the circumplex model of affect. The correlations between the affective items and the global life satisfaction and PWI variables are also as expected, with pleasant affects correlating positively, and unpleasant affects correlating negatively with the satisfaction variables. While the correlations between the groups are generally comparable, the strength of some correlations is found to vary between the groups. In the 'Unpleasant-LowAc' group, the correlation between global life satisfaction and the terms "happy" and "content" are weaker than in the 'Pleasant-HighAc' group ($\underline{r}$ = .20 and $\underline{r}$ = .18, compared to $\underline{r}$ = .61, and $\underline{r}$ = .59). Overall, the correlations between global life satisfaction and the affective items are stronger for the 'Pleasant-HighAc' group than any of the other groups. While it was hoped that the four groups would exhibit similar correlations on the variables, the differences that are observed do not seem to present any problems. Rather, these findings are consistent with hypotheses that affect would have the strongest direct effects upon global life satisfaction for individuals experiencing affective states characterised by pleasantness and high activation.

11.4 Deriving an Accurate Representation of the Affective Component of SWB, for the Four Groups

As in Studies 1 and 2, regression analyses are undertaken to identify which affective terms contribute unique variance to global life satisfaction and will accordingly be used to represent core affect. These analyses are run separately for the four groups. As displayed in

Table 11.8, for the 'Unpleasant-HighAc', 'Pleasant-LowAc', and 'Pleasant-HighAc' groups "happy" and "content" are the affective terms that contribute unique variance to global life satisfaction. While "upset" is also found to contribute a significant amount of unique variance in the 'Pleasant-HighAc' group, the variance accounted for by this term is very small and does not warrant the inclusion of this term with "happy" and "content" in representing core affect.

The affective terms that contribute unique variance for the 'Unpleasant-LowAc' group contrast to that of the other groups, with "content" failing to reach significance, and "excited" and "upset" found to contribute unique variance. While it could be argued that this finding might indicate that core affect is best represented by "happy", "excited" and "upset" for this group, this does not seem to be the case. First, the findings of Studies 1 and 2 have consistently found that "happy" and "content" best represent core affect, and therefore the findings in the 'Unpleasant-LowAc' group are an exception to this finding. The reason that this group is behaving differently than the other groups may be explainable by the fact that only a very small amount of the variance in global life satisfaction was accounted for by the affective terms. Therefore, global life satisfaction appears to be strongly driven by core affect for other samples, but for this group of participants who are experiencing affective states characterised by unpleasantness and low activation, global life satisfaction appears to be driven by something other than core affect. Thus, the findings that affects other than happy and content are predicting global life satisfaction for the 'Unpleasant-LowAc' group does not mean that the affects comprising core affect need to be revised. Instead it seems to indicate that core affect is only minimally predicting global life satisfaction for this group. For this reason "happy" and "content" will be retained as representative of core affect for each of the groups.

Table 11.8: Standard Regression with Affective Terms as Predictors of Global Life Satisfaction, Performed Separately for the Four Groups.

	'Unpleasant-LowAc'			**'Unpleasant-HighAc'**			**'Pleasant-LowAc'**			**'Pleasant-HighAc'**		
Variable	**B**	**β**	**sr^2**	**B**	**β**	**sr^2**	**B**	**β**	**sr^2**	**B**	**β**	**sr^2**
Happy	.18**	.21	.02	.21*	.20	.03	.37***	.30	.07	.38***	.33	.05
Content	.10	.12	.01	.18**	.22	.04	.34***	.30	.07	.34***	.32	.05
Alert	.02	.02	.00	.12	.13	.01	-.05	-.08	.00	.06	.06	.00
Excited	-.11**	-.17	.02	-.02	-.04	.00	.02	.03	.00	.00	.00	.00
Energised	.06	.08	.00	.01	.01	.00	-.03	-.05	.00	.01	.01	.00
Upset	-.08*	-.16	.01	.01	.03	.00	-.00	-.00	.00	-.05*	-.10	.00
Depressed	.07	.15	.01	-.03	-.09	.00	-.00	-.01	.00	.01	.03	.00
			$\underline{R}^2 = .10$			$\underline{R}^2 = .13$			$\underline{R}^2 = .27$			$\underline{R}^2 = .44$
			$\underline{R} = .32$***			$\underline{R} = .37$***			$\underline{R} = .52$***			$\underline{R} = .66$***

Note: * $\underline{p}<.05$, ** $\underline{p}<.01$, *** $\underline{p}<.001$
'Unpleasant-LowAc' $\underline{n} = 274$; 'Unpleasant-HighAc' $\underline{n} = 157$; 'Pleasant-LowAc' $\underline{n} = 187$; 'Pleasant-HighAc' $\underline{n} = 622$.

As depicted in Table 11.8 these regression findings indicate that the predictive strength of the affects upon global life satisfaction varies considerably between the groups. For the 'Unpleasant-LowAc' and 'Unpleasant-HighAc' groups, the amount of variation in global life satisfaction explainable by the affects is only 10% and 13%, respectively. This increases to 27% for the 'Pleasant-LowAc' group, and 44% for the 'Pleasant-HighAc' group. This indicates that, for the groups characterised by pleasant hedonic valence, the affects appear to account for more of the variance in global life satisfaction than for the groups characterised by unpleasant hedonic valence. Furthermore, activation levels appear to influence the strength of the affects as predictors of global life satisfaction, with higher activation appearing to increase the predictive strength of the affects. While these findings indicate that hedonic valence and activation levels appear to moderate the strength of core affect as a predictor of global life satisfaction, the following analyses will serve to clarify whether the processing strategies through which affect is informing global life satisfaction judgments are also moderated.

11.5 Does Level of NFC Moderate whether Core Affect will Infuse Global Life Satisfaction via Systematic or Heuristic Processing?

Using AMOS 6.0, and maximum likelihood estimation, the relationships between core affect, cognitive-based appraisals of satisfaction (PWI), and global life satisfaction are explored separately for the four groups. The measurement models and structural models being examined are identical between the groups, and identical to that of Studies 1 and 2. Like Studies 1 and 2, the models will be evaluated according to the two-step procedure where the measurement model is evaluated first, and if this is found to be adequate fitting, the structural portion of the model will be evaluated.

11.5.1 SEM: Measurement model

As in Studies 1 and 2, the measurement portion of the model comprises two affective terms (happy, and content) which are to be used as indicators, and the latent variable of core affect. For all four groups the suitability of using these two affective terms as indicators was assessed by performing reliability analyses and examining the Cronbach's alpha coefficient and the inter-item correlation between the affect terms.

Reliability analyses indicate that the two affective terms have good internal consistency for the 'Pleasant-HighAc' group (Cronbach's alpha = .80). Furthermore, the inter-item correlation was found to be quite strong for this group (r = .67), which supports the presence of a common underlying factor. For the 'Unpleasant-LowAc', 'Unpleasant-HighAc', and 'Pleasant-LowAc' groups, the Cronbach's alpha coefficients were found to be quite low (Cronbach's alpha = .48, .51, and .61, respectively). While these coefficients may indicate that the two affective terms do not have good internal consistency for these groups, this is probably not the case. As discussed by Briggs and Cheek (1986) and Clark and Watson (1994), the Cronbach's alpha coefficient is very sensitive to the number of items in a scale and when a scales contains a small number of items, as is the case in current analyses, it is

common to find low Cronbach's alpha coefficients. These authors suggested that in such a scenario a more useful indication of scale reliability is obtained by the inter-item correlation. It has been recommended that the optimal range for the inter-item correlation is within .15 to .50 (Clark and Watson, 1994). In the current analyses the inter-item correlations are found to fall within this range for each of the three groups (r = .32, .35, and .44 respectively). These results provide support for the use of these two affective terms as indicators of the latent 'affect' variable for each of the four groups. As the measurement model appears to be adequate, the structural portion of the model can now be added.

11.5.1 SEM: Structural model

Evaluating model fit

The structural model is run separately for the four groups. After the listwise deletion of missing data, the 'Unpleasant-LowAc' group has a sample size of 257, the 'Unpleasant-HighAc' group has a sample size of 154, the 'Pleasant-LowAc' group has a sample size of 183, and 'Pleasant-HighAc' group has a sample size of 612. The results indicate that the model is very well-fitting across the four groups (χ^2 (4) = 1.05, p=.90, χ^2/df ratio=.262, CFI = .1.00, SRMR = .002, RMSEA = .000). An examination of the standardized residual covariances reveals that 100% of the residuals are less than 2.0, further supporting the good fit of this model. Thus, as the fit of the model appears adequate, I now turn to an examination of the estimates for the four groups.

a) 'Unpleasant-LowAc' Group

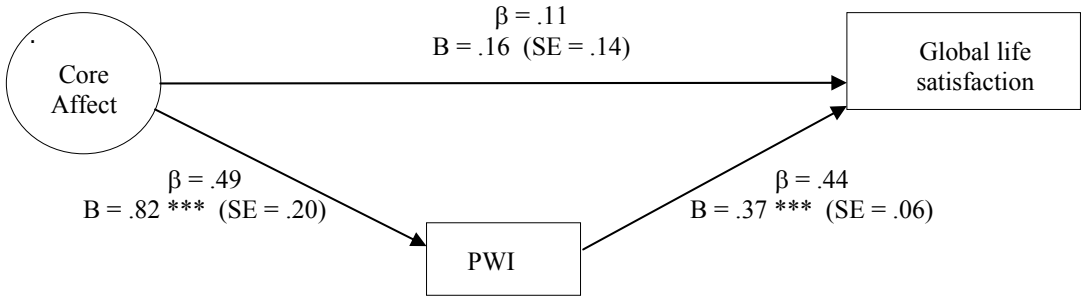


Figure 11.1. Estimates of the direct (heuristic) and indirect (systematic) influence of core affect upon global life satisfaction: 'Unpleasant-LowAc' Group.

Evaluating the direct effect

It was hypothesised that, for the 'Unpleasant-LowAc' group, core affect would not tend to influence the satisfaction judgment via heuristic processing. This hypothesis is based on past evidence that the unpleasant affect and low activation levels characterising this group both appear to be associated to increases in systematic processing and decreases in heuristic processing. Support for this hypothesis would be indicated by core affect exerting a weak direct effect upon global life satisfaction for this group. As displayed in Figure 11.1, this was found to be the case, with the direct effect of core affect upon global life satisfaction being weak and insignificant (β = .11, p =.23).

Evaluating the indirect effect

It was hypothesised that core affect would exert a relatively strong influence upon the judgment via systematic processing for this group. Support for this hypothesis would be indicated by the indirect effect of core affect upon global life satisfaction, mediated by the PWI, being relatively strong. The strength of the indirect effect will be examined with the use of several findings.

First, it would be expected that the standardised beta coefficient from the PWI to global life satisfaction, which provides a good reflection of the indirect effect, would be significant and considerable in strength. This was found to be the case ($\beta = .44$, $p<.001$), indicating that core affect does indeed influence the judgment via systematic processing for the 'Unpleasant-LowAc' group.

Second, it would be expected that the standardised beta coefficient between core affect and global life satisfaction would be considerably stronger when the PWI is not included in the model. This would indicate that a considerable portion of the influence that core affect has upon the judgment is through the PWI, as a mediating variable. As expected, this was found to be the case. When the model is rerun with the omission of the PWI, the standardised beta coefficient between core affect and global life satisfaction is indicated as $\beta = .33$ ($B=.44$, $SE = .15$, $p<.01$). This coefficient is notably stronger than that found when the PWI is included in the model, as depicted in Figure 11.1 ($\beta = .11$). Thus, the inclusion of the PWI into the model has substantially reduced the amount of variance that is explainable by the direct influence of core affect, indicating that a large portion of the influence that core affect has upon global life satisfaction is through the PWI.

Overall, these findings support the hypothesis, indicating that, for people experiencing affects that are unpleasant and low in activation, core affect tends to predominantly influence global life satisfaction via systematic processing.

Evaluating the total effect

It was anticipated that, while the route through which core affect influences the satisfaction judgment would vary between the groups, the overall predictive strength of core affect would remain quite high across all groups, with the exception of the 'Pleasant-LowAc' group. However, counter to expectations, it appears that the overall predictive strength of core affect is relatively weak for the 'Unpleasant-LowAc' group. As in Studies 1 and 2, an

estimation of the total effects is derived from the model that was rerun with the omission of the PWI. The standardised beta coefficient between core affect and global life satisfaction in this model was estimated as β = .33, indicating that only 33% of the variance in global life satisfaction is explainable by the total effects of core affect.

b) 'Unpleasant-HighAc' Group

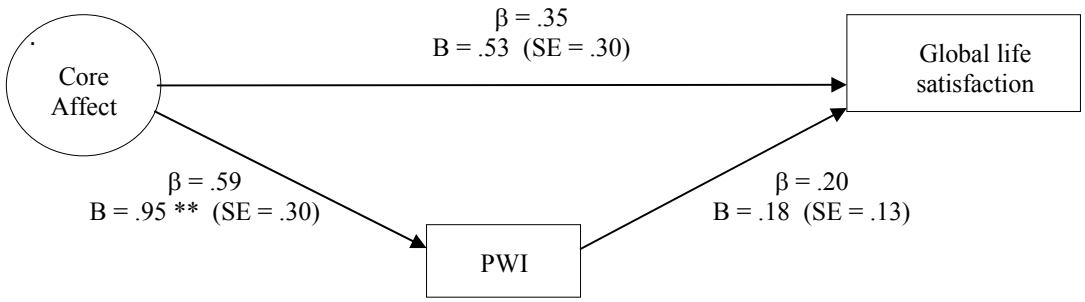


Figure 11.2. Estimates of the direct (heuristic) and indirect (systematic) influence of core affect upon global life satisfaction: 'Unpleasant-HighAc' Group.

Evaluating the direct effect

It was anticipated that the 'Unpleasant-HighAc' group would exhibit similar patterns of processing as that in the 'Unpleasant-LowAc' group. Thus, it was hypothesized that, for the 'Unpleasant-HighAc' group, core affect would not tend to influence the satisfaction judgment via heuristic processing. As displayed in Figure 11.2, core affect is found to exert an insignificant direct effect upon perceived global life satisfaction (β = .35, p =.07). This supports the hypothesis and indicates that core affect does not tend to influence the satisfaction judgment via heuristic processing for this group.

Evaluating the indirect effect

As with the 'Unpleasant-LowAc' group, it was hypothesised that core affect would exert a relatively strong influence upon the judgment via systematic processing for the 'Unpleasant-HighAc' group. Support for this hypothesis would be indicated by the indirect effect of core affect upon global life satisfaction, mediated by the PWI, being relatively strong. The strength of the indirect effect will be examined with the use of several findings.

First, it would be expected that the standardised beta coefficient from the PWI to global life satisfaction would be significant and considerable in strength. Contrary to expectations, this coefficient is found to be insignificant and weak ($\beta = .20$, $\underline{p} = .14$), indicating that core affect does not tend to influence the satisfaction judgment via systematic processing for this group.

Second, it would be expected that the standardised beta coefficient between core affect and global life satisfaction would be considerably stronger when the PWI is not included in the model. This would indicate that a considerable portion of the influence that core affect has upon the judgment is through the PWI, as a mediating variable. When the model is rerun with the omission of the PWI, the standardised beta coefficient between core affect and global life satisfaction is indicated as $\beta = .47$ (B=.66, SE = .26, $\underline{p}<.05$). Contrary to expectations, this coefficient is only mildly stronger than that found when the PWI is included in the model, as depicted in Figure 11.2 ($\beta = .35$). Thus, the inclusion of the PWI into the model has not caused a substantial reduction in the amount of variance that is explainable by the direct influence of core affect, indicating that core affect is not predominantly influencing global life satisfaction via systematic processing, as had been predicted.

Overall, these findings do not support the hypothesis, indicating that, for people experiencing affects that are unpleasant and high in activation, core affect does not tend to influence global life satisfaction via systematic processing.

Evaluating the total effect

As with the 'Unpleasant-LowAc' group, it was expected that the overall predictive strength of core affect upon the satisfaction judgment would be high. However, contrary to expectations, the overall predictive strength of core affect appears to be relatively weak for this group. This is reflected by the findings of the model that was rerun with the omission of the PWI. The standardised beta coefficient between core affect and global life satisfaction in this model was estimated as $\beta = .47$, indicating that only 47% of the variance in global life satisfaction is explainable by the total effects of core affect.

c) 'Pleasant-LowAc' Group

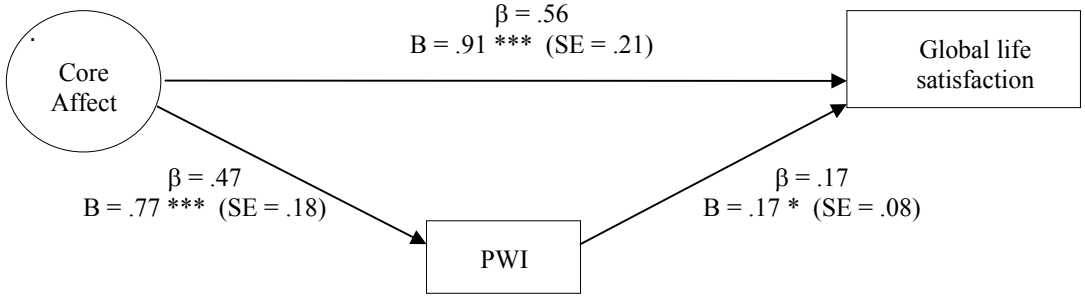


Figure 11.3. Estimates of the direct (heuristic) and indirect (systematic) influence of core affect upon global life satisfaction: 'Pleasant-LowAc' Group.

Evaluating the direct effect

While it was expected that core affect would tend to influence the satisfaction judgment via heuristic processing for the 'Pleasant-LowAc' group, it was also anticipated that the overall predictive strength of core affect (i.e., total effects) may be weak for this group. Thus, it was expected that the direct effect would be stronger than the indirect effect for this group, but that both effects may be weak relative to the other groups. Support for the hypothesis that core affect would influence the judgment via heuristic processing would be indicated by a significant direct effect between core affect and global life satisfaction. As displayed in Figure 11.3, this was found to be the case, with the direct effect of core affect upon global life satisfaction being significant ($\beta = .56$, $\underline{p}<.001$). With 56% of the variance in global life satisfaction found to be explainable by the direct influence of core affect, this effect is unexpectedly strong, indicating that core affect has a considerable influence upon global life satisfaction through heuristic processing.

Evaluating the indirect effect

It was hypothesised that, for the 'Pleasant-LowAc' group, core affect would tend not to influence the judgment via systematic processing. Thus, it was expected that the indirect effect of core affect upon global life satisfaction, via the PWI, would be relatively weak for this group. Support for this hypothesis would be indicated by several findings.

First, it would be expected that the standardised beta coefficient from the PWI to global life satisfaction, which provides a good reflection of the indirect effect, would be weak and insignificant. It can be seen that, while this coefficient is indeed weak, it attained statistical significance ($\beta = .17$, $\underline{p}<.05$). This indicates that a very small amount of the influence that core affect exerts upon the judgment appears to be through systematic processing.

Second, it would be expected that the standardised beta coefficient between core affect and global life satisfaction would not change considerably when the PWI is omitted from the

model. This would indicate that core affect is directly influencing the judgment, rather than influencing the judgment through the mediation of the PWI. As expected, this was found to be the case. When the model is rerun with the omission of the PWI, the standardised beta coefficient between core affect and global life satisfaction is indicated as $\beta = .64$ (B=1.07, SE = .20, $p<.001$). This coefficient is only mildly stronger than that found when the PWI is included in the model, as depicted in Figure 11.3 ($\beta = .56$). Thus, the inclusion of the PWI into the model has only caused a very small reduction in the amount of variance that is explainable by the direct influence of core affect.

Overall, these findings support the hypothesis, indicating that, for people experiencing pleasant affects that are low in activation, the influence of core affect upon the satisfaction judgment is predominantly via heuristic processing, and to a much lesser extent via systematic processing.

Evaluating the total effect

It was expected that the overall influence of core affect upon the satisfaction judgment may be lower for this group than in the other groups. However, counter to expectations, the overall predictive strength of core affect appears to be relatively strong for this group. This is reflected by the findings of the model that was rerun with the omission of the PWI. The standardised beta coefficient between core affect and global life satisfaction in this model was estimated as $\beta = .64$, indicating that 64% of the variance in global life satisfaction is explainable by the total effects of core affect.

d) 'Pleasant-HighAc' Group

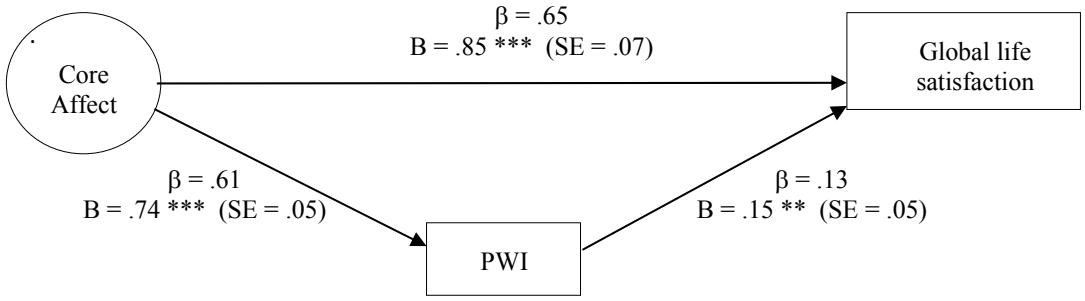


Figure 11.4. Estimates of the direct (heuristic) and indirect (systematic) influence of core affect upon global life satisfaction: 'Pleasant-HighAc' Group.

Evaluating the direct effect

It was hypothesized that core affect would predominantly influence the satisfaction judgment via heuristic processing for the 'Pleasant-HighAc' group. Support for this hypothesis would be indicated by core affect exerting a strong and significant direct effect upon global life satisfaction. As displayed in Figure 11.4, this was found to be the case, with the direct effect of core affect upon global life satisfaction being significant ($\beta = .65$, $p<.001$). This finding suggests that 65% of the variance in global life satisfaction is explainable by the direct influence of core affect, indicating that core affect has a considerable influence upon global life satisfaction through heuristic processing.

Evaluating the indirect effect

It was hypothesised that core affect would tend not to influence the judgment via systematic processing. Thus, it was expected that the indirect effect of core affect upon global life satisfaction, via the PWI, would be relatively weak for this group. Support for this hypothesis would be indicated by several findings.

First, it would be expected that the standardised beta coefficient from the PWI to global life satisfaction would be weak and insignificant. It can be seen that, while this coefficient is indeed weak, it attained statistical significance ($\beta = .13$, $\underline{p}<.01$). This indicates that a very small amount of the influence that core affect exerts upon the judgment appears to be through systematic processing.

Second, it would be expected that the standardised beta coefficient between core affect and global life satisfaction would not change considerably when the PWI is omitted from the model. This would indicate that core affect is directly influencing the judgment, rather than influencing the judgment through the mediation of the PWI. As expected, this was found to be the case. When the model is rerun with the omission of the PWI, the standardised beta coefficient between core affect and global life satisfaction is indicated as $\beta = .73$ (B=.96, SE = .06, $\underline{p}<.001$). This coefficient is only mildly stronger than that found when the PWI is included in the model, as depicted in Figure 11.4 ($\beta = .65$). Thus, the inclusion of the PWI into the model has only caused a very small reduction in the amount of variance that is explainable by the direct influence of core affect.

Overall, these findings support the hypothesis, indicating that, for people experiencing pleasant affects that are high in activation, the influence of core affect upon the satisfaction judgment is predominantly via heuristic processing, and to a much lesser extent via systematic processing.

Evaluating the total effect

Consistent with hypotheses, the findings indicate that the overall influence of core affect upon the satisfaction judgment is strong for this group. This is reflected by the findings of the model that was rerun with the omission of the PWI. The standardised beta coefficient between core affect and global life satisfaction in this model was estimated as $\beta = .73$,

indicating that 73% of the variance in global life satisfaction is explainable by the total effects of core affect.

11.6 Summary of the Results

These findings provide strong support for the hypothesis that affective states moderate whether core affect infuses judgments of global life satisfaction via systematic or heuristic processing. In particular, the moderating influence of affect as a two-dimensional construct has been indicated, with combinations of hedonic valence and activation influencing the strength and the route through which core affect influences global life satisfaction judgments.

CHAPTER 12: STUDY 3 DISCUSSION

The results of Study 3 have provided support for the hypothesis that affective states have a moderating influence on the processing strategy through which core affect infuses judgments of global SWB. By examining different combinations of the hedonic valence and activation dimensions, a unique pattern of moderation became apparent, as will be discussed.

Affect as a Moderator

To date, research that examines the moderating influence of affect upon processing focuses overwhelmingly on the hedonic valence dimension alone. Thus, it is well established that the pleasantness of affective states has a moderating influence, with people experiencing pleasant affects tending to adopt heuristic processing, while those experiencing unpleasant affects are more inclined towards systematic processing (for reviews see Clore, Schwarz & Conway, 1994; Mackie & Worth, 1991; Schwarz & Bless, 1991). The present findings are consistent with this past research, with the two groups characterized by pleasant hedonic valence demonstrating more heuristic processing and less systematic processing than the groups characterized by unpleasant hedonic valence.

However, according to the circumplex model of affect (Russell, 1980, 2003), research that explores the moderating influence of hedonic valence only takes into account half of the picture. Thus, in order to understand the moderating influence of affect as a two-dimensional structure, it is important to examine the processing tendencies of participants who exhibit different combinations on both the hedonic valence and activation dimensions. In the present study, the four samples that were derived were found to be good representations of the four quadrants of the circumplex model. Analyses with these samples produced strong evidence that the two dimensions, when combined, demonstrate unique moderating effects upon the

strength of core affect as a predictor of global SWB, and the processing strategy through which core affect influences global SWB.

Moderating the Strength of Core Affect as a Predictor of Global SWB

An interesting pattern was detected between the four groups, whereby the strength of core affect as a predictor of global SWB gradually increased from the 'Unpleasant-LowAc' group through to the 'Pleasant-HighAc' group. For the 'Unpleasant-LowAc' group only 33% of the variance in global life satisfaction was explainable by the combined direct and indirect effects of core affect. This rose to 47% for the group that also reported unpleasant affect, but with high activation ('Unpleasant-HighAc'), 64% for those experiencing pleasant affects of a low activation level ('Pleasant-LowAc'), and 73% for those experiencing pleasant affects of a high activation level ('Pleasant-HighAc'). These findings indicate that hedonic valence and activation both exert notable moderating influences. The moderating influence of hedonic valence is apparent, with the predictive strength of core affect being considerably weaker for the groups characterized by unpleasant affect, than it was for the groups characterized by pleasant affect. While activation levels also exerted some moderating influence, with higher activation increasing the predictive strength of core affect, this appears to be of secondary importance to that of hedonic valence.

The differences between the groups in the strength of core affect as a predictor of global SWB were counter to hypotheses in two respects. First, it was hypothesized that core affect would be a strong predictor for all groups except the 'Pleasant-LowAc' group. For the 'Pleasant-LowAc' group it was hypothesized that the pleasant affect characterizing this group would promote heuristic processing, but that the low activation levels would cause affective states to be less salient, and consequently less likely to be used as heuristic cues. Thus, it was expected that core affect would be a weaker predictor of global life satisfaction for this

group, relative to the other groups. However, counter to expectations, the findings indicated that 64% of the variance in global life satisfaction was explainable by core affect, suggesting that core affect remained a strong predictor of global life satisfaction for this group. While it could be argued that these findings indicate that the hypothesis that core affect would be a weaker predictor for this group was generally not supported, when compared with the 73% of the variance explained for the 'Pleasant-HighAc' group it can be seen that there is a noticeable drop in the predictive strength for the 'Pleasant-LowAc' group. Thus, between the groups characterized by pleasant affect, a reduction in activation levels appears to have weakened the predictive strength of core affect, as was predicted.

A second unexpected finding is that core affect is a weaker predictor of global life satisfaction for the groups experiencing unpleasant affects, compared to those experiencing pleasant affects. While it was hypothesized that the route through which core affect would influence judgments would differ between the groups, it was expected that the total influence of core affect would be strong across all the groups, with the exception of the 'Pleasant-LowAc' group. Thus, the finding that the total influence of core affect was considerably weaker for the groups characterized by unpleasant affect came as a surprise.

Moderating the Route through which Core Affect infuses Global SWB

Unpleasant affect

The analyses exploring the route through which core affect exerts its influence also yielded some unexpected findings. The hypothesis that systematic processing would dominate for the groups characterized by unpleasant hedonic valence was partially supported. In support, there was a clear dominance of systematic processing for the 'Unpleasant-LowAc' group. However, the hypothesis that systematic processing would also dominate for the 'Unpleasant-HighAc' group was not well supported. The rationale for this hypothesis

had been based on the motivational theory that unpleasant affective states signal that the current situation is potentially detrimental, and that systematic processing is required in order to overcome this situation (Schwarz, 1990). It was proposed that high activation levels would simply enhance this motivation towards systematic processing. However, this hypothesis was not supported, with this group exhibiting substantially less systematic processing than the 'Unpleasant-LowAc' group.

Overall, the analyses with the groups characterised by unpleasant affect indicate that the systematic tendencies related to unpleasant affect are conditional upon activation levels. While systematic tendencies are pronounced for the group characterised by unpleasant affect and low activation, this was not the case when activation levels were high.

Pleasant affect

The hypotheses for the groups characterized by pleasant hedonic valence were also partially supported. As expected, heuristic processing was found to dominate for the group characterized by pleasant affect and high activation ('Pleasant-HighAc'). The tendency in this group for core affect to influence the satisfaction judgment via heuristic processing was remarkably strong, with 65% of the variance in global SWB explainable by the direct influence of core affect. This is consistent with the hypothesis that, as pleasant affect and high activation are both related to heuristic processing, people with affective states that reflect both these properties are particularly likely to adopt heuristic processing.

For the two groups reporting pleasant affects, it was expected that there would be a substantial reduction in heuristic processing between the high activation group ('Pleasant-HighAc'), and the low activation group ('Pleasant-LowAc'). The rationale was based on the theory that, when affective states are used as heuristic cues, they directly inform the judgment and are processed in the same manner as other forms of information (Schwarz, 1990). According to this theory, affective states are competing against other sources of

information which can also be used as heuristic cues and accordingly, when affects are low in activation they may be less salient and accessible than other sources of information. Therefore it was proposed that pleasant affective states that are low in activation would be less likely to inform judgments. This hypothesis was generally not supported because the amount of heuristic processing remained strong, with 56% of the variance in global SWB explainable by the direct influence of core affect. Thus, while there was a small reduction in the amount of heuristic processing, down only 9% from that of the 'Pleasant-HighAc' group, it remained strong when activation was low.

Overall, the analyses with the groups characterised by pleasant affect indicate that core affect influences global SWB predominantly through heuristic processing for these groups, and to a much lesser extent through systematic processing.

Implications

The predictive strength of core affect upon global SWB

The findings of Study 3 have important implications for the theory that judgments of global life satisfaction are predominantly driven by affect (Schwarz & Strack, 1991, 1999). While the findings of Study 1 and a vast amount of past research has indicated support for this theory (e.g., Davern et al., 2007; Schwarz & Clore, 1983; Schwarz et al., 1987), this research has been conducted with the use of population samples. Consistent with the finding that most people report experiencing pleasant rather than unpleasant affects (e.g., Cummins, 2003; Diener & Diener, 1996), it is foreseeable that such population samples would have been composed predominantly of people reporting pleasant affects. Thus, for these population samples the theory that global life satisfaction is predominantly driven by affect would hold true. However, as has been indicated by the present study, this is not the case with samples that are reporting unpleasant affects.

The reason core affect is a weaker predictor for the groups characterized by unpleasant affect remains unclear, and needs further examination. One possible explanation may be reflected in the findings of past studies which indicate that unhappy individuals may have limited attentional resources, and may base decisions upon less accessible relevant information than happier individuals (e.g., Conway & Giannopoulos, 1993; Dobson & Dobson, 1981). Thus, it is possible that the tendency for the groups experiencing unpleasant affects to not base the global life satisfaction judgment upon current affective states, which would be accessible and relevant to the judgment, may reflect differences in attentional focus. Further research is needed to better understand this finding.

The importance of considering the two dimensions together

As stated earlier, past studies in this area have overwhelming focused on the hedonic valence of affect, indicating that heuristic processing tendencies are related to pleasant hedonic valence, while systematic processing tendencies are related to unpleasant hedonic valence. However, the findings of Study 3 have important implications for this research, indicating that the processing tendencies associated with hedonic valence can be conditional upon level of activation. This was particularly pronounced for the groups characterized by unpleasant hedonic valence, where the systematic tendencies related to this group were found to reduce substantially when activation levels were high.

In a similar vein, the findings of Study 3 also have implications for the research that has indicated that high activation is related to heuristic processing and low activation is related to systematic processing (Clark, et al., 1983; Paulus & Lim, 1994). The present findings suggest that these processing tendencies associated with differing levels of activation are conditional upon hedonic valence. The heuristic tendencies related to high activation were detected for the pleasant hedonic valence group, although this was not the case with the unpleasant hedonic valence group. Meanwhile the systematic tendencies related to low

activation were detected for the unpleasant hedonic valence group, but not the pleasant hedonic valence group.

These findings illuminate the importance of including the two-dimensional construct of affect in this field of research. In considering the hedonic valence and activation dimensions in combination, a richer and more comprehensive understanding of how affective states influence processing is gained.

The processing differences between people with different affects

In order to understand the implications of this study, the findings need to be considered in combination with research that indicates that the majority of people report that they are experiencing pleasant affects (e.g., Cummins, 2003; Diener & Diener, 1996). The findings of Study 3 indicate that, regardless of activation levels, for people experiencing pleasant affect there is a tendency for core affect to strongly predict global life satisfaction, and for this influence to occur via heuristic processing. Thus, for the majority of people, when asked to evaluate their satisfaction with "life as a whole", there is a tendency to draw upon current affective states and use this information heuristically. As these people are generally happy, they would reason that they must therefore be relatively satisfied with their lives.

While core affect appears to be a very strong heuristic cue in the global life satisfaction judgment for the majority of people, the findings of Study 3 indicate that it is a very different story for the minority of people who are experiencing unpleasant affects. For these people, core affect is having some influence upon global life satisfaction, although this effect is much weaker and through a different pathway than that of people experiencing pleasant affects. Rather than drawing upon their current affective states and using that information to inform the judgment (i.e., "I am feeling miserable, so I must be dissatisfied"), these people are more likely to base their judgment of life satisfaction upon cognitions that come to mind about

relevant areas of their lives (e.g., how satisfied they are with their health, relationships, achievements, etc). Because there is such a large amount of relevant cognitions that can come to mind, those cognitions that are congruent with an individual's affect are more likely to be salient and accessible, and therefore more likely to come to mind and inform the SWB judgment. Thus, consistent with the mood-congruent memory theory (Blaney, 1986), for people experiencing unpleasant affects, the influence that core affect exerts upon the SWB judgment is predominantly indirect, with affect influencing the accessibility of cognitions.

Possible explanations for processing differences

The findings of the present study are consistent with both the motivational theories (Schwarz, 1990; Wegener & Petty, 1994) and processing capacity theories (Isen, et al., 1982; Mackie & Worth, 1989) of how affective states influence processing. While these theories all differ in the mechanisms through which it is proposed affective states influence processing, they all converge on the idea that pleasant affects increase heuristic processing and decrease systematic processing. The present findings are consistent with such a theory, without providing any further insight as to the specific mechanisms involved. Thus, the reason that pleasant affect is associated to heuristic processing, while unpleasant affect is associated to systematic processing remains unclear and needs further investigation.

It is apparent that the motivational and processing capacity theories may also explain the finding that activation levels influence processing. According to Wegener and Petty's (1994) motivational theory, people experiencing pleasant affects are more likely to scrutinize the hedonic consequences of engaging in detailed processing, decide that the risk of encountering mood-lowering stimuli is high, and revert to less detailed processing in an effort to maintain pleasant moods. If this theory were correct, it would also be expected that low activation levels would provide more of an opportunity for this scrutiny of hedonic consequences than would high activation levels, causing low activation to be associated to more systematic and

less heuristic processing. The findings of the present study are consistent with this proposition, indicating support for this motivational theory.

The processing capacity theory could also explain the influence that activation has upon processing. According to this theory pleasant affective states cause an abundance of positively-toned information to become accessible, interfering with the capacity to undertake detailed processing (Isen, et al., 1982; Mackie & Worth, 1989). If this theory were correct, it would be expected that high activation levels would further intensify this inability to process information in a detailed manner, which would cause high activation to be associated to more heuristic and less systematic processing. The present findings are supportive of this processing capacity theory.

While the present study has not aided in clarifying the mechanisms through which hedonic valence influences processing, support has been provided for both the motivational and processing capacity theories. Furthermore, as the influence that activation exerts upon processing is also explainable by these theories, it is apparent that these theories are likely to reflect the mechanisms underlying the influence that affect, as a two-dimensional construct, has upon processing.

Summary

In illuminating how individual affective states moderate the influence that core affect has upon global life satisfaction, Study 3 has provided important insights. The findings of Study 1 that indicate that core affect strongly predicts global SWB, and predominantly exerts this influence via heuristic processing, are found to be conditional upon the presence of pleasant affect. While the mechanisms responsible for this finding remain elusive, support for both the motivational and processing capacity theories are indicated.

CHAPTER 13: OVERVIEW

With a multitude of evidence indicating that global SWB is driven by affect, the present thesis aimed to clarify the route through which this 'affect infusion' occurs. The two main theories of how affect may infuse the global SWB judgment reflect the heuristic and systematic processing strategies. In order to identify which processing strategy is most likely, a review of the literature was conducted with particular emphasis on the contextual factors (e.g., complexity, personal relevance) which have been found to influence processing. Due to the sheer complexity of the global SWB judgment, it was proposed that affect would predominantly influence this judgment via heuristic processing. While the findings of the three studies support this proposition, the dominance of heuristic processing was found to be conditional upon individual factors.

While the main aim of this thesis was to explore the processing routes through which affect influences global SWB, perhaps the most important discovery made within the thesis was one that was unexpected. The finding that global SWB was largely driven by affect was found to be conditional upon individual affective states. An overview of these findings will now be presented, along with a discussion of the implications of this research, methodological considerations, and recommendations for future research.

Global SWB is Driven by Affect

The notion that global judgments of satisfaction are driven by affect is articulated within the judgmental model of subjective wellbeing (Schwarz & Strack, 1991, 1999), and has received support from various sources (e.g., Davern, et al., 2007; Schwarz & Clore, 1983; Schwarz, et al., 1987). The findings of Study 1 provide support for this theory, with 87% of the variance in global SWB explainable by the total effects of core affect. This finding

suggests that, when asked "how satisfied with you with your life as a whole?" people will usually base their response upon the affective state they are experiencing at the time of the judgment.

The thesis then proceeded with an exploration of whether individual factors moderated this effect. In Study 2, it was found that core affect remained a strong predictor of global SWB, regardless of levels of need for cognition (NFC). This finding illuminates the fact that, even when there is a strong intrinsic motivation towards cognitive processing, there is still a tendency for current affect to infuse the global SWB judgment, as opposed to more comprehensive cognitive processing being undertaken.

Study 3 investigated the influence of a second individual factor, current affective states. These analyses produced unexpected findings, such that the strength of core affect as a predictor was found to be conditional upon individual affective states. The theory that global SWB is largely driven by affect was found to be true for people experiencing pleasant affects, particularly when combined with high activation levels. However, for people experiencing unpleasant affects, core affect was only found to explain a much lower amount of the variance in global SWB, with 33% of variance explained when unpleasant affect was combined with low activation, rising to 47% when combined with high activation.

Overall, the findings of this thesis provide support for the argument that global SWB is largely driven by affect. With evidence suggesting that the majority of people report pleasant affects (Cummins, 2003; Diener & Diener, 1996), these findings indicate that the theory that global SWB is driven by affect is upheld for the majority of people. However, this thesis has also highlighted that this effect is conditional upon individual affective states. For the minority of people who are experiencing unpleasant affects, the theory that global SWB is driven by affect does not appear to hold true.

The Processing Strategies through which Affect infuses Global SWB

While it has been well established that affect is a driving force behind judgments of global SWB, the mechanisms by which affect causes this influence have remained unclear. The two main theories of how affect may influence the global SWB, as discussed by Veenhoven (1996) and Diener et al. (2002), reflected arguments for heuristic and systematic processing, respectively. The main aim of the current thesis was to investigate which of these theories was correct.

In terms of Veenhoven's (1996) argument that "if we feel fine, we gather we must be satisfied" (p. 10), the current findings indicate support that people can use their affective states as heuristic cues that inform SWB judgments. The findings from Study 1 indicated that, of the 87% of the variance in global SWB that was attributable to core affect, 75% of this variance was the result of a direct influence of core affect upon global SWB. Thus, core affect predominantly influenced global SWB directly, indicating support for Veenhoven's proposition.

The findings of Study 2 and 3 indicate that, while core affect influences global SWB predominantly via heuristic processing, individual factors can moderate this effect. Heuristic processing was found to decrease for people who expressed a preference and intrinsic motivation towards thinking. For these people with 'high need for cognition', while their tendency for heuristic processing decreased, their tendency for systematic processing increased, indicating support for Diener et al's (2002) theory that "there can be top-down influences on how bottom-up information is used" (p. 443).

Despite the moderating influence exerted by need for cognition, the dominance of heuristic processing was found to persist regardless of this attribute. Thus, while need for cognition did moderate the strength of heuristic and systematic processing, it did not alter the fact that heuristic processing is the dominant route through which core affect influences

global SWB. However, the second individual factor explored, individual affective states, was found to challenge the dominance of heuristic processing. When people experience unpleasant affects, particularly when combined with low activation levels, core affect influenced the SWB judgment predominantly through systematic processing.

Overall, the findings of this thesis provide strong support for Veenhoven's (1996) theory that affect tends to influence global SWB heuristically. The only exception to this finding appears to be for samples characterized by unpleasant affect. However, with evidence suggesting that most people report pleasant affects (Cummins, 2003; Diener & Diener, 1996), these findings indicate that affect influences global SWB predominantly via heuristic processing for the majority people.

Implications

While affect appears to influence global SWB predominantly via heuristic processing, the findings have illuminated the fact that not all people process this SWB judgment in the same manner. For the majority of the population who are experiencing generally pleasant affects, it appears true that heuristic processing is largely responsible for the influence that affect exerts upon global SWB. However, for people who are experiencing affects that are unpleasant and/or low in activation, or who have high levels of need for cognition, there is a decrease in this tendency for heuristic processing. Thus, these findings indicate that, as the global SWB judgment is not processed in the same manner by every member of the population, the dominance of heuristic processing is conditional upon certain individual factors.

The fact that heuristic processing tends to dominate when individuals are asked to evaluate their global SWB (i.e., satisfaction with "life as a whole") is likely to reflect the characteristics of the question itself, also referred to as 'contextual factors'. As discussed by

Branscombe and Cohen (1991), the broadness of this question is likely to have caused any attempt to undertake a thorough evaluation of the information relevant to the question to be extremely complex and time-consuming. As a consequence, the broadness of the SWB question is likely to have influenced respondents towards adopting heuristic strategies in order to simplify the judgment. In fact, the findings of this thesis indicate that these contextual factors were so influential that even people who express a preference and enjoyment for cognitive processing (i.e., high need for cognition) were more likely to adopt simplifying heuristic strategies than to engage in detailed cognitive processing.

Together, the findings suggest that the majority of people confronted with the question "how satisfied are you with your life as a whole?" will tend to avoid the complexity of this judgment by using heuristic strategies. As discussed, affective states are one heuristic cue that people can draw upon to simplify the SWB judgment. The relevance of current affect for the SWB question is apparent. In line with Veenhoven's (1996) theory, when asked to evaluate satisfaction with ones "life as a whole", the opportunity exists for respondents to infer that "I feel terrible, so therefore I must not be very satisfied", "I feel happy, so therefore must be quite satisfied with my life", or to infer something in between these statements. The current findings indicate that the vast majority of people (i.e., those experiencing generally pleasant affects) take advantage of this opportunity and draw upon their affective states in this manner.

Methodological Considerations and Recommendations for Future Research

Measuring the affective component of SWB

One limitation of this thesis is that a preexisting dataset was used for each of the studies, and therefore there was no opportunity to ensure that the affective terms employed were theoretically consistent with the circumplex model. Ideally, participants would have been

asked to rate a range of terms that equally represented the four quadrants of the circumplex model. While the selection of affective terms used in each of the three studies did sample the four quadrants, there was some disparity in the composition of the terms. Despite this, the three studies consistently found that, of a large number of affective terms were sampled, the vast majority of these terms did not influence global SWB whatsoever. In fact, in each of the three studies only two affective terms (happy and content) were found to be significant contributors to global SWB. This finding is consistent with a study by Davern et al. (2007) which found that, of a sample of affective terms, "happy" and "content" were the only affects to strongly predict global SWB.

The finding that the affective component of SWB (termed here 'core affect') is best represented by the use of two affective terms, happy and content, has important implications for future research. This finding supports the argument that the affective component of SWB is best represented with the use of a number of affective terms, rather than a single measure of affect. Thus, it is recommended that future research attempting to measure the affective component of SWB adopt similar procedures to this thesis, with a range of affective terms sampled and regressed against global SWB. While it is recommended that the composition of such terms should equally represent the four quadrants of the circumplex model, it is envisaged that happy and content will persist in being the dominant predictors of global SWB, regardless of what other terms are also sampled. Thus, this research has illuminated the importance of sampling both of these affective terms in future research, and, on the condition that happy and content are both sampled, it is foreseeable that these two terms will again stand out in future research as solid indicators of the affective component of SWB.

Measuring the two dimensions of affect

In Study 3, measures of both the hedonic valence and activation dimensions were derived. These measures were based primarily upon theory, with "happy" and "content" thought to be solid representations of the pleasant-end of the hedonic valence dimension, while "alert" and "energized" were conceptually similar in their assessment of the high end of the activation dimension. One limitation of this study is that only seven affective terms were sampled, which placed restrictions on the choice of terms to be used to represent each dimension. Fortunately, the four terms that were used for this purpose were conceptually sound measures of the dimensions, with analyses also indicating empirical support for the use of these terms. However, it would be desirable to further investigate the affective terms that should be used to represent these dimensions. In particular, sampling a wider range of terms could provide clarification of whether these four terms are solid measures of the two dimensions, or whether other terms may be more suitable. Ideally, the terms that are used to represent one dimension should be neutral on the second dimension, so as to isolate out the effects of the two dimensions. While some of the four terms used in Study 3 appear to be reasonably pure measures of their respective dimensions, it is hoped that future research will find a purer measure of the activation dimension than is the term "energized" which also denotes pleasant affect.

Is the sample representative of the general population?

In each of the three studies of this thesis, the samples consisted of people who agreed to take part in a longitudinal study. As there is evidence to suggest that the personality characteristics of people who participate in research are likely to differ from those who do not participate in research (Dollinger & Leong, 1993; Marcus & Schütz, 2005; Rogelberg et al., 2003), it is possible that the findings of the present thesis may not reflect the section of the population who are unlikely to participate in research.

The non-participation of certain sections of the community is a common problem, and not something that can be easy rectified for research purposes. However, it is anticipated that this issue will not have any significant implications for the present thesis. In the study by Davern et al. (2007), the relationship between personality, SWB, and affect was investigated. Their findings indicated that affect is the driving force behind SWB, and that personality makes no additional contribution to the prediction of SWB. Thus, the fact that the samples used in the present thesis may have slightly different personality characteristics to the general population should have little influence upon the generalization of the reported results.

Screening out cases with scores suggestive of depression

When clustering the sample into four groups, the decision was made to eliminate participants with scores suggestive of depression. This procedure was undertaken primarily because of insufficient sample sizes in some of the groups. The vast majority of people were classified into the 'pleasant affect' groups, while very small numbers were classified into the 'unpleasant affect' groups. While it is acknowledged that the removal of participants from the sample for theoretical reasons is undesirable, the criteria for removal of participants appears sound (i.e., scoring less than or equal to 50 on the global SWB variable), as reflected by the research of Cummins, Woerner, Tomyn, Gibson, and Knapp (2007). Furthermore, the fact that the distribution of participants within the pleasant- and unpleasant- affect groups became more balanced with the removal of these extreme cases suggests that the removal of these cases was warranted. It is likely that the inclusion of these cases led to the pleasant affect groups being characterized by normal variability in affect, while the unpleasant affect groups were characterized by more pronounced depression. Thus, by removing cases that exhibited scores suggestive of depression, the sample now appears to reflect the 'normal' variability in affect that would be characteristic of the vast majority of the general population.

In terms of recommendations for future research, it is apparent that the screening out of cases with very unpleasant affect, as was performed here, has advantages and disadvantages. As discussed, by screening out these extreme cases the sample becomes characterized by 'normal' variability in affect. Thus, the research findings have strong implications for the vast majority of the general population. It is therefore recommended that research which is attempting to further investigate such 'normal' mood variability, while being willing to omit a focus upon more severe clinical levels of depression, adopt similar procedures as this thesis and screen out pronounced unpleasant affect.

While there are advantages to using a sample that excludes participants with scores suggestive of depression, an obvious disadvantage of this approach is that the implications that can be drawn from the research are somewhat limited. Regarding the present thesis, the findings have indicated that global SWB is processed differently for people with different affects, with people experiencing unpleasant affects, particularly when combined with low activation levels, being more likely to engage in detailed cognitive processing than people with pleasant affect and/or high activation. Whether this finding is applicable to people experiencing scores suggestive of depression is unknown and needs further research. To investigate this, it would be advantageous to continue this research with a very large sample, which would enable adequate sample sizes to be achieved in each of the four groups, without the need to screen out cases. If the current findings are replicated, as is expected, this would indicate that they have implications not only for people experiencing 'normal' variability in mood, but also those experiencing significantly lowered affect.

Summary

While further research is required to replicate these reported findings, it does appear that certain implications can be drawn from the present thesis. It can be asserted that within the general population, affect is a dominant driving force behind global SWB, and that this influence is largely via heuristic processing. Thus, when asked to evaluate satisfaction with their "life as a whole", the average person is likely to respond to this question by accessing their current affective state and using this to infer their general level of satisfaction. However, this is not true for everyone. When people are experiencing unpleasant affect, particularly when combined with low activation levels, they are not likely to draw upon their affective states in this way. Instead, it appears that they are more likely to engage in detailed cognitive processing in an effort to respond to the satisfaction question. This tendency to engage in detailed cognitive processing is also enhanced by the presence of a preference and motivation towards this type of processing (i.e., high need for cognition).

Overall, the present thesis has succeeded in clarifying the processing routes through which affect can influence global SWB. The thesis has then extended beyond this aim, to examine how these processing routes can be moderated by individual factors. Together, this thesis has contributed to furthering understanding in the field of SWB.

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APPENDIX A

Assessment of whether the PWI is less affect-based, and thus more cognition-based than the global satisfaction question

Two standard regression analyses were performed in order to test whether the global satisfaction question is a more affective construct than the PWI. Core affect was represented by two affective terms (happy and content), which were entered as predictors of the global life satisfaction question (Table 3.6), and the PWI (Table 3.7). As expected, core affect accounts for a smaller amount of the variance in the PWI (54%) than it does in global life satisfaction (66%). While affect seems to exert a notable effect upon both of the variables, these findings do support the argument that the PWI is less affective compared to the global satisfaction question.

Table 3.6: Standard Regression with Core Affect as a Predictor of Global Life Satisfaction.

Variable	**B**	**β**	**sr^2**	
Happy	.53***	.50	.10	
Content	.34***	.35	.05	
				$\underline{R}^2 = .66$
				$\underline{R} = .81***$

$\underline{n}$ = 531, *** p<.001

Table 3.7: Standard Regression with Core Affect as a Predictor of the PWI.

Variable	**B**	**β**	**sr^2**	
Happy	.35***	.41	.07	
Content	.29***	.37	.06	
				$\underline{R}^2 = .54$
				$\underline{R} = .74***$

$\underline{n}$ = 518, *** p<.001

APPENDIX B

Assessment of whether the PWI is simply reflecting the affective component of SWB

Table 3.8: Hierarchical Regression with Core Affect (including "satisfied"), and the PWI as Predictors of Global Life Satisfaction.

Variable	**B**	**β**	**sr^2**	
Step 1				
Happy	.45***	.42	.06	
Content	.22***	.23	.01	
Satisfied	.25***	.25	.02	
				$\underline{R^2}$ = *.68*
				$\underline{R}$ = *.83****
Step 2				
Happy	.34***	.32	.03	
Content	.16***	.16	.00	
Satisfied	.17***	.17	.00	
PWI	.36***	.29	.04	
				$\underline{R^2}\,\Delta$ = .04
				$\underline{R^2}$ = .72
				$\underline{R}$ = .85***

$\underline{n}$ = 517, * $\underline{p}$<.05, ** $\underline{p}$<.01, *** $\underline{p}$<.001

APPENDIX C

Pearsons correlations between the variables, for the low and high need for cognition groups

Table 7.4: Low NFC group: Pearsons Correlations for all Variables used in Study 2.

	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1. Global L.S	.74***	.68***	.76***	.62***	.55***	.42***	.37***	-.31***	-.36***	-.47***	-.05	.07	-.11	.14 *	.07	-.03
2. PWI	1.00	.71***	.75***	.73***	.59***	.55***	.47***	-.33***	-.38***	-.48***	-.11	.02	-.15 *	.02	.03	.00
3. Happy		1.00	.77***	.74***	.72***	.63***	.61***	-.33***	-.35***	-.52***	-.05	.03	-.13 *	.03	.04	.02
4. Content			1.00	.83***	.63***	.56***	.44***	-.34***	-.44***	-.52***	-.04	.09	-.14 *	.07	.05	.03
5. Enthusiastic				1.00	.59***	.67***	.55***	-.27***	-.36***	-.49***	-.02	.17 **	-.14 *	.07	.04	.07
6. Relaxed					1.00	.51***	.50***	-.25***	-.25***	-.38***	.05	.06	-.14 *	.10	.10	.02
7. Lively						1.00	.76***	-.15 *	-.16 *	-.35***	-.02	.06	-.10	.04	-.05	.06
8. Energetic							1.00	-.21***	-.13 *	-.35***	.00	.07	-.15 *	.05	-.08	.11
9. Sad								1.00	.71***	.68***	.09	.03	.18 **	.05	.11	-.09
10. Discontented									1.00	.64***	.09	.02	.18 **	.08	.04	-.07
11. Depressed										1.00	-.02	-.10	.10	.05	.07	-.14 *
12. NFC Item 1											1.00	.52***	.06	.09	.19 **	.52***
13. NFC Item 2												1.00	-.08	.16 **	.14 *	.55***
14. NFC Item 3													1.00	-.01	.13 *	-.46***
15. NFC Item 4														1.00	.42***	-.43***
16. NFC Item 5															1.00	-.48***
17. Total NFC																1.00

Note: n = 255 – 264. *p<.05, **p<.01, ***p<.001 (two-tailed significance).
Global L.S = Global life satisfaction, NFC = Need for cognition.

Table 7.5: High NFC group: Pearsons Correlations for all Variables used in Study 2.

	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1. Global L.S	.77***	.63***	.73***	.63***	.41***	.38***	.35***	-.32***	-.41***	-.39***	-.03	.00	-.01	-.07	-.19**	.07
2. PWI	1.00	.58***	.70***	.63***	.38***	.44***	.46***	-.33***	-.42***	-.43***	-.09	-.03	.02	-.04	-.28***	.04
3. Happy		1.00	.72***	.74***	.55***	.56***	.58***	-.43***	-.50***	-.55***	-.09	-.01	.05	-.10	-.09	-.00
4. Content			1.00	.73***	.54***	.45***	.45***	-.45***	-.51***	-.50***	-.09	-.03	.01	-.06	-.12	.00
5. Enthusiastic				1.00	.50***	.60***	.60***	-.41***	-.44***	-.47***	-.14 *	.01	-.03	-.15 *	-.15 *	.03
6. Relaxed					1.00	.41***	.40***	-.38***	-.36***	-.38***	-.05	.03	-.04	-.22***	-.08	.08
7. Lively						1.00	.81***	-.30***	-.34***	-.39***	-.09	-.04	.08	-.11	-.05	-.03
8. Energetic							1.00	-.25***	-.31***	-.37***	-.07	.01	.06	-.07	-.10	.00
9. Sad								1.00	.62***	.72***	-.07	-.05	.12 *	.07	.11	-.14 *
10. Discontented									1.00	.64***	.08	.03	.11	.05	.17 **	-.05
11. Depressed										1.00	-.01	-.00	.09	.05	.15 *	-.10
12. NFC Item 1											1.00	.41***	-.14 *	.04	.02	.65***
13. NFC Item 2												1.00	-.10	-.10	-.03	.60***
14. NFC Item 3													1.00	.27***	.25***	-.56***
15. NFC Item 4														1.00	.33***	-.50***
16. NFC Item 5															1.00	-.50***
17. Total NFC																1.00

Note: n = 267 – 274. *p<.05, **p<.01, ***p<.001 (two-tailed significance).
Global L.S = Global life satisfaction, NFC = Need for cognition.

APPENDIX D

Pearsons correlations between the variables, for the four groups that represent the quadrants of the circumplex model

Table 11.4: 'Unpleasant-LowAc' group: Pearsons Correlations for all Variables used in Study 3.

	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. Global L.S	.49***	.20**	.18**	.06	-.08	.07	-.16**	-.07
2. PWI	1.00	.29***	.27***	.10	.16**	.23***	-.31***	-.19**
3. Happy		1.00	.32***	.06	.32***	.16**	-.22***	-.32***
4. Content			1.00	.10	.06	.19**	-.28***	-.36***
5. Alert				1.00	-.02	.13*	-.05	-.04
6. Excited					1.00	.34***	.02	-.07
7. Energised						1.00	-.11	-.19**
8. Upset							1.00	.64***
9. Depressed								1.00

Note: n = 271 – 276. *p<.05, **p<.01, **p<.001 (two-tailed significance). Global L.S = Global life satisfaction.

Table 11.5: 'Unpleasant-HighAc' group: Pearsons Correlations for all Variables used in Study 3.

	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. Global L.S	.41***	.25**	.28***	.06	.07	-.03	-.10	-.18*
2. PWI	1.00	.31***	.32***	-.11	.14	-.02	-.27**	-.37***
3. Happy		1.00	.35***	-.16*	.24**	-.07	-.07	-.26**
4. Content			1.00	-.13	.15	.01	-.21**	-.21**
5. Alert				1.00	-.11	-.13	-.07	-.06
6. Excited					1.00	.20*	.22**	.00
7. Energised						1.00	.01	.10
8. Upset							1.00	.65***
9. Depressed								1.00

Note: n = 152 – 159. *p<.05, **p<.01, **p<.001 (two-tailed significance). Global L.S = Global life satisfaction.

Table 11.6: 'Pleasant-LowAc' group: Pearsons Correlations for all Variables used in Study 3.

	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. Global L.S	.43***	.43***	.44***	-.07	.04	.00	-.19**	-.12
2. PWI	1.00	.27***	.34***	-.01	.02	.10	-.27***	-.24**
3. Happy		1.00	.44***	.03	.03	.04	-.27***	-.16*
4. Content			1.00	-.01	.05	.05	-.34***	-.23**
5. Alert				1.00	-.01	-.20**	-.03	-.00
6. Excited					1.00	.27***	.09	.07
7. Energised						1.00	.01	-.06
8. Upset							1.00	.55***
9. Depressed								1.00

Note: n = 182 – 189. *p<.05, **p<.01, **p<.001 (two-tailed significance). Global L.S = Global life satisfaction.

Table 11.7: 'Pleasant-HighAc' group: Pearsons Correlations for all Variables used in Study 3.

	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. Global L.S	..53***	.61***	.59***	.35***	.21***	.27***	-.30***	-.25***
2. PWI	1.00	.50***	.50***	.35***	.20***	.28***	-.26***	-.23***
3. Happy		1.00	.67***	.43***	.31***	.36***	-.32***	-.28***
4. Content			1.00	.39***	.26***	.31***	-.33***	-.31***
5. Alert				1.00	.20***	.44***	-.20***	-.21***
6. Excited					1.00	.35***	.03	.00
7. Energised						1.00	-.14***	-.17***
8. Upset							1.00	.69***
9. Depressed								1.00

Note: n = 607 – 633. *p<.05, **p<.01, **p<.001 (two-tailed significance). Global L.S = Global life satisfaction.