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Patterns of anger, attribution, and appraisal

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Running head: PATTERNS OF ANGER, ATTRIBUTION, AND APPRAISAL

Patterns of anger, attribution, and appraisal

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Edith Cowan University

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USE OF THESIS

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Abstract

A single study investigates two cognitive theories of anger arousal, and the hostile attribution bias (HAB) phenomenon from the aggression literature. It was argued that the role of B. Weiner's (1985, 1986) causal attribution dimension of intentionality has been underestimated in anger arousal; and it was hypothesised that when attributions of intentionality increase anger arousal increases. R. S. Lazarus and K. A. Smith's (1988) appraisal theory holds that emotions are aroused in response to personally relevant events, and without this appraisal process causal attributions are insufficient to evoke emotions. Based on this it was hypothesised that appraisal components are better predictors of anger arousal than attribution dimensions. For HAB, it was predicted that a high anger prone group would become more angry, and make stronger attributions of intentionality in ambiguous and accidental situations, when compared to a control group. Participants were 34 females and 60 males (Mean age = 33.6 years). Participants were shown a series of video recorded vignettes that depicted social interactions with negative consequences, and asked how they would react if they were the protagonist in these vignettes. Scales developed by the author, were used to measure expected anger arousal, 4 appraisal components, and 5 causal attributions dimensions. Three counterbalanced series of 3 vignettes were used. These showed 3 scenarios in which the intent of an antagonist was depicted as either accidental, ambiguous or deliberate. Results showed anger arousal increased in 6 of the 8 comparisons in which intentionality increased, no contradictory results were found. Intentionality was also found to be the primary attribution dimension implicated in anger arousal. Appraisal components were found to be better cognitive predictors of anger arousal than attributions, however, individual appraisal dimensions did not interact in the predicted fashion. No support was found for extending HAB to

anger. These results were interpreted as showing that attributions of intentionality play a causal role in anger arousal, and that the personal significance of events is more closely related to anger arousal than an event's cause. The overall conclusion was that the results for intentionality were of the most theoretical and applied significance

Declaration

I certify that this thesis does not incorporate, without acknowledgment, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in text.

Signature.....

Date 10/2/97

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Introduction

In 1976 Raymond Novaco wrote that "anger, although one of the most talked about human emotions, is the least studied. Aggression and violence have been prominent topics in behavioural research, but anger arousal has received considerably less attention" (p. 1124). This scarcity of research continues today, and can probably be attributed to the theoretical work and research findings that suggests anger plays a mediating role in aggression and violence (Thomas-Peter & Howells, 1996; Howells, 1995; Rule & Nesdale, 1976; Levey & Howells, 1990; Zillmann, 1979). This is a finding that has allowed researchers to measure more tangible behavioural and cognitive outcome variables, and to assume that anger has played a mediating role. This is not to say that anger is implicated in all aggressive and violent incidents, with a distinction between hostile (anger mediated) and instrumental (dispassionate) aggression long being made (Buss, 1961). Even though anger is strongly implicated in violence and aggression, it should not be regarded as an emotion with only negative consequences.

Anger has functional qualities in impelling action and as a form of communication (Novaco, 1993). Averill (1983) in a study of angry episodes found that only 10% of typical episodes led to aggression, and that in 19% of episodes feelings of anger led the person to be more friendly. Similarly this study found that a person experiencing anger was three times more likely to have a positive outcome from an episode involving anger than to have a negative outcome, and that the target of the anger was two and half times more likely to have a positive outcome. Anger therefore should not simply be viewed as a problem, it becomes one only when it leads to negative outcomes, such as disrupting task performance, activating aggressive behaviours, or affecting physiological and psychological well-being (Levey & Howells, 1990).

These positive aspects of anger suggest that it is an important emotion to study independently of its association with aggression and violence. Further, it has been argued (Averill, 1983) that aggression and violence represent extreme cases of anger

that may be misleading. This is because aggressive incidents are likely to be the exception and rule, and they may be the result of the cumulative affects of several angry incidents. To understand anger it is therefore important to look to theories and research into emotions, and not only to theories of aggression and violence.

Interest in the study of emotions has exploded in recent years. This interest has come from many different disciplines, from many different perspective's, and at many different levels of analysis (Lazarus, 1993). As a result, there are many theories of emotion (Oatley & Jenkins, 1992), and many definitions of what emotions are (Frijda, Kuipers, & ter Schure, 1989). Most theories share the assumption that emotions are primarily adaptive (Smith & Ellsworth, 1987), their role being to mediate between environmental stimulation and behavioural responses. Each emotion is seen as serving a particular set of adaptive functions, with anger's function being to prepare the person for action and to remove an obstacle that blocks their goals (Smith & Ellsworth, 1987). Here, though, agreement ends, with theorists disagreeing about how the environment triggers an emotional reaction. and how the emotional reaction affects subsequent behaviours. However, because the purpose of this research is to investigate what causes the arousal of anger, the debate surrounding the effects of emotions (anger) on subsequent behaviours can be disregarded.

At the core of the argument about the arousal of emotions is the role of cognition (Oatley & Jenkins, 1992). Some theorists (e.g. Zajonc, 1980) argue emotion is not causally connected to cognition; others (e.g. Berkowitz, 1990; Izard, 1993; Novaco, 1993) stress the interactions between the environment, affective states, learned behaviours, and cognitions; while others (e.g. Clore, Ortony, Dienes, & Fujita, 1993; Smith & Lazarus, 1993; Weiner, 1985) argue that cognition holds a predominant role in the arousal of emotions. However, while much of this debate has centred on the definition of cognition (Buck, 1990), it is apparent that cognitive processes are a key ingredient in the arousal of emotions (Buck, 1990; Howells, 1995; Oatley & Jenkins, 1992). This is because cognitive theorists (e.g. Clore et al., 1993;

Lazarus, 1984, 1991a; McGraw, 1987) argue that cognition encompasses all mental activity, not only that which is conscious, rational or intentional.

The central tenet of these cognitive theories is that emotions are linked to important goals (Oatley & Jenkins, 1992) and how well a stimulus event matches these goals is assessed cognitively on a limited number of dimensions (Frijda et al., 1989). Each emotion is thought to correspond to a particular pattern of responses on those dimensions. Thus, these theories make predictions for a wide range of emotions, of which anger arousal is only one aspect. This has the affect of reducing the quantity of research that has been carried out specifically on anger.

The second tenet of most cognitive theories "is that people are often conscious of emotions, and that information about emotions conveyed in ordinary language is meaningful-indeed essential to ordinary discourse" (Oatley & Jenkins, 1992, p. 61). That is, while cognition in anger arousal can occur automatically, this is often not the case because of the interpersonal function of emotions. Cognitive theories are particularly relevant to anger, because anger is seen as being a highly interpersonal emotion (Averill, 1983; Levey & Howells, 1990; Smith & Ellsworth, 1985). That is, people should be very cognisant of anger, because it often occurs in situations where it must be communicated to other people, or other people's anger must be interpreted.

Before individual theories and research into anger are described, it is important to define anger, Spielberger (1988) defines anger:

"as having two major components, state and trait anger. State anger is defined as an emotional state marked by subjective feelings that vary in intensity from mild annoyance or irritation to intense fury and rage.... Trait anger is defined as the disposition to perceive a wide range of situations as annoying or frustrating, and the tendency to respond to such situations with more frequent elevations in state anger" (p. 1).

Causal attribution theory

One of the most researched cognitive theories of emotion is Weiner's attribution theory (Siebert and Ward, 1995). Weiner (1985, 1986) argues that a primary adaptive mechanism of mankind is to try to assign causality to events, and that it is through this causal search that we understand the world and base our future expectancies. Weiner contends that these causal attributions occur along a limited number of dimensions, and that emotions arise in response to specific patterns of attribution. These patterns of "perceived causality certainly will differ from person to person and within an individual over occasions" (Weiner, 1985, p. 555), however the underlying dimensions on which they are understood, and the way these dimensions cause emotion remain constant.

Three primary attribution dimensions and a further two theoretically uncertain dimensions are proposed by Weiner (1985, 1986). Weiner's first dimension is locus of causality (locus) which can be internal or external. An internal cause is one which is perceived to be due to factors within the person, and an external cause is one within the environment. The environment is everything outside the person making the causal judgement. It could be tangible (another person or an object), or intangible (fate). The second causal dimension is stability. A cause can be perceived as stable, such as ability, or unstable, such as luck. The third primary attribution dimension is controllability, whether the cause of an event is under volitional control or not. For example, effort may be perceived as being a controllable cause of success, whereas aptitude is uncontrollable.

Intentionality is Weiner's fourth causal dimension. It refers to how intentional (deliberate) or unintentional (accidental) an event's cause is perceived to be. Weiner argues that intentionality is largely similar to the dimension of control, and these two dimensions covary highly. It is argued that "individuals intend to do what is controllable, and can control what is intended" (1985, p. 554). The final dimension is globality which was derived from the work of Abramson, Seligman, and Teasdale (1978). Globality refers to whether a cause is specific to a situation, or generalisable to

several situations. For example, intelligence could be perceived as a general cause of mathematic ability, whereas maths aptitude would be a more specific cause. Weiner's model of causal attributions is distinct from Abramson et al.'s (1978) model of attributional style (see Abramson, Metalsky, & Alloy, 1989 for a review), because attributional style does not include the key dimension of controllability (Weiner, 1991).

Weiner makes predictions about the relationships between attribution dimensions and specific emotional responses, but qualifies these predictions by stating that "the field of emotion is vast and complex" (1985, p. 559). Some of the specific predictions of emotional reactions elicited by causal attributions include; that for negative events, guilt arises when a cause is attributed as being internal and controllable, and shame when the cause is internal and uncontrollable; for positive events, gratitude arises when the cause is external, controllable and intentional, and pride is directed by internal and controllable cause. Anger is theoretically related to negative events, where attributions are made that the cause was external, controllable, and to a lesser extent intentional. The theory also makes predictions about how causal attributions affect future cognitions and how these cognitive responses interact with emotional responses to cause behaviour. This is an aspect of Weiner's theory that is beyond the scope of this study.

Causal attribution theory was originally applied to the explanation of emotional and behavioural reactions in achievement situations and, while the model has been successfully applied to many research areas (Betancourt & Blair, 1992; Ho & Venus, 1995), is best described in terms of achievement. Research is typically conducted by asking participants to describe their affective reactions to scenarios that describe a student failing an exam (see Weiner, 1990 for a review). Some scenarios are varied to alter the amount of control the student had over the result. These studies have found anger was evoked in scenarios that suggest failure was due to a lack of effort, particularly where this was coupled with high ability. In contrast, in scenarios where effort was depicted as high and ability as low, pity was the evoked emotion.

Research into helping behaviour has also found a link between attributions of controllability and anger (Reisenzein, 1986; Schmidt & Weiner, 1988).

The research described above appears to support the mediating role of attributions of controllability in anger arousal, however, it does not measure the contribution of intentionality. This is unexpected because several theorists (Averill, 1983; Fergusun & Rule; including Weiner, 1985, 1986) highlight the importance of making attributions of intent for the evocation of anger. Systematic research into the mediating role of intentionality in anger has not been carried out (Betancourt & Blair, 1992), however several lines of research suggest that intentionality may be more important in evoking anger than controllability. Firstly, studies that have measured attributions of intentionality have found that it predicts anger (Graham & Hudley, 1994; Graham, Hudley, & Williams, 1992), findings that, when taken alone, are not contrary to Weiner's (1985, 1986) position. Secondly, a large body of research (eg. Dodge & Coie, 1987; Dodge, Price, Bachorowski, & Newman, 1990), based on Dodge's social information processing theory (see Dodge, 1993 for a review), has found that attributions of hostile intent are strongly related to the arousal of anger. While hostile intent and intentionality are not the same construct, a study by Epps and Kendall (1995) found that they were moderately correlated and both predicted anger arousal. Finally, studies by Betancourt and Blair (1992), and Weiner, Amirkhan, Folkes, and Verette (1987) have measured attributions of controllability and intentionality and have found that intentionality was the causal dimension closely related to anger.

Given that these lines of evidence suggest intentionality is the key causal attribution in anger, they do not explain the strong connection previously described between anger and controllability. This inconsistency can be explained by a closer examination of these studies. Firstly, in Weiner's studies of achievement situations it was found that anger was evoked when there was a lack of effort (see Weiner, 1990 for a review). This finding can be explained if it is considered that the phrase 'lack of effort' has two parts, firstly 'effort' which implies controllability and secondly 'lack of

which implies intentionality. If an alternative scenario were used, where the controllable part of the cause remained unchanged, and the intentional part was altered, it seems likely that a different emotion would be evoked. Such a scenario may read: the student failed because an accident prevented them from applying sufficient effort.

Research into helping behaviour that found a link between attributions of controllability and anger, can be explained by examining the measures of controllability used (Reisenzein, 1986; Schmidt & Weiner, 1988). In these studies the measures extended the construct of controllability by measuring three components; controllability, responsibility, and other persons fault (blame). This extension of the construct suggests that responsibility and blame are inevitable consequences of an attribution of controllability. This is not the case, because a person who causes a controllable event may not be the person who is held responsible, and the person who is held responsible may not be blamed. For example, a child spills a drink, their parent is held responsible, but no blame is attributed because the parent had a good reason for not supervising the child. This distinction between causality, responsibility, and blame is made by Shaver (1985; Shaver & Drown, 1986) who also argues that responsibility has two parts, causal responsibility and moral responsibility, which further increases the conceptual confusion between these constructs.

A closer examination of Wiener's (1985) statement: "individuals intend to do what is controllable, and can control what is intended" (p. 554) shows it to be incorrect. This is because a controllable outcome may be caused unintentionally (e.g. failing an exam due to insufficient effort following an accident) and we cannot always control what is intended (e.g. picking the winning numbers in a lottery; getting a first class honours).

It appears that the failure of this research and theory into causal attribution to distinguish between intentionality and controllability is due to researchers and theorists deciding how these two constructs should be related, rather than allowing individual participants to make their own judgements. This is contrary to Weiner's

(1985) own contention "perceived causality certainly will differ from person to person and within an individual over occasions" (p. 555).

The problems of clearly defining the construct of controllability and separating it from intentionality are reflected in the scales that have been devised to measure causal attributions. In Russell's (1982) Causal Dimension Scale controllability is measured by three items that address control, intent, and responsibility. This has resulted in it being found to have low reliability (Vallerand and Richer, 1988). A revised version of this scale (McAuley, Duncan, & Russell, 1992) corrected this, but did not include a measure of the intentionality dimension, an omission which is common to other scales (eg. Benson, 1989; Seigert & Ward, 1995). This lack of clear measures of intent suggest that a measure that distinguishes between intent and control is needed. It also emphasises the lack of research into the affect of causal attributions of intentionality on anger.

Appraisal theory

Weiner's (1985, 1986) theory of emotional arousal is based on the proposition that the primary adaptive mechanism of mankind is in assigning causality to events. However, most cognitive researchers "agree that emotions are usually elicited by evaluating events that concern a person's important needs or goals" (Oatley & Jenkins, 1992, p. 60). It is argued that the attributed causality of an event is only one aspect of how an individual appraises the personal significance of that event. The difference between causal attribution and appraisal is emphasised by Lazarus and Smith (1988; Smith & Lazarus, 1990) who argue that there are two types of cognitive processes involved in emotional arousal: knowledge and appraisal.

In a nutshell, *knowledge*, whether concrete and primitive or abstract and symbolic, consists of cognitions about the way things are and how they work. In contrast, *appraisal* is a form of personal meaning consisting of evaluations of the significance of this knowledge for well-being. If personal stakes are not implicated in an adaptational encounter, knowledge is cold cognition, to use a

well-known metaphor. Appraisals, in contrast, involve such stakes and reflect how adequately we are managing the encounter. They are therefore warm or hot (Lazarus and Smith, 1988, p. 283).

Lazarus and Smith assert that knowledge is our cognitive representation of the world, the way things are and the way things work. This includes: general knowledge, our beliefs, attitudes, and theories of the world; and contextual knowledge, our understanding of the who, when, what, why, and how of particular encounters. Weiner's (1985) causal attribution is seen to be one of many cognitive strategies that are used to gain this knowledge (Smith, Haynes, Lazarus, & Pope, 1993). Causal attributions are seen as relevant to emotional arousal because they contribute data to our understanding of a situation, "however, as long as they remain non-evaluative and fact oriented ... they are not sufficient to produce emotion" (Smith et al., 1993, p. 917). Instead, it is how this knowledge is appraised for its significance to personal well being that dictates whether an emotional response is evoked. For example, a person's reactions to seeing a car being scratched will vary, depending on whether it is their car or someone else's, while the attributions the person makes about the cause will stay the same.

Appraisal is a person's evaluation of how harmful or beneficial an event is to their goals, whether these goals are conscious or not. Two levels of appraisal are posited, primary and secondary. Primary appraisal addresses how relevant an event is to a person's goals, and whether it is positive or negative. It is called primary appraisal, not because it necessarily comes first when understanding an event, but "because it provides the 'heat' in a transaction, based on personal relevance, which is what makes knowledge potentially emotional" (Lazarus & Smith, 1988, p. 284). Primary appraisal alone, though, does not determine whether an event is harmful or beneficial. Secondary appraisal is needed, which is the individual's assessment of their ability to cope with an event and the likely outcomes of future interactions. This determines the significance of an event, and therefore determines the specific emotional reactions.

Lazarus and Smith (1988) propose six dimensions along which appraisal judgements are made. For primary appraisal, two dimensions are identified, motivational congruence and motivational relevance. "Motivational congruence refers to the extent to which a transaction is consistent or is inconsistent with what the person wants" (p. 289), that is does it thwart or facilitate personal goals? For example, the theft of a car may be motivationally congruent if it was insured and unwanted, or motivationally incongruent if it were not insured. "Motivational relevance refers to the extent to which the encounter touches on personal goals and concerns" (p. 289), that is, how major or minor is the event. For example, the motivational relevance of a stolen car that was not insured would vary depending on the car's value, both personal and financial.

The cognitive components of secondary appraisal are accountability, problem-focused problem solving potential, emotion-focused coping potential, and future expectancy. Accountability "determines who (oneself or someone else) is to receive the credit (if the encounter is motivationally congruent) or the blame (if it is motivationally incongruent) for the harm or benefit" (Smith & Lazarus, 1990, p. 618). That is, how praiseworthy or blameworthy is the agent that caused an event? The "Problem-focused coping potential reflects evaluations of one's ability to act directly upon a situation.... Emotion-focused coping potential refers to the perceived prospects of adjustment psychologically to the encounter.... Future expectancy refers to the perceived possibilities... for changes in the psychological situation" (p. 618).

In a similar manner to Weiner's (1985) attribution theory, Lazarus and Smith (1988) make predictions about which of their appraisal dimensions combine to form specific emotions. However, they argue that these combinations of appraisal components are insufficient to "distinguish among the disparate emotions" (p. 290). They argue that molar cognitive constructs are needed to distinguish individual emotions. These they call core relational themes, with each emotion having its own unique core relational theme. The theoretical purpose of the core relational theme being to "represent a distinctive type of harm or benefit" (Smith et al, 1993, p. 918)

that has special adaptational significance. The appraisal dimensions and core relational themes theoretically associated with six emotions are shown in Table 1.

Table 1

Appraisal Dimensions and Core Relational Themes Associated With Six Emotions

Emotion	Core relational theme	Important appraisal dimensions
Anger	Blame	Motivationally relevant Motivationally incongruent Other accountability
Guilt	Self-blame	Motivationally relevant Motivationally incongruent Self accountability
Fear-anxiety	Danger-threat	Motivationally relevant Motivationally incongruent Low or uncertain (emotion-focused) coping potential
Sadness	Irrevocable loss Helplessness about harm or loss	Motivationally relevant Motivationally incongruent Low (problem- focused) coping potential Negative future expectations
Hope-challenge	Effortful optimism	Motivationally relevant Motivationally incongruent High (problem focused) coping potential Positive future expectations
Happiness	Success	Motivationally relevant Motivationally congruent

(Smith et al., 1993, p. 918)

There is only a small amount of research that has tested Lazarus and Smith's theory of emotion, which is in part due to Lazarus proposing an alternative theory of emotion that is an extension of his earlier work with Smith (Lazarus, 1991a, 1991b, 1993). However, there is a moderate degree of support from other sources for their model's predictions for anger arousal. Many researchers (eg. Averill, 1983; Clore et al., 1993; McGraw, 1987) have highlighted a link between blame and anger, blame being the core relational theme Lazarus and Smith identify for anger. For example, Averill's (1983) research leads him to argue that, "more than anything else, anger is an attribution of blame" (p. 1150). Similarly, a growing body of research has identified the importance of the appraisal process in anger (Thomas-Peter & Howells, 1996). While much of this research reaches a different conclusion about what appraisals are relevant for each emotion, some are extremely similar. For example, Ortony, Clore, and Collins (1988), identify three variables that affect the intensity of angry emotions. "The degree of judged blameworthiness,... deviations of the agent's action from the person/role-based expectations,... and the degree to which the event is undesirable" (p. 148). Variables which are almost identical to Lazarus and Smith's appraisal dimensions of accountability, motivational relevance, and motivational congruence.

Research that has tested Lazarus and Smith's (1988) theory directly has found moderate support for it. One study (Smith & Lazarus, 1993) found that anger, guilt, and fear/anxiety were closely related to their theoretically predicted appraisal components and core relational themes. This study also investigated the arousal of sadness, but results here were weaker. In another study, Smith et al. (1993) compared the ability of Lazarus and Smith's (1988) appraisal components to predict emotional arousal with Weiner's (1985) causal attribution dimensions. In this study participants were shown a series of vignettes that were manipulated to evoke different emotions and different levels of these emotions. Following each vignette, measures were taken of emotional arousal, causal attributions, appraisal dimensions, and core relational themes. The results showed that appraisal components were better predictors of emotional arousal than causal attributions, and that attribution dimensions added little

unique variance to that explained by appraisal dimensions. These results were interpreted as supporting the Lazarus and Smith model of knowledge and appraisal, with appraisal components being seen as mediating between causal attributions and emotions.

It is important to note in the work described above, that the term 'appraisal components' includes both appraisal dimensions and core relational themes. While these two types of appraisal constructs taken together provided a strong result, the results taken separately were not as convincing. The best way to demonstrate this is to examine in more detail the theoretical predictions made for anger, and the results obtained. Smith et al. (1993) predicted that motivational congruence, motivational relevance, and accountability, would be more strongly correlated with anger arousal, than would attribution dimensions, and that attribution dimensions would add no unique variance to the appraisal dimensions correlation with anger. The core relational theme of blame was predicted to be related to causal attributions in the same way that the appraisal dimensions were, because theoretically this is an alternate way of assessing the same event. The results showed that both blame, and the three appraisal dimensions, were more strongly correlated with anger individually than the attribution dimensions. However, the attribution dimensions add significant amounts of unique variance to that explained by them individually. When the appraisal dimensions and the core-relational theme were combined, these explained all of the variance the causal attributions explained. This showed that the appraisal dimensions and core relational theme were not alternate ways of measuring the same thing, and only explained all of attributions role in anger arousal when combined.

In their study, Smith et al. (1993) identify accountability as the key appraisal dimension involved in anger. They predicted that when vignettes were manipulated by altering an antagonist's intent, while keeping the negative outcome constant (as was described earlier in the causal attribution section), accountability would be the only appraisal dimension that is affected. Motivational relevance and motivational congruence were predicted to remain constant, because the negative outcome was not

changing. This affect was not found, however, the core relational theme did increase as intent was increased.

In their interpretation of the results of this study, Smith et al. (1993) emphasised they "support the utility of the distinction between attribution and appraisal" (p. 928). While they acknowledged that theoretical inconsistencies were "somewhat problematic" (p. 927) they failed to offer a theoretical alternative or a methodological explanation. One possible reason for this study's failure to support Lazarus and Smith's (1988) theory may lie in the measures used. These measures mostly being single item face valid scales, that were not examined to test whether they were measuring distinct constructs. This is particularly relevant for anger, given the difficulty in distinguishing between causality, responsibility, and blame, as described earlier.

As mentioned above, Lazarus (1991a, 1991b, 1993) has proposed a new model of emotional arousal that differs from the one proposed earlier by Lazarus and Smith (1988). This reformulation continues to look for appraisal dimensions and core relational themes, but describes these in terms of the individual's ego involvement in various goals. Anger is theorised to depend

"on an appraisal that one's ego identity, the active goal content, is at stake, which also implies goal relevance. In anger, blame is also necessary, and it depends on the attributions that someone is accountable and has full control over the demeaning action. If the person who thwarts us is not capable of doing otherwise, anger is absent, muted, or directed elsewhere" (Lazarus, 1991b, p. 828).

Anger's core relational theme is defined as being "a demeaning offence against me or mine" (Lazarus, 1993, p. 12-16). Overall, while this reformulated theory is quite elaborate, in simple terms its effect is to make blame an appraisal dimension, and motivational relevance the core relational theme.

Hostile attribution bias

Spielberger (1988) holds that anger arousal has two components, state anger and trait anger. So far this paper has explored cognitive theories relevant to state anger (temporary incident of anger arousal), and not addressed trait anger (predisposition to become anger aroused). It has described how two sets of cognitive dimensions should be related to the arousal of anger and to one another. It has also described how these dimensions should change when the perceived level of intent in a situation changes. What it has not done, though, is to identify when individuals will perceive situations differently. To address this deficit it is proposed to investigate whether a research finding from the literature on aggression and violence can be generalised trait anger. This area of research was drawn on because of the theoretically important role anger plays in aggression and violence, a role that is often assumed, but not often measured.

The research finding of hostile attribution bias (HAB) (see Dodge, 1993; Dodge & Crick, 1990 for reviews) a phenomenon which distinguishes between aggressive (and violent) groups and non-aggressive groups, is particularly relevant to this study. This is because as well as describing where these groups will differ in their (anger mediated) aggressive reactions, it identifies a cognitive mediator that predicts this reaction. HAB refers to the finding that aggressive groups are more likely to attribute hostile intent to an antagonist, in situations where the antagonist's intent is ambiguous or benign (Dodge & Coie, 1987). This is a bias which has been found to be "predictive of angry reactive violence but not proactive kinds of aggressive behaviours, such as bullying and coercion, that do not involve anger" (Dodge, 1993, p. 565).

In a typical study that has found hostile attribution bias, two groups are compared. One group is a highly angry/aggressive or angry/violent group, and the other is a control group. These groups have predominantly been drawn from child and adolescent populations. Both groups are shown a series of vignettes which depict interpersonal interactions with negative outcomes. Vignettes which have been manipulated so that the intent of the antagonist (person who causes the negative

outcome) is either benign (accidental or prosocial), ambiguous, or deliberate. Participants are asked to imagine themselves as the protagonist (person who suffers the negative outcome) in these vignettes, and following each vignette are asked to judge the antagonist's degree of hostile intent, and to identify what their likely behavioural reaction would be. Typical results show that aggressive groups attribute significantly greater hostile intent and endorse more aggressive behaviours in response to vignettes that depicted benign and ambiguous intent (see Dodge, 1993; Dodge & Crick, 1990 for reviews). Responses to vignettes that depict deliberate intent are found not to be significantly different, both groups perceiving hostile intent to be high and endorsing similar behavioural responses. These results are interpreted as showing that the level of hostile intent attributed to an antagonist, is causally related to the level of aggressive response evoked. That is, in benign and ambiguous situations, aggressive groups are more likely to interpret an antagonist intentions as hostile, and as a result will feel justified in getting angry and in retaliating aggressively.

The majority of studies that have found HAB have not measured anger directly, rather its role has been assumed. Studies by Dodge and Coie (1987) and Dodge et al. (1990) have found that attributions of hostile intent lead to the endorsement of reactive aggressive (anger mediated) responses and not to proactive (instrumental) responses. A finding that was interpreted as being due to changes in anger arousal, but where anger arousal was not measured directly. The few studies (Epps and Kendall, 1995; Graham & Hudley, 1994; Graham et al., 1992) that have measured anger arousal directly, however, have found it to be closely correlated with attributions of hostile intent.

The studies by Dodge and Coie (1987) and Dodge et al. (1990) also found that HAB is found in reactive (anger mediated) aggressive groups and not in proactive (instrumentally) aggressive groups. This finding suggests HAB occurs in groups with high levels of trait anger, but again anger, anger is not directly measured. Only one study was located by the author (Epps and Kendall, 1995) that directly investigated the role anger. This study measured adult student's levels of trait anger using

Spielberger's (1983) Trait Anger Scale, and found HAB occurred when high and low trait anger groups were compared.

The cognitive mediator identified in HAB research is the attribution of hostile intent. Most studies ask participants how hostile they believe the actions of an antagonist to be, that is how aggressive/provocative/hostile was the antagonist perceived as being. This raises the question as to whether causal attributions of intentionality and attributions of hostile intent are equivalent constructs. Research by Graham and Hudley (1994) and Graham et al. (1992) has found that HAB does extend to Weiner's (1985, 1986) causal dimension of intentionality. These studies found HAB when attributions of intentionality, and not attributions of hostile intent, were measured.

In Epps and Kendall's (1995) study, attributions of intentionality and hostile intent were both measured. The results of this study found that these two constructs were moderately correlated, and that both predicted anger arousal. The results also showed that hostile intent was more closely related to anger than was intentionality, and that intentionality added little unique variance to the prediction of anger. These findings were interpreted as suggesting a tiered cognitive process, with attributions of intentionality first being made, followed by attributions of hostile intent. It was concluded that "while hostility implies intentionality, the obverse is not so" (p. 175). For example, in a situation where a person's drink was deliberately spilled, two people could make the same causal attribution of intentionality, however, while one person may see the act as a joke, another may see it as a hostile challenge.

Epps and Kendall's research findings are consistent with Lazarus and Smith's (1988) appraisal model of anger arousal. They demonstrate the distinction between knowledge based and appraisal based cognitive process. Hostile intent is a form of appraisal, the personal significance of an encounter. Hostile intent can be argued to be one part of the appraisal dimension of accountability (how blameworthy an antagonist is held to be). However, accountability should be a more universal predictor of anger than hostile intent, because it allows individuals to select which aspects of another

person are important. For aggressive groups it is likely that the hostility of another's actions is the key feature in their appraisal of that event. However, for more general high anger groups, other factors, such as carelessness or stupidity may be important.

Overview of study

The aim of this research was to investigate two theories of anger arousal, and to try to extend a research finding from the aggression literature to anger. The theories being Weiner's (1985, 1986) causal attribution theory, and Lazarus and Smith's (1988) appraisal theory. The research finding being that of hostile attribution bias (see Dodge & Coie, 1987 for a review) .

The methodology involved measuring participants' reactions to a series of potentially anger arousing vignettes. These showed social interactions with negative consequences, and were varied in terms of intent. Intent was varied so that an antagonist's actions were shown as being either deliberate (high intent), accidental (low intent), or ambiguous (intent not specified). It was hypothesised that participants would react with greater anger arousal to vignettes that were interpreted as being more intentional. This would test the predicted causal link between attributions of intent and anger. It was also predicted that as attributions of intent increased so would appraisals of accountability and blame.

Participants' reactions were measured in terms of their anger arousal, the causal attributions they made, and four appraisal components. The attribution dimensions were; locus of causality, stability, controllability, intentionality, and globality. The appraisal components were; motivational relevance, motivational congruence, and accountability, the appraisal dimensions that are theoretically important in anger arousal; and blame, the core relational theme for anger arousal. This was done to investigate which dimensions from each theory best predicted anger arousal, and to allow a comparison of the predictive power of both theories. Specifically, it was predicted that appraisals would be better predictors of anger

arousal than causal attributions, and that causal attributions would add nothing (no unique variance) to appraisals prediction of anger arousal.

The final aim of the study was to use the data to test for hostile attribution bias in anger prone participants (high levels of trait anger). It was hypothesised that, in the accidental and ambiguous vignettes, anger prone participants would attribute greater intentionality to an antagonist, and would react more angrily. It was anticipated that if these hypotheses were supported then a similar pattern of responses would be found for appraisals of accountability and blame.

Method

Participants

The participants were 114 adults from the South West region of Western Australia, with approximately 75% being undergraduate students. Students were recruited for the study after the completion of lectures, and non-students were recruited from visitors to a University open day. Data from 12 participants were rejected, 4 due to incomplete data and 8 were randomly removed to keep equal the size of the groups that viewed each version. The remaining 102 participants, (34 females and 60 males, mean age 33.6 years) were randomly assigned to the three versions of the vignette (42 participants per version). Participation was voluntary, and no inducements were used. All participants were treated in accordance with the ethical standards of the APA, and ethical clearance for this research was obtained from Edith Cowan University, Department of Psychology Ethics Committee.

Vignettes

Video-recorded vignettes were used for this study. This medium was used to maximise the effectiveness of the manipulation, by providing both visual and audio cues. This feature of video was also considered beneficial because it reduced the number of variables the participants needed to imagine. Video-recorded vignettes allowed a standardised representation of the appearance of an antagonist, the environment in which the negative outcome occurred, and the negative outcome. Video was also considered advantageous because it could be easily standardised, and should be a familiar, interesting medium for participants.

Three scenario's with negative outcomes that should be anger evoking were devised. Each scenario involved two characters, a protagonist (person that suffers the negative outcome) and an antagonist (person that causes the negative outcome). In all of three scenario's a male of 30 years old played the role of the protagonist. The scenarios were, a 'beach' scenario that showed the antagonist kicking sand over the protagonist and spilling his drink; a 'car-park' scenario that showed the antagonist

taking a parking space the protagonist was waiting for; and a 'bar' scenario that showed the antagonist taking the protagonist's money.

Three versions of each of these scenarios were devised in which the antagonist's level of intent was varied, while keeping the negative outcome constant. The protagonist's intent was shown to be accidental, deliberate, or ambiguous. In the ambiguous version the antagonist's intent was deliberately not specified so that hostile attribution bias could be tested for. In the beach scenario, the accidental version showed the antagonist tripping over and kicking up sand, the deliberate scenario showed him stop and kick the sand, and the ambiguous scenario showed the antagonist kick up sand as he ran past the protagonist. In the car-park scenario, the antagonist's intent was varied by showing him, gesturing an apology in the accidental scenario, making an abusive gesture in the deliberate scenario, and making no reaction in the ambiguous scenario. In the bar scenario, accidental intent was shown by portraying the antagonist as drunk, deliberate intent by showing the antagonist looking around surreptitiously before taking the money, and in the ambiguous version no behaviour was emphasised. These manipulations of intent were emphasised with corresponding voice-overs. A transcript of the vignettes is included as Appendix A.

The three versions of each scenario started with identical introductory sequences, and finished with identical depictions of the negative outcome. For example, each version of the beach scenario concluded with a still picture of the antagonists legs covered with sand and their beer knocked over. This consistency was maintained for both sound and vision, with only a single scene being varied in the different versions. The face validity of each scenario, and its versions, was tested on friends and family of the researcher.

To maximise the data gathered from the study, three counterbalanced series of vignettes were created. This counter balancing varied both order of scenario, and order of version. Series 1 was beach deliberate, followed by car-park accidental, followed by bar ambiguous. Series 2 was bar accidental, beach deliberate, and car-park

deliberate. Series 3 was car-park ambiguous, bar deliberate, and beach accidental. A copy of these vignettes has been submitted to the honours coordinator.

Measures

Attribution dimensions and appraisal components

Scales to measure the attribution dimensions (locus of causality, stability, controllability, intentionality, and globality) were developed in tandem with scales to measure appraisal dimensions (motivational relevance, motivational congruence, accountability), and the core relational theme (blame). This was done through factor analysis and reliability analysis of two sets of items designed to tap these constructs. These items were administered as questions in the Negative Events Questionnaire. All questions required a response on a seven point Likert scale; strongly agree, agree, slightly agree, neutral, slightly disagree, disagree, strongly disagree. A copy of the negative events questionnaire is included in Appendix B-1.

The Negative Events Questionnaire was administered to 114 men (mean age 36.6 years) using a snowball technique. The raw data collected is included in Appendix B-2. An all male sample was used because this study was originally aimed to be run on a male population. The questionnaire instructed participants to think about something bad that had happened to them recently, and then to answer two sets of questions about that event. The first of these sets of questions tapped appraisal components and the second causal attribution dimensions. Participants were asked to think only of negative events so all the items were relevant, and were given a free choice as to the type of negative event, so that a range of scores across the various constructs were obtained.

Attribution items were developed from items found in existing scales (Benson, 1989; McAuley, Duncan, & Russell; Russell, 1982), and based on Weiner's (1985, 1986, 1990) definitions of causal attributions. Four items were developed for the causal attribution dimensions of locus of causality, stability, and intentionality. Five items were developed for globality, because of the awkward wording of existing questions. Six items were developed for controllability because items measuring this

construct have been found to be inadequate in previous scales (Seigert & Ward, 1995). Items were worded so as to measure both extremes of each attribution dimension and put into random order on the Negative Events Questionnaire. These items are shown in Appendix B-3 , along with the question number they correspond to in the negative events questionnaire.

Items for the appraisal components were designed to tap the full extent of these constructs based on the various theoretical and research papers that have described them (Lazarus and Smith, 1988; Smith and Lazarus, 1990, 1993; Smith et al., 1993). Four items were developed for each of the appraisal dimensions, with two additional items added that could load on either motivational congruence or motivational relevance. This was done because of the difficulty of designing items that could distinguish between these constructs. Four items were also included for the core-relational theme of blame. Items were worded so as to measure both extremes of each appraisal component and put into random order on the Negative Events Questionnaire. These items are shown in Appendix B-4, along with the question number they correspond to in the Negative Events Questionnaire.

Using SPSS for Windows a principal components factor analysis with varimax rotation was carried out on the 23 causal attribution items. List-wise deletion of missing data left 123 cases to be analysed. Normality plots showed some items to be skewed and some items to be bipolar, however a KMO value of .65 indicated that factor analysis was appropriate. Five factors were extracted (to match the theoretical number of attribution dimensions), accounting for a total of 53.7% of the variance. These five factors closely matched the five attribution dimensions that the items were designed to measure. One item from the controllability dimension did not load as expected, loading with the stability items. This item was removed from further analyses. The SPSS output for this analysis is included as Appendix B-5.

Where necessary, items within each factor were recoded so all items were consistent with one of the extremes of its matching attribution dimension. Analyses were carried out to find the most reliable three item scales. These were not

necessarily the most reliable scales, but it was decided they offered the best compromise between tapping the full meaning of the construct and having too many items. Cronbach's alpha for the five attribution scales was, .73 for locus, .69 for stability, .65 for controllability, .78 for intentionality, and .65 for globality. For the scales used in the study it was necessary to make some minor changes to some item's wording. This was for consistency, and so that each scale included items that measure both dimensional extremes. For example, the globality item 'this was a one-off' was changed to 'this was not a one-off'. The three item scales for each of the causal attribution dimensions, and the question number they correspond to in the final study are shown in Appendix B-6.

Using SPSS for Windows a principal components factor analysis with varimax rotation was carried out on the 18 appraisal component items. List-wise deletion of missing data left 123 cases to be analysed. Normality plots showed some items to be skewed and some items to be bipolar, however a KMO value of .80 indicated that factor analysis was appropriate. Four factors were extracted (to match the theoretical number of appraisal components), accounting for a total of 51.0 % of the variance. These four factors closely matched the four appraisal components that the items were designed to measure. One item from the accountability dimension and one item from the motivational relevance dimension did not load as expected, these item were removed from further analyses. The two additional motivational relevance/ motivational congruence items, loaded with motivational relevance. The SPSS output for this analysis is included as Appendix B-7.

Items within each factor were recoded so that all items were consistent with one of the extremes of its matching appraisal component, and three item scales were created. Cronbach's alpha for the four appraisal scales was, .47 for motivational congruence, .76 motivational relevance, .60 for accountability, and .75 for blame. A two item version of the accountability scale was found to increase reliability (Cronbach's alpha = .71), however the three item scale was retained with the option to change to a two item scale should reliability be low in the study. While the reliability

of the motivational congruence scale was very low, it was retained for use. One item from the core relational theme scale was changed so the scale included items that measured both dimensional extremes. The three item scales for each of the appraisal components, and the question number they correspond to in the final study are shown in Appendix B-8.

Anger arousal

Spielberger's (1988, p. 1) definition of state anger as "an emotional state marked by subjective feelings that vary in intensity from mild annoyance or irritation to intense fury and rage", and his State Anger Scale were used as the basis for this measure. A three item measure was devised to tap the full extent of this definition, with the items worded so they measured how participants 'would' feel if faced with the behaviour depicted in the vignette, and not how they currently feel. The three items were "I would feel irritated", "I would feel angry", and "I would feel furious". All items were scored on a four point Likert scale; not at all, somewhat, moderately so, and very much so. A copy of this scale is included in Appendix C-1.

A base line measure of state anger (how angry participants felt at the start of the research) was also created for use as a possible covariable. This measure included the same items as anger arousal with the removal of the word "would" from each item. It was scored on the same Likert scale. A copy of this scale is included as Appendix C-2.

Level of trait anger

Spielberger's (1988) Trait Anger Scale was used to measure trait anger. It was chosen because it has been found to have high internal consistency (Fuqua, Leonard, Masters, Smith, Campbell, & Fischer, 1991; Spielberger, 1988). A version of this scale adopted for use in Western Australian was used, to make the instrument more culturally appropriate for use in Australia. This version contained minor changes to 4 of the 10 items in Spielberger's original scale. All items were scored on a four point Likert scale; almost never, sometimes, often, and almost always. A copy of this scale is included in Appendix C-3.

Level of violence

This measure was included as a supplemental measure, that could be used should trait anger not reveal HAB. Level of violence was measured using a six item scale adapted from the Conflict Tactic Scale (Straus, 1979), a measure of family violence. This scale required participants to record the number of violent acts they had been involved in during the previous year. It instructed participants not to include incidents in which they were 'fooling-around', disciplining a child, or in combat sports (eg. boxing, karate), so that culturally acceptable forms of violence were not included. The first five items asked about one or more specific violent acts, while the sixth item was about any other violent incident. An open question asking participants to describe any other violent incidents was included so that the veracity of responses the sixth item could be confirmed. Response options were; never, 1 - 2 times, 3 - 5 times, 6 - 10 times, over 10 times. A copy of this scale is included in Appendix C-4.

Materials

The materials were: video recorded vignettes, video-player, television, letter of consent for participants to sign, a copy of the letter of consent for the participants to retain, and answer booklet. The answer booklet contained four sections. The first contained scales of trait anger, state anger, and level of violence. The remaining three sections were identical, each containing scales of appraisal components, anger arousal, and causal attribution dimensions. Copies of the consent forms are included in Appendix C-5.

Procedure

A standardised procedure was used for all participants, however some participants chose not to be debriefed after completing their answer booklet. The procedure was started by reading out the letter of consent and expanding on this where any questions arose. When females participated, their gender was noted on answer forms, and it was explained that the materials used had been originally designed for males. Participants who chose to sign the consent form, were instructed to complete the first section of the answer booklet.

Participants were then told that they would be shown a series of three videotaped vignettes that depicted interpersonal interactions which had negative outcomes. They were told that they should imagine themselves as the protagonist in each vignette 'as if this were really happening'; and that after each vignette they should answer the questions in the answer booklet from this perspective. They were told that there were no 'right or wrong answers', but that it was their reactions to the vignette that were important. They were also reminded that they could leave or ask questions at any time.

After viewing the three vignettes and completing the answer booklets, participants were thanked, and asked for any questions or comments they might have. Females participants were asked whether they had any difficulty imagining themselves in the situations depicted. No female participant reported any difficulty. Participants were then debriefed. The debriefing procedure involved identifying the variables being examined in the study, explaining the theoretical significance of the study, and showing the two series of vignettes that the participants had not seen. On completion of the debrief any further questions were addressed, and participants were thanked for their co-operation. Answer booklets were collected and the series of vignettes that was viewed recorded.

Scoring

All items within the answer booklet were scored using the numbers shown as response options. That is, trait anger, state anger, and anger arousal items were scored between one and four. Level of violence items were scored between one and five, and attribution and appraisal items were scored between one and seven. For the three preliminary measures of trait anger, state anger, and level of violence, scores of items were totalled to give overall scores. A reliability analysis was not considered necessary for the standardised scale of trait anger, and was considered inappropriate for the measures of anger arousal and level of violence, because the items tapped distinct aspects of the construct.

Results and discussion

Analysis strategy

An outline of the analysis strategy employed is given below. This was considered necessary because of the complexity of the study. All data were treated as being of interval level, and all analyses were carried out using Statistical Package for the Social Sciences for Windows (SPSS).

There were 10 dependent variables in the study, 5 attribution dimensions, 4 appraisal components, and anger arousal. These were measured three times for each participant, because each participant responded to a series of three vignettes. These vignettes were counterbalanced by scenario (beach, car-park, bar) and version (accidental, ambiguous, deliberate), which produced a data matrix with nine cells (3 X 3). The counterbalancing was designed so that analyses that were carried out within versions, or within scenarios, were between subject analyses.

To give adequate sample sizes for some analyses it was necessary to examine the data from all subjects, and not from individual cells. These analyses were performed within versions (accidental, ambiguous, or deliberate) by collapsing across scenarios. They were not carried out by scenario (ie by collapsing across versions) because the manipulation of intent could affect the results from these analyses.

The results are organised in six sections. The first of these, preliminary data examination, describes the analyses and data screening procedures that were carried out prior to hypothesis testing, and theory based data exploration.

The second section, experimental manipulation, tested where intent manipulations occurred. The intent manipulations were between the different versions of each scenario. These were tested by comparing the mean scores of

intentionality for the three different versions of each scenario. This test of the manipulation was necessary because the level of an antagonist's intent could not be measured objectively prior to data collection. Changes in intent had to be measured from participant's subjective interpretation of each version. In effect, this meant that intent was being used as both a dependent and independent variable.

The second section also included a test of whether the different versions vary on attributions of controllability. This was done because controllability and intentionality are theoretically closely correlated. This makes it necessary to test that the manipulation of intent was not simultaneously a manipulation of controllability.

The third section, manipulation effects, investigated the effects of the manipulations of intent on anger arousal, and two theoretically important appraisal components. It also described the effects of the intent manipulation on the other dependent variables. These analyses are only briefly described because no theoretical predictions are made for them, and the relationships between variables were explored in the next section of the results.

The fourth section of the results was an exploration of the relationships between each of the cognitive theories and anger arousal. It included an investigation of the relationship between the three appraisal dimensions and the core relational theme, which are theoretically alternative ways of expressing the same thing.

The fifth section compared the two cognitive theories. In this section the hypothesis that appraisals would be better predictors of anger arousal, than causal attributions; and that causal attributions would add nothing (add no unique variance) to appraisals, prediction of anger arousal, was tested.

In the final section, hostile attribution bias (HAB) was tested for, in each of the three scenarios (beach, car-park, bar). This was carried out by comparing high and low trait anger groups' mean intentionality and anger arousal scores, in each of the three versions (accidental, ambiguous, deliberate). Intentionality and anger arousal were the principal dependent variables that were examined to find HAB.

Preliminary data examination

Treatment of raw data

Prior to analysis, raw data were screened for accuracy of data entry, and negatively worded items were reverse coded. Seven missing values were identified, which appeared to be randomly distributed across participants and items. Missing values were replaced with item, by cell, mean scores (Tabachnick & Fidell, 1996).

Reliability analysis

Three reliability analyses were conducted on each of the three item scales that measured the attribution dimensions and the appraisal components. Three analyses were conducted for each scale, because participants completed each scales three times. These analyses were performed within versions (accidental, ambiguous, and deliberate) by collapsing across scenarios. Reliability coefficients for the globality, motivational congruence, and accountability scales were found to be unacceptably low. These were increased to acceptable levels by deleting the item that, when removed, caused the greatest increase in Cronbach's alpha. A summary of the reliability coefficients for the three item scales and two item scales are shown in Table 2.

Table 2

Reliability Coefficients (Cronbach's Alpha) for Three Item and Two Item Attribution and Appraisal Scales by Version

Scale	Version		
	Accidental	Ambiguous	Deliberate
Three item scales			
Attribution dimensions			
Locus of causality	.67	.61	.65
Stability	.61	.70	.71
Controllability	.66	.65	.60
Internationality	.75	.81	.57
Globality	.50	.55	.55
Appraisal components			
Motivational relevance	.80	.79	.74
Motivational congruence	.42	.51	.37
Accountability	.33	.19	.55
Blame	.68	.81	.69
Two item scales			
Globality	.65	.71	.70
Motivational congruence	.45	.63	.57
Accountability	.55	.59	.57

Note. n = 102.

Data screening

The five attribution scales, the four appraisal scales, and the anger arousal measure were examined for univariate outliers, multivariate outliers, and for normality of distribution. These tests were carried out for each data cell and for each version. Analysis using z scores found no univariate outliers in data cells or versions ($p > .001$). Using Mahalanobis distance, $p < .001$, one case from the ambiguous version, and one case from the deliberate version were identified as multivariate outliers. These cases were retained, because they came from different participants, and because no multivariate outliers were found within individual data cells. Examination of normality plots and statistics showed some minor skewing. Data transformations were considered unnecessary. A summary of normality statistics for data cells and versions is shown in appendix D-1 and D-2.

Gender differences

The five attribution scales, the four appraisal scales, and the anger arousal measure were examined for gender differences within each data cell and each version. Independent sample t tests indicated significant differences ($p < .05$) in two cells for the globality scale. These gender differences were considered inconsequential, because they were found in only two of the nine cells in which globality was compared, and were the only significant differences found in 90 cell wise comparisons. An independent sample t test found no significant ($p > .05$) difference between males' and females' levels trait anger, violence, and state anger. As a consequence of these results, all further analyses were collapsed across gender.

Summary data

The means and standard deviations of the five attribution scales, the four appraisal scales, and the anger arousal measure for each data cell, and each version, are shown in appendix D-1 and D-2. Higher scores for locus of causality indicate a more external cause, and higher scores for motivational congruence indicate a more negative outcome. For the other scales higher scores indicate more stable causes, controllable causes, intentional causes, global causes, motivational relevance, accountability, blame, and anger arousal. Summary data for age, trait anger, state anger, and violence are also shown in appendix D-3. The raw data is shown in appendix E.

Experimental manipulation

To test the hypothesis that participants would react with greater levels of anger arousal to causes that were seen as more intentional, it was first necessary to identify where intent had changed. This was done by testing for differences between scores on the intentionality scale for the three versions of each scenario. This gave a total of nine contrasts that could show differences; three contrasts, accidental-ambiguous, accidental-deliberate, ambiguous-deliberate, per scenario. It should be noted, that while the ambiguous scenarios were not designed to evoke a particular level of intentionality, comparisons to this version can still be made. This is because it is participants' perceived level of intent that is being used to measure how intentional each version is, and not an objective measure.

To test the manipulation of intent for each scenario, intentionality scores were analysed with one way analysis of variance (ANOVA). These ANOVA were considered robust to violations of homogeneity of variance, because cell sizes were

large and equal, $n = 34$ (Keppel, 1991). The results showed significant differences between versions for all scenarios; beach scenario, $F(2, 99) = 91.80, p < .01$; car-park scenario, $F(2, 99) = 56.69, p < .01$; bar scenario, $F(2, 99) = 29.86, p < .01$. Post hoc comparisons using the Tukey HSD test revealed significant differences between all versions in the beach and bar scenarios. For both scenarios mean scores showed that the accidental version was seen as the least intentional, and the deliberate version was seen as the most intentional. In the car-park scenario, post hoc comparisons showed significant differences between the accidental and deliberate versions, and between the ambiguous and deliberate versions. Mean scores showed that the deliberate version was seen as more intentional than the accidental or ambiguous versions. Overall, eight experimental manipulations of intent were found that could be used for hypothesis testing. This pattern of results can be seen in Table 3 which shows summary statistics. The SPSS outputs for these analyses are shown in appendix F-1.

Table 3

Mean Attribution of Intentionality Scores as a Function of Version for each Scenario

Scenario	Version		
	Accidental	Ambiguous	Deliberate
Beach			
<u>M</u>	1.92	3.94	5.18
<u>SD</u>	.92	1.75	1.20
Car-park			
<u>M</u>	3.47	3.12	5.53
<u>SD</u>	1.62	1.24	1.12
Bar			
<u>M</u>	2.52	3.24	4.75
<u>SD</u>	1.04	1.38	1.19

To test whether the manipulation of intent was purely a manipulation of intent or also a manipulation of controllability, a further set of analyses were carried out. This was done because the attribution dimensions of controllability and intentionality are argued to be closely correlated by Weiner (1985, 1986). ANOVA on controllability scores revealed significant differences between versions in the beach scenario, $F(2, 99) = 35.22, p < .01$. Post hoc comparisons using the Tukey HSD test revealed two significant differences. Mean scores showed that the accidental ($\underline{M} = 3.21, \underline{SD} = 1.28$) version was seen as less controllable than both the ambiguous ($\underline{M} = 5.22, \underline{SD} = 1.19$) and the deliberate ($\underline{M} = 4.49, \underline{SD} = 1.33$) versions. Results for the;

car-park scenario, $F(2, 99) = 1.48, p > .10$; and bar scenario, $F(2, 99) = 0.31, p > .10$; were not significant. This finding of only two instances where control was changed, indicated that the manipulation of intent was not simultaneously one of control.

The SPSS outputs for these analyses are shown in appendix F-2

Manipulation effects

Effect on anger arousal

To test the effect of the manipulation of intent on anger arousal, three one-way ANOVA were carried out. These ANOVA were robust to violations of homogeneity of variance, because cell sizes were large and equal; $n = 34$, all cells (Keppel, 1991). The results showed significant differences between versions for all scenarios: beach scenario, $F(2, 99) = 20.06, p < .01$; car-park scenario, $F(2, 99) = 19.52, p < .01$; bar scenario, $F(2, 99) = 13.89, p < .01$. Post hoc comparisons using the Tukey HSD test for the beach scenario showed that the accidental version was significantly less anger arousing than both the ambiguous and deliberate versions. For the car-park and bar scenarios post hoc tests showed the deliberate version to be significantly more anger arousing than both the accidental and ambiguous versions. This pattern of results can be seen in Table 4. The SPSS outputs for these analyses are shown in appendix F-3

Overall, these results show six significant changes in the level of anger arousal. These significant comparisons were all found between versions where manipulations of intent had been found to occur. All six of these results were in the same direction as the manipulation intent. These results support the hypothesis that as intent increases, anger arousal increases.

Table 4

Mean Anger Arousal Scores as a Function of Version for each Scenario

Scenario	Version		
	Accidental	Ambiguous	Deliberate
Beach			
<u>M</u>	4.35	7.53	7.15
<u>SD</u>	1.07	2.64	2.68
Car-park			
<u>M</u>	6.18	6.18	9.32
<u>SD</u>	2.71	1.98	2.45
Bar			
<u>M</u>	5.79	6.09	8.32
<u>SD</u>	1.75	2.29	2.40

Note. n = 34Effect on appraisal components

Appraisal theorists posit that appraisals are a mediating cognitive process between causal attributions and emotional arousal. For anger, the appraisal dimension of accountability, and the core relational theme of blame, are hypothesised to mediate between attributions of intent, and anger arousal. To test whether these predictions are correct, one way ANOVA were carried out between versions using accountability and blame scores.

For accountability, the results showed significant differences between versions for all scenarios: beach scenario, $F(2, 99) = 3.77, p < .05$; car-park scenario, $F(2, 99) = 10.97, p < .01$; bar scenario, $F(2, 99) = 3.68, p < .05$. Post hoc comparisons for the beach scenario showed the ambiguous version to be significantly higher than the accidental version. For the car-park scenario the deliberate version was significantly higher than the accidental and ambiguous versions, and for the bar scenario the deliberate version was significantly higher than the accidental version. These four significant differences were all found between versions where differences in anger arousal and intentionality had been found. They were also all found to be in the same direction as the difference in intentionality and anger arousal. That is, where accountability increases, so does anger arousal, and intentionality. This pattern of results can be seen in Table 5. The SPSS outputs for these analyses are shown in appendix F-4.

Table 5

Mean Accountability Scores as a Function of Version for each Scenario

Scenario	Version		
	Accidental	Ambiguous	Deliberate
Beach			
<u>M</u>	4.53	5.53	5.09
<u>SD</u>	1.53	1.34	1.64
Car-park			
<u>M</u>	4.93	4.93	6.13
<u>SD</u>	1.13	1.31	1.23
Bar			
<u>M</u>	4.81	5.10	5.57
<u>SD</u>	1.31	1.09	1.10

Note. $n = 34$

For the core relational theme of blame one way ANOVA found significant differences between versions for all scenarios; beach scenario, $F(2, 99) = 28.83$, $p < .01$; car-park scenario, $F(2, 99) = 30.39$, $p < .01$; bar scenario, $F(2, 99) = 34.45$, $p < .01$. Post hoc comparisons show six significant differences that were in a pattern identical to that found for anger arousal. That is, in every comparison where blame was found to increase, anger arousal increased, as did intentionality. This pattern of results that can be seen in Table 6. SPSS outputs for these analyses are shown in appendix F-5.

Table 6

Mean Blame Scores as a Function of Version for each Scenario

Scenario	Version		
	Accidental	Ambiguous	Deliberate
Beach			
<u>M</u>	2.93	5.10	5.22
<u>SD</u>	1.41	1.58	1.17
Car-park			
<u>M</u>	3.75	4.10	5.96
<u>SD</u>	1.36	1.28	1.12
Bar			
<u>M</u>	3.72	4.35	5.70
<u>SD</u>	1.21	1.48	.97

Note. $n = 34$ Affect on other variables

ANOVA was carried out on the remaining dependent variables, to test where manipulation of intent had other affects. In at least one scenario for each of the remaining dependent variables a significant difference was found. Post hoc tests found a total of five differences for motivational congruence, five difference for motivational relevance, four differences for globality, two differences for stability, and one difference for locus. These results are only summarised here, because the relationships between cognitive components are investigated in the following section,

and the multiple patterns of difference are too complex to explore. This summary shows that the manipulation of intent affected more than just the attribution dimensions and appraisal components it was predicted to. This is particularly relevant to appraisal theory, where all these dimensions were implicated in anger arousal. However, to causal attribution theory this was less important, because these variables were not predicted to be involved in anger arousal. These SPSS output is shown in Appendix G.

Exploration of cognitive components relationships with anger

This section examined the relationships between each of the cognitive theory's components and anger arousal. The aim was to identify which components were most implicated in anger arousal. An investigation of the relationship between the three appraisal dimensions (motivational relevance, motivational congruence, and accountability) and the core relational theme (blame), was also included in this section. The following analyses were carried out within versions.

Causal attribution dimensions

Intercorrelations were conducted between the five attribution dimensions (locus, stability, control, intent, and globality) and anger arousal. These intercorrelations are shown in Table 7. A moderate positive correlation between intent and anger arousal was found in each version. This indicates that as attributions of intentionality increase, anger arousal increases. These correlation between intent and anger were the largest found in each version, and were the only ones found in all versions. In the accidental and ambiguous versions, weak positive correlations were found between control and anger arousal; and control and intent. Similarly, in the ambiguous and deliberate versions weak positive correlations were found between stability and intent; and stability and anger arousal.

Table 7

Intercorrelations Between Attribution Dimensions and Anger Arousal by Version

Scale	1	2	3	4	5	6
Accidental ($\underline{n} = 102$)						
Locus	--	.16	-.32**	-.02	-.09	-.10
Stability		--	-.07	.16	.01	.03
Control			--	.44**	.11	.43**
Intent				--	-.02	.54**
Globality					--	.03
Anger arousal						--
Ambiguous ($\underline{n} = 102$)						
Locus	--	.09	-.04	-.02	.12	.07
Stability		--	-.07	.26**	.34**	.30**
Control			--	.25*	.20*	.21*
Intent				--	.20*	.56**
Globality					--	.06
Anger arousal						--
Deliberate ($\underline{n} = 102$)						
Locus	--	.13	-.11	.06	.05	-.05
Stability		--	-.16	.30**	.35**	.27**
Control			--	.07	.05	--
Intent				--	.10	.40**
Globality					--	.07
Anger arousal						--

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

To determine the unique contribution of intent to anger arousal, hierarchical multiple regression analyses were carried out. These showed in all three versions that intent made a significant unique contribution to the prediction of anger arousal, while, the remaining four attribution dimensions made no significant ($p > .05$) unique contribution. These results indicate that intent is a better predictor of anger arousal than the other four attribution dimensions combined, and these dimensions add nothing extra to the predictive power of intent. A summary of the explained variances by version is shown in Table 8, and a copy of the SPSS outputs for these analyses are included in appendix G.

Table 8

Summary of Variances for Hierarchical Multiple Regression Analyses for Intent and Four Other Causal Attribution Dimensions for Predicting Anger Arousal by Version

Version	n	Shared R^2	Unique R^2		Total R^2
			Intent	Other dimensions	
Accidental	102	.15	.16*	.05	.34
Ambiguous	102	.10	.21*	.06	.37
Deliberate	102	.04	.11*	.04	.19

Note. * $p < .01$

Appraisal components

Intercorrelations were conducted between the three appraisal dimensions, (motivational congruence, motivational relevance, accountability), the core relational

theme (blame), and anger arousal. These intercorrelations are shown in Table 9.

Across versions, the most consistent pattern of significant correlations were those between motivational relevance, blame, and anger arousal. These showed moderate, positive relationships, and indicate that as motivational relevance increases, blame and anger arousal increases. They also show that as blame increases so does anger arousal. Motivational congruence was found to be largely unrelated to other variables. Between all other variable there were weak, positive correlations.

Table 9

Intercorrelations Between Appraisal Components and Anger Arousal by Version

Scale	1	2	3	4	5
Accidental ($\underline{n} = 102$)					
Motivational congruence	--	.13	-.08	-.05	-.07
Motivational relevance		--	.23*	.71**	.61**
Accountability			--	.35**	.32**
Blame				--	.59**
Anger arousal					--
Ambiguous ($\underline{n} = 102$)					
Motivational congruence	--	.37	.15	.33**	.29**
Motivational relevance		--	.29**	.58**	.51**
Accountability			--	.56**	.52**
Blame				--	.66**
Anger arousal					--
Deliberate ($\underline{n} = 102$)					
Motivational congruence	--	.04	.04	.15	.02
Motivational relevance		--	.38**	.61**	.73**
Accountability			--	.37**	.36**
Blame				--	.64**
Anger arousal					--

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

Hierarchical multiple regression analyses were carried out to determine the unique contributions of the three appraisal dimensions to anger arousal. A summary of the results for each version is shown in Table 10, and a copy of the SPSS outputs for this analysis are shown in appendix G. These results show that motivational congruence made no unique contribution to the prediction of anger. Motivational relevance and accountability made unique contributions in the accidental and ambiguous version. In the deliberate version motivational relevance alone made a significant unique contribution to the prediction of anger.

Table 10

Summary of Variances for Hierarchical Multiple Regression Analyses for Appraisal Dimensions for Predicting Anger Arousal by Version

Version	Shared R^2	Unique R^2			Total R^2
		Relevance	Congruence	Accountability	
Accidental	.06	.32**	.02	.03*	.42
Ambiguous	.16	.10**	.01	.15**	.42
Deliberate	.10	.41**	--	.01	.53

Note. * $p < .01$, ** $p < .05$; $n = 102$

To determine whether the core relational theme (blame) and the three appraisal dimensions (motivational relevance, motivational congruence, accountability) were alternate ways of predicting anger arousal, hierarchical multiple regression analyses

were carried out. These analyses found that in each version, the three appraisal dimensions and the core relational theme contributed significant unique variance to the common variance. This shows that the appraisal dimensions are not different ways of measuring the same thing. A summary of these results for each version is shown in Table 11, and a copy of the SPSS outputs for these analyses are shown in appendix G.

Table 11

Summary of Variances for Hierarchical Multiple Regression Analyses for Appraisal Dimensions and Blame for Predicting Anger Arousal by Version

Version	Shared R^2	Unique R^2		Total R^2
		Appraisal dimensions	Blame	
Accidental	.32	.10**	.03*	.45
Ambiguous	.36	.06**	.08**	.51
Deliberate	.36	.18**	.06**	.59

Note. * $p < .01$, ** $p < .05$; $n = 102$

Comparison of theories

To determine whether the appraisal components were more proximal predictors of anger arousal than attribution dimensions, hierarchical multiple regression analyses were carried out. Attribution dimensions were compared to the three appraisal dimensions, and to the core relational theme, because these are theoretically alternative ways of expressing the same thing. A summary of the results

of these analyses, for each version, is shown in Table 12 and Table 13, and a copy of the SPSS outputs for these analyses are shown in appendix G.

Table 12

Summary of Variances for Hierarchical Multiple Regression Analyses for Attribution Dimensions and Appraisal Dimensions for Predicting Anger Arousal by Version

Version	Shared R^2	Unique R^2		Total R^2
		Appraisal dimensions	Attribution	
Accidental	.27	.15**	.07*	.49
Ambiguous	.25	.14**	.10**	.49
Deliberate	.16	.37**	.03	.56

Note. * $p < .01$, ** $p < .05$; $n = 102$

Table 13

Summary of Variances for Hierarchical Multiple Regression Analyses for Attribution Dimensions and Blame for Predicting Anger Arousal by Version

Version	Shared R^2	Unique R^2		Total R^2
		Blame	Attribution	
Accidental	.23	.11**	.11**	.46
Ambiguous	.31	.13**	.06*	.50
Deliberate	.16	.25**	.03	.44

Note. * $p < .01$, ** $p < .05$; $n = 102$

The results of both these analyses show that in the accidental and ambiguous versions, both types of cognitive components explain unique variance. This does not support the hypothesis that the appraisal components explain all the variance explained by the attribution dimensions. In the deliberate versions, both types of appraisal components explain significant amounts of unique variance, while the attribution dimensions do not add significant unique variance to that explained by the appraisal components. This finding supports the hypothesis.

Attribution dimensions were also compared to the four appraisal components together. This was done because a previous analysis showed that the three appraisal dimensions and the core relational theme were not different ways of measuring the same thing. The results showed, in all versions, appraisal components added significant unique variance to that explained by attributions, while, the attribution dimensions added no unique variance to the appraisal components. This result supports the hypothesis, indicating that appraisal components are better predictors of anger arousal than attribution dimensions, and the attribution dimensions add nothing to the predictive power of the appraisal components. A summary of the results of this analysis is shown in Table 14, and a copy of the SPSS outputs for these analyses are shown in appendix G.

Table 14

Summary of Variances for Hierarchical Multiple Regression Analyses for Attribution Dimensions and Appraisal Components for Predicting Anger Arousal by Version

Version	Shared R^2	Unique R^2		Total R^2
		Appraisal components	Attributions	
Accidental	.29	.16**	.06	.50
Ambiguous	.31	.17**	.04	.52
Deliberate	.18	.43**	.03	.64

Note. * $p < .05$; $n = 102$

Testing for hostile attribution bias (HAB)

For the finding of HAB in the aggression literature to be applicable to anger, it was predicted that groups high in trait anger would attribute greater intent and react more angrily in accidental and ambiguous scenarios. There were three scenarios to be tested for HAB, each with three versions. As has been previously described, the deliberate version of each scenario was perceived as being more intentional than the accidental version, suggesting their design was effective. High and low trait anger groups were created by making a close to median split of participants scores on the trait anger scale. The high anger group consisted of 52 participants who scored 18 and over, and the low trait anger group consisted of 50 participants who scored 17 or less. This split caused the cells that were to be tested for HAB, using analyses of variance analyses (ANOVA), to be of different sizes. However, Cochran's C test, $p > .05$, showed that homogeneity of variance, for all analyses, was not violated.

A 3 x 2 (version x anger group) between-subjects ANOVA was performed on the intent scores for each scenario. Significant main effects for version were found in the beach scenario, $F(2, 96) = 49.31, p < .01$; the car-park scenario, $F(2, 96) = 29.00, p < .01$; and the bar scenario, $F(2, 96) = 31.39, p < .01$. A significant interaction was found in the bar scenario, $F(2, 96) = 3.89, p < .05$. No significant main effects were found for the anger group. The interaction found in the bar scenario is shown in Figure 1. Visual interpretation of this shows that for the accidental and ambiguous versions low anger groups made more intentional attributions, and that for the deliberate version they made less intentional attributions. This result is the opposite of what would be expected if HAB were present. Descriptive statistics are shown in appendix H. No interpretations of main effects for version is necessary, as these match the one way patterns found in the manipulation of intent. The SPSS outputs for these ANOVA are included in appendix I.

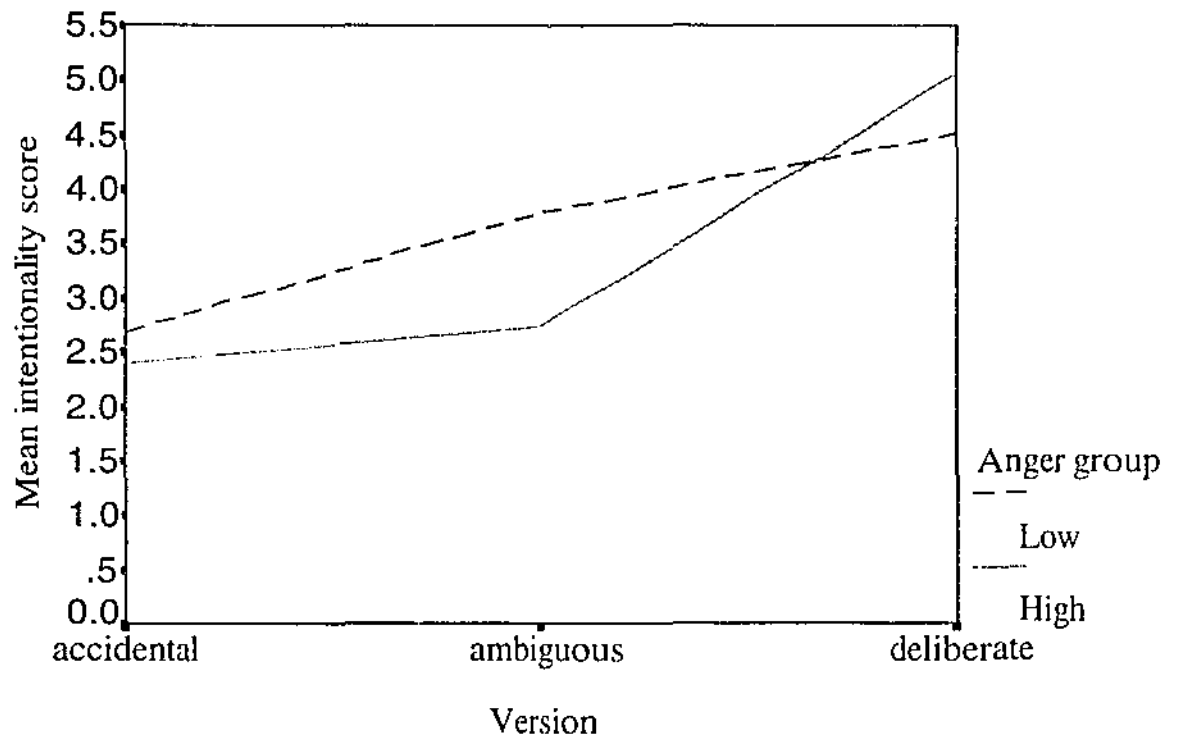


Figure 1. Mean intent scores for bar scenario by version and trait anger group

A 3 x 2 (version x anger group) between-subjects ANOVA was performed on the anger arousal scores for each scenario. Significant main effects for version were found in the beach scenario, $F(2, 96) = 19.63, p < .01$; the car-park scenario, $F(2, 96) = 18.31, p < .01$; and the bar scenario, $F(2, 96) = 16.64, p < .01$. Significant main effects for anger group were found in the; the car-park scenario, $F(1, 96) = 13.89, p < .01$; and the bar scenario, $F(1, 96) = 6.11, p < .05$. No significant interactions were found. The main effects for anger arousal in the car-park and bar scenarios do not support the existence of HAB. This is because anger arousal is higher in all versions, thus there is no bias. Descriptive statistics are given in appendix J. ANOVA was repeated for anger arousal using state anger scores as a covariable, however, this did not change the pattern of results.. The SPSS outputs for these ANOVA are included in appendix K.

ANOVA for all other dependent variables were also carried out and examined for patterns of results that would support the existence of HAB. No such support was found. The SPSS outputs for these ANOVA are included in appendix L. To examine if data could be collapsed across scenario, to give a larger sample size, a 3 x 3 (version x scenario) ANOVA was performed on the intentionality scores. This showed both main effects and the interaction to be significant; version, $F(2, 297) = 99.86, p < .01$; scenario, $F(2, 96) = 4.56, p < .01$; interaction, $F(4, 96) = 13.89, p < .01$. These significant findings, coupled with the differences in cell sizes, mean that it was inappropriate to collapse across versions. The SPSS output for this ANOVA are included in appendix M.

General discussion

The aim of this research was to investigate two cognitive theories of anger arousal and to try to extend a finding from the aggression literature to anger. The results show intentionality to be the causal attribution dimension most closely related to anger and lend support to the hypothesised causal relationship between attributions of intentionality and anger arousal. The theoretical distinction between causal attribution and appraisal was also supported by the results, however the pattern in which the appraisal components interacted was not that as was predicted by theory. Finally, the results suggest, that the phenomena of HAB in the aggression literature cannot be generalised to trait anger.

The strongest finding of this study is the relationship between intentionality and anger. Six significant findings lend support to the hypothesis that attributions of intentionality play a causal role in anger arousal. These findings though are limited, because the manipulations of level of intent were measured using a dependent variable. However, it can be argued that this is not the case, and these findings strongly support the author's argument that attributions of intentionality can cause anger arousal independently of attributions of controllability.

Of the five causal attribution dimensions posited by Weiner (1985, 1986) intentionality is the best individual predictor of anger arousal. It is a better predictor of anger arousal than the other four appraisal dimensions combined, and can fully predict the relationship between the other four dimensions and anger. This suggests that if causal attributions are truly causally related to emotions, then attributions of intentionality are predominantly, if not completely, responsible for anger arousal. This conclusion, and these findings, are contrary to Weiner's argument, that control is

the primary causal dimension involved in anger arousal. It also demonstrates that his contention that attributions of controllability and intentionality are usually closely related, is erroneous.

This error, as described earlier, can be explained in two ways. That is, control and intent are either not closely related, or are interpreted differently. If these alternatives are thought of in logical terms, both can be refuted. For example, following Weiner's logic, it seems reasonable to conclude that intent and control are often closely related. However, it also seems logical, if this were the case, that a relationship would have been found between intent and control because the methodology of this study required participants to carefully consider events' causes. An answer to this logical contradiction must therefore not lie in formal logic, but within individual's personal attributional processes.

A possible explanation of this apparent logical contradiction, is that attributing intent requires more subjective judgements than does attributing control. Intent can never be measured in objective terms, whereas control can. Control is asking how something happens, whereas intent asks why this has happened. This explanation is purely speculative, but it points towards the distinction between knowledge and appraisal processes outlined by Lazarus and Smith (1988).

Another strong finding of this research is its support for the distinction between attributions and appraisals. This finding is weakened by the failure of the appraisal components to fit Lazarus and Smith's theoretical model, and is consistent with previous research (Smith et al., 1993) and highlights the need for a theoretical re-evaluation. It still, nevertheless, supports the argument that the personal meanings

attached to events, and not the causal descriptions made of them, are of primary importance to anger arousal.

The two appraisal components that are most strongly related to anger arousal are motivational relevance and blame. A similar distinction can be drawn between these as was drawn between intent and control. That is, motivational relevance is an internally referenced appraisal and blame is an externally referenced appraisal. It also seems reasonable to speculate, based on the findings of this study, that an effective appraisal theory must give equal priority to each of these components.

One way that these processes may be able to be distinguished, is through their focus, whether internal or external. Motivational relevance is concerned with the personal importance of an outcome to the individual, it is an appraisal of the internally observed consequences of an event. Blame is concerned with the personal significance of the way an event was enacted; it is an appraisal of the reasons behind the actions of an external agent, and the likely consequences. This distinction between motivational relevance and blame is offered as speculation. The author argues that while motivational relevance and blame are interdependent processes, there exists a distinction that could be used as a basis to guide future theory and research.

The finding in the aggression and violence literature of HAB was not found in this study to be generalisable to anger arousal. Several possible reasons for this failure can be advanced. One possibility is that HAB is a phenomena that is only found in highly aggressive groups, and that while it is anger mediated in these groups, it is not generalisable to a normal population. A second is that outcomes were measured in terms of anger arousal and intentionality, and not aggressive/violent behaviours or

hostile intent. These terms are conceptually similar, but may be interpreted differently by different individuals. While a third, possibility is that the high anger group were not sufficiently different from the low anger group in this study for HAB to occur.

A limitation of this study is that the data that were gathered for the dependent variables in this study were based on people's self reported and imagined reactions to vignettes. As such, the data gathered may represent participants implicit theories of anger arousal (Smith et al. ,1993) and not the actual attributions and appraisals. It is possible that when participant responded to vignettes, their responses were made on the basis of a belief about how they thought anger was caused and not how they genuinely perceived the situation. While it is impossible to preclude this possibility, when the experimental manipulations were tested for there were consistent patterns of responses that were found within different levels of anger arousal. This occurred when analyses were conducted within versions, and between different levels of anger arousal.

A second limitation of this form of investigation is that firm conclusions about the relationships between variables cannot be made. This is because analyses that show the relative strengths of relationships between variables are based on correlations. Even where intent was manipulated it is not possible to measure this objectively. However, it has been argued, for this study, that the changes in intent were those expected, and that a consistent pattern of attributions among participants support its effectiveness.

The final notable limitation of this study lies in the scales used. While it can be argued they demonstrated a moderate degree of internal consistency, face validity and content validity, these are inadequate bases for the belief that these scales are

valid and reliable measures of what they purport to be. It is therefore necessary to interpret all findings of this study with an awareness of this potential limitation. Having made this point, it is the author's belief that this limitation is less applicable to measures of anger arousal, and causal attributions, because these were based on existing scales.

The overall theoretical significance of this study clearly lies in the relationship shown between intentionality and anger arousal, and in the distinction found between attribution and appraisal. The practical significance is less clear. The finding that suggests appraisal dimensions are the strongest predictor of anger arousal, has little practical value. This is because appraisal components are individually based and are driven by unknown, possibly unknowable, underlying goals. This leaves only the findings for the causal attribution of intentionality. The finding here has some of the disadvantage of appraisal in that it is defined by the individual, however, it is superior in that the goal is known (understanding causes). It also has the advantage of HAB in that it is applicable to certain situations. Overall, the findings relating to intent offer the best directions for future research.

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Appendix A

Transcripts of vignettesCarpark

Imagine its a Saturday morning and you've driven down to the shops

As usual the car park is chock - a - block

You drive round looking for a spot and eventually see someone about to come out

You stop to let them come out,

and as they are about to drive off, another car steals your spot.

As they drive in the driver

Ambiguous

..... does not look at you.

Hostile

..... gives you the finger, and calls you a loser.

Accidental

..... apologises, that he didn't see you waiting.

Beach

Imagine you've gone for a day at the beach.

You're just taking it easy, and having a few beers

You see a guy running up the beach in your direction,

As he comes past you he

Ambiguous

..... kicks up sand over you, and knocks over your beer

Hostile

..... stops and deliberately kicks sand over you, and knocks over your beer

Accidental

..... trips over and gets sand over you, and knocks over your beer

Bar scenario

Imagine your at the pub having a few beers.

You've been talking to the bloke next to you at the bar who you've just met.

He finishes his drink, says "see you later mate", and heads off.

At the same time nature calls, and you go off for a piss

As the other bloke gets outside he realises he's left some money on the bar, and heads back inside

As you come out of the toilet you see him walk up to the bar.....

Ambiguous

..... and take your money, of which there is more

Hostile

..... count both piles of money and take your money, of which there is more

Accidental

..... obviously totally pissed, and accidentally take your money, of which there is more

Appendix B-1

Negative events questionnaire

The following questions are aimed at finding out how men think about negative events. That is, things that happen that are bad.

The answers you give are totally anonymous

This questionnaire should only be completed by men over the age of 18.

Please write your age: _____ years

Part 1.

Think about something bad that has happened to you recently. It can be something that was caused by you or by someone else. It does not matter what sort of event it was, or how major or minor it was. If you want, you can briefly write down in the space below what the bad event was.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

How true are the following statements about the bad event you have thought of. Please mark only one box for each question, and answer every question.

Qu. 1. I take this sort of thing really personally

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 2. It's not what I expect to happen

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 3. It was obvious who/what was responsible

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 4. I don't blame the person/thing that caused this to happen

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 5. It was only a small thing

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 6. It didn't really matter what happened

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 7. The person/thing that caused this has nothing to answer for

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 8. Its something I care a lot about

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 9. I know where to point the finger

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 10. This sort of thing is normal

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 11. It was really bad

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 12. It was the best I could have hoped for

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 13. There was more than one thing that caused this to happen

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 14. No one was really responsible for what happened

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 15. A lot was at stake

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 16. It could have been worse

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 17. I am not really sure why this happened

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 18. There was no excuse for what happened

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Part 2.

Please write down briefly what you believe was the major cause of this event.
ie. what is the main reason why this happened.

Listed below are statements about the possible causes of bad events. How similar to the causes/reasons you gave are they.

Please mark only one box for each question, and answer every question.

Remember, it is the cause that is important here, not the event.

Qu. 19. The cause couldn't be controlled

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 20. The cause was planned

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 21. It could change a little from year to year

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 22. It would only happen in this special situation

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 23. Was something that could have been done differently

Strongly Agree Agree Slightly Agree Neutral Slightly Disagree Disagree Strongly Disagree

Qu. 35. Was something about you

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Qu. 36. It wasn't meant to happen

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Qu. 37. The cause could have been changed

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Qu. 38. Had nothing to do with you

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Qu. 39. Will stay the same over time

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Qu. 40. Is true in many different situations

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Qu. 41. Was under control

Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please could you check that one box for every question has been marked.

If you have any comments about this questionnaire please write them here.

Many thanks for you help.

Appendix B-2

Pilot study raw data

The data from the pilot study is enclosed on a disc that has been submitted to the honours coordinator with this thesis, it is prepared for SPSS for Windows.

File name PILOT

Appendix B-3

Attribution items included in Negative Events Questionnaire Including QuestionNumberLocus of causality (internal / external)

- Qu. 24. Was down to me
- Qu. 29. Was something outside you
- Qu. 35. Was something about you
- Qu. 38. Had nothing to do with you

Stability over time (stable / unstable)

- Qu. 21. It could change a little from year to year
- Qu. 26. The cause will probably not change much during the year
- Qu. 32. The cause is something that will change
- Qu. 39. Will stay the same over time

Controllability

- Qu. 41. Was under control
- Qu. 23. Was something that could have been done differently
- Qu. 37. The cause could have been changed
- Qu. 19. The cause couldn't be controlled
- Qu. 28. There was no stopping it
- Qu. 33. There was no choice

Intentionality

- Qu. 20. The cause was planned
- Qu. 27. It happened by accident
- Qu. 31. Happened on purpose
- Qu. 36. It wasn't meant to happen

Globality (Cross situational generality)

- Qu. 22. It would only happen in this special situation
- Qu. 30. True only for this special event
- Qu. 34. This was a one-off
- Qu. 25. The cause was not normal
- Qu. 40. Is true in many different situations

Appendix B-4

Appraisal items included in Negative Events Questionnaire Including QuestionNumberMotivational relevance (how important is the outcome)

- Qu. 1. I take this sort of thing really personally
- Qu. 6. It didn't really matter what happened
- Qu. 8. Its something I care a lot about
- Qu. 15. A lot was at stake

Motivational congruence (negative < > positive outcome)

- Qu. 2. It's not what I expect to happen
- Qu. 10. This sort of thing is normal
- Qu. 16. It could have been worse
- Qu. 12. It was the best I could have hoped for

Possible relevant and congruent combined, for interest

- Qu. 11. It was really bad
- Qu. 5. It was only a small thing

Accountability (How praise worthy or blameworthy is the person)

- Qu. 3. It was obvious who/what was responsible
- Qu. 9. I know where to point the finger
- Qu. 13. There was more than one thing that caused this to happen
- Qu. 17. I am not really sure why this happened

Core Relational ThemeBlame

- Qu. 4. I don't blame the person/thing that caused this to happen
- Qu. 7. The person/thing who caused this has nothing to answer for
- Qu. 14. No one was really responsible for what happened
- Qu. 18. There was no excuse for what happened

Appendix B-5

Factor Analysis of Attribution items from Negative Events Questionnaires

- - - - - F A C T O R A N A L Y S I S - - - - -

Analysis number 1 Listwise deletion of cases with missing values

Correlation Matrix:

	QU19	QU20	QU21	QU22	QU23	QU24	QU25
QU19	1.00000						
QU20	-.14142	1.00000					
QU21	.07719	-.02361	1.00000				
QU22	.00457	-.03644	-.01146	1.00000			
QU23	-.38975	.09793	-.03704	-.12188	1.00000		
QU24	-.10112	-.12172	.07899	.03425	.07209	1.00000	
QU25	-.02217	.12433	-.18598	.02244	-.08746	-.29093	1.00000
QU26	-.13934	.10299	-.19272	-.09793	.22518	-.16292	.01748
QU27	.26645	-.43564	-.12633	.04595	-.14137	.09698	.04451
QU28	.43097	.06820	-.04855	-.08680	-.32919	-.02686	.14246
QU29	.18725	.14832	-.10516	-.00820	-.04894	-.46466	.25204
QU30	.14912	-.16362	-.03512	.48290	-.16918	-.00044	.17329
QU31	-.16106	.69246	-.05245	.06420	.11843	-.19966	.29415
QU32	.10830	-.20479	.26268	.00733	-.04401	.15913	-.21437
QU33	.33004	-.15959	.03365	.13588	-.35888	-.07653	.19163
QU34	.22760	-.22861	.17874	.23516	-.18787	.12362	.14277
QU35	.00273	-.07072	.14438	-.04882	.07252	.50322	-.16220
QU36	.02692	-.41487	-.11647	-.07735	.03166	.04120	.15961
QU37	-.32598	-.03552	-.07178	-.20342	.44563	.04709	-.05878
QU38	.20023	-.06218	-.22526	.13490	-.26456	-.44991	.34054
QU39	-.06685	.16285	-.31485	-.06836	.00875	-.13381	.06367
QU40	-.13090	-.03569	.06053	-.06876	.07445	.07634	-.13577
QU41	.17829	-.03091	.07691	.11411	-.10334	.26268	-.14612

	QU26	QU27	QU28	QU29	QU30	QU31	QU32
QU26	1.00000						
QU27	-.24738	1.00000					
QU28	.09588	.22115	1.00000				
QU29	.09547	-.03876	.21998	1.00000			
QU30	.00886	.16315	.24864	.21737	1.00000		
QU31	.24417	-.50011	-.06601	.16539	-.09491	1.00000	
QU32	-.29057	.02903	-.00059	-.23576	.04465	-.22228	1.00000
QU33	.08441	.17226	.40437	.17714	.35238	-.09904	.00701
QU34	-.22437	.36955	.12733	-.08163	.46563	-.20590	.29085
QU35	-.13989	.06888	.02936	-.24171	.02701	-.03018	.15543
QU36	-.09804	.44730	.06863	-.09667	.13530	-.34599	.06965
QU37	.11437	-.03778	-.39429	-.01335	-.22109	.04851	-.02975

- - - - - F A C T O R A N A L Y S I S - - - - -

	QU26	QU27	QU28	QU29	QU30	QU31	QU32
QU38	.14691	.11179	.20868	.51088	.19483	.05723	-.18106
QU39	.47709	-.06124	.13699	.17409	-.00314	.13816	-.45819
QU40	.07487	-.11934	-.27154	-.02636	-.30911	-.06909	-.06497
QU41	-.14614	.00164	-.13242	-.13305	-.01741	-.06789	.11362

	QU33	QU34	QU35	QU36	QU37	QU38	QU39
QU33	1.00000						
QU34	.21792	1.00000					
QU35	-.00662	.04825	1.00000				
QU36	.10211	.36192	.08497	1.00000			
QU37	-.36416	-.08141	.14150	.08590	1.00000		
QU38	.12573	.08161	-.49031	.12560	-.19691	1.00000	
QU39	.04865	-.28970	-.06691	-.13239	-.01804	.19773	1.00000
QU40	-.29868	-.29784	-.03337	-.11657	.27717	.00214	.15516
QU41	.00287	.17093	.03222	.06462	-.03621	-.01536	-.22552

	QU40	QU41
QU40	1.00000	
QU41	.00601	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .64989

Bartlett Test of Sphericity = 907.49299, Significance = .00000

Extraction 1 for analysis 1, Principal Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
QU19	1.00000	*	1	3.72716	16.2	16.2
QU20	1.00000	*	2	3.43695	14.9	31.1
QU21	1.00000	*	3	2.01246	8.7	39.9
QU22	1.00000	*	4	1.61875	7.0	46.9
QU23	1.00000	*	5	1.56144	6.8	53.7
QU24	1.00000	*	6	1.30947	5.7	59.4
QU25	1.00000	*	7	1.09504	4.8	64.2

- - - - - F A C T O R A N A L Y S I S - - - - -

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
QU26	1.00000	*	8	.96928	4.2	68.4
QU27	1.00000	*	9	.92515	4.0	72.4
QU28	1.00000	*	10	.82393	3.6	76.0
QU29	1.00000	*	11	.71120	3.1	79.1
QU30	1.00000	*	12	.67089	2.9	82.0
QU31	1.00000	*	13	.57966	2.5	84.5
QU32	1.00000	*	14	.52425	2.3	86.8
QU33	1.00000	*	15	.51355	2.2	89.0
QU34	1.00000	*	16	.44752	1.9	91.0
QU35	1.00000	*	17	.42285	1.8	92.8
QU36	1.00000	*	18	.39425	1.7	94.5
QU37	1.00000	*	19	.33955	1.5	96.0
QU38	1.00000	*	20	.29071	1.3	97.3
QU39	1.00000	*	21	.24074	1.0	98.3
QU40	1.00000	*	22	.20347	.9	99.2
QU41	1.00000	*	23	.18172	.8	100.0

PC extracted 5 factors.

Factor Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
QU34	.66549			.36827	
QU27	.59937		-.48473		
QU19	.55620			-.31058	-.30757
QU30	.54931				.44453
QU33	.54818	.32598			
QU23	-.51458				
QU31	-.50519	.39541	.47041		
QU37	-.44762	-.30138	-.42871		
QU40	-.39376				-.37574
QU38		.67902			
QU29		.65185			
QU24		-.63731			.35961
QU25		.50355		.34329	
QU35		-.49876		-.30570	.46535
QU39		.48110		-.44134	
QU32	.30792	-.47609			
QU26	-.35754	.39083			
QU41					
QU36	.43363		-.56804		
QU20	-.49961	.32014	.53933		

- - - - - F A C T O R A N A L Y S I S - - - - -

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
QU21		-.33360	.42437		
QU28	.45473	.39411		-.48999	
QU22				.41650	

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
QU19	.56515	*	1	3.72716	16.2	16.2
QU20	.66131	*	2	3.43695	14.9	31.1
QU21	.37159	*	3	2.01246	8.7	39.9
QU22	.37150	*	4	1.61875	7.0	46.9
QU23	.52646	*	5	1.56144	6.8	53.7
QU24	.62659	*				
QU25	.43356	*				
QU26	.46137	*				
QU27	.61900	*				
QU28	.63700	*				
QU29	.47574	*				
QU30	.63164	*				
QU31	.74097	*				
QU32	.43730	*				
QU33	.51744	*				
QU34	.64039	*				
QU35	.58332	*				
QU36	.58515	*				
QU37	.54637	*				
QU38	.70985	*				
QU39	.63486	*				
QU40	.39254	*				
QU41	.18765	*				

VARIMAX rotation 1 for extraction 1 in analysis 1 - Kaiser Normalization.

VARIMAX converged in 7 iterations.

- - - - - F A C T O R A N A L Y S I S - - - - -

Rotated Factor Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
QU20	-.79669				
QU31	-.78202				
QU27	.75315				
QU36	.71213				
QU28		.73588			
QU37		-.69687			
QU19		.69622			
QU23		-.67067			
QU33		.60829			.34440
QU38			.77992		
QU24			-.77002		
QU35			-.75698		
QU29			.60833		
QU39				.76458	
QU26				.65424	
QU32				-.61750	
QU21				-.54841	
QU41				-.42468	
QU30					.74709
QU34	.36954			-.34806	.60964
QU22					.56870
QU40					-.56345
QU25			.40994		.45158

Factor Transformation Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	.57926	.59119	.03244	-.32028	.45969
Factor 2	-.26661	.35436	.68217	.54219	.20984
Factor 3	-.76700	.37699	-.21653	-.42803	.19873
Factor 4	-.05729	-.52628	.44860	-.40590	.52457
Factor 5	-.04248	-.16509	-.53429	.50546	.65573

Appendix B-6

Three Item Causal Attribution Scales and the Question Number they Refer to in the Final StudyLocus of causality

- Qu. 11. The cause was down to you
Qu. 4. Was something about you
Qu. 7. Had nothing to do with you

Stability over time

- Qu. 14. The cause will probably not change much during the year
Qu. 8. The cause is something that will change
Qu. 3. Will stay the same over time

Controllability

- Qu. 1. The cause could have been changed
Qu. 5. The cause couldn't be controlled
Qu. 9. There was no stopping it

Intentionality

- Qu. 15. This was planned
Qu. 6. It happened by accident
Qu. 12. Happened on purpose

Globality

- Qu. 2. It would only happen in this special situation
Qu. 10. True only for this special event
Qu. 13. This was not a one-off

Appendix B-7

Factor Analysis of Appraisal items from Negative Events Questionnaires

- - - - - F A C T O R A N A L Y S I S - - - - -

Analysis number 1 Listwise deletion of cases with missing values

Correlation Matrix:

	QU01	QU02	QU03	QU04	QU05	QU06	QU07
QU01	1.00000						
QU02	.30547	1.00000					
QU03	.25100	-.01260	1.00000				
QU04	-.34706	-.11957	-.32458	1.00000			
QU05	-.30297	-.12706	-.05611	.42489	1.00000		
QU06	-.16869	-.15657	.03832	.27740	.47214	1.00000	
QU07	-.31450	-.18131	-.12173	.54289	.38741	.20006	1.00000
QU08	.24126	.14233	-.07319	-.25514	-.42208	-.28642	-.11336
QU09	.40528	.20027	.54777	-.46022	-.28352	-.12992	-.20104
QU10	-.17824	-.25458	.04185	.16515	.34993	.26956	.20710
QU11	.35039	.12779	.11046	-.31510	-.60430	-.42013	-.24710
QU12	-.07479	-.12829	.15821	.02940	.19901	.17290	.19041
QU13	.03251	-.08807	-.13484	.11568	.04977	.05723	.08427
QU14	-.29505	-.04525	-.26731	.44260	.42878	.22513	.50373
QU15	.27109	.09797	.04513	-.22078	-.45969	-.39299	-.22702
QU16	-.13912	-.09309	.01584	.18164	.14919	.00802	.09552
QU17	.00261	.10724	-.30869	-.09864	-.07451	-.18317	-.17806
QU18	.17039	.08885	.16817	-.27463	-.22248	-.10165	-.26064
	QU08	QU09	QU10	QU11	QU12	QU13	QU14
QU08	1.00000						
QU09	.17317	1.00000					
QU10	-.18479	-.19581	1.00000				
QU11	.37526	.30723	-.30533	1.00000			
QU12	-.07711	-.12874	.30110	-.23735	1.00000		
QU13	.13177	-.09715	.17143	-.00796	-.00872	1.00000	
QU14	-.13871	-.25274	.12499	-.27400	.13049	.04199	1.00000
QU15	.36354	.17804	-.24448	.52168	-.18910	.07785	-.24470
QU16	-.22736	-.07916	.20309	-.24167	.16917	.04136	.12768
QU17	.08606	-.15536	-.20321	.00527	-.05347	-.14470	.05569
QU18	.08095	.25379	-.11712	.23509	-.14050	-.03508	-.30736
	QU15	QU16	QU17	QU18			
QU15	1.00000						
QU16	-.09851	1.00000					

- - - - - F A C T O R A N A L Y S I S - - - - -

	QU15	QU16	QU17	QU18
QU17	.07283	-.06784	1.00000	
QU18	.17723	-.07510	.04570	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .79961

Bartlett Test of Sphericity = 566.42320, Significance = .00000

Extraction 1 for analysis 1, Principal Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
QU01	1.00000	*	1	4.57065	25.4	25.4
QU02	1.00000	*	2	1.98574	11.0	36.4
QU03	1.00000	*	3	1.41375	7.9	44.3
QU04	1.00000	*	4	1.21510	6.8	51.0
QU05	1.00000	*	5	1.07836	6.0	57.0
QU06	1.00000	*	6	1.03958	5.8	62.8
QU07	1.00000	*	7	.98348	5.5	68.3
QU08	1.00000	*	8	.80922	4.5	72.8
QU09	1.00000	*	9	.68747	3.8	76.6
QU10	1.00000	*	10	.65497	3.6	80.2
QU11	1.00000	*	11	.60727	3.4	83.6
QU12	1.00000	*	12	.56526	3.1	86.7
QU13	1.00000	*	13	.52851	2.9	89.7
QU14	1.00000	*	14	.49590	2.8	92.4
QU15	1.00000	*	15	.41944	2.3	94.7
QU16	1.00000	*	16	.35160	2.0	96.7
QU17	1.00000	*	17	.30849	1.7	98.4
QU18	1.00000	*	18	.28521	1.6	100.0

PC extracted 4 factors.

Factor Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4
QU05	.75892			

- - - - - F A C T O R A N A L Y S I S - - - - -

	Factor 1	Factor 2	Factor 3	Factor 4
QU11	-.71163			
QU04	.67304	-.30366		
QU07	.60045		.34373	.38024
QU15	-.59457		.35178	
QU14	.59347			.39455
QU01	-.57618			
QU09	-.55358	.50904		.35597
QU06	.54267	.33513		
QU08	-.49129		.38192	
QU10	.47704	.33492		-.32060
QU18	-.42138			
QU03		.79254		
QU12	.32134	.32913		
QU13			.63698	
QU17		-.50135	-.50355	
QU02	-.32177		-.30128	.51116
QU16				-.30077

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
QU01	.44741	*	1	4.57065	25.4	25.4
QU02	.46798	*	2	1.98574	11.0	36.4
QU03	.72114	*	3	1.41375	7.9	44.3
QU04	.62306	*	4	1.21510	6.8	51.0
QU05	.65553	*				
QU06	.44107	*				
QU07	.63423	*				
QU08	.48491	*				
QU09	.69263	*				
QU10	.53163	*				
QU11	.62604	*				
QU12	.26252	*				
QU13	.43255	*				
QU14	.58667	*				
QU15	.54466	*				
QU16	.20660	*				
QU17	.56746	*				
QU18	.25916	*				

----- FACTOR ANALYSIS -----

VARIMAX rotation 1 for extraction 1 in analysis 1 - Kaiser Normalization.

VARIMAX converged in 8 iterations.

Rotated Factor Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4
QU07	.77464			
QU04	.72653			
QU14	.71284			
QU18	-.48171			
QU15		.70430		
QU11		.68993		
QU08		.67348		
QU05	.46050	-.64022		
QU06		-.53273		
QU13	.31075	.42217	.39014	
QU10			.67513	
QU02			-.67303	
QU12			.42880	
QU16			.41053	
QU03	-.33500			.76313
QU09	-.32034		-.30873	.69522
QU17			-.30688	-.64157
QU01			-.32951	.43250

Factor Transformation Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	.64657	-.59845	.41842	-.22074
Factor 2	-.32550	-.42323	.31220	.78579
Factor 3	.41710	.67752	.50279	.33793
Factor 4	.54957	-.06079	-.68895	.46863

Appendix B-8

Three Item Causal Attribution Scales and the Question Number they Refer to in the Final StudyMotivational relevance

- Qu. 1. A lot was at stake
- Qu. 12. It was really bad
- Qu. 7. It was only a small thing

Motivational congruence

- Qu. 4. It's not what I expect to happen
- Qu. 8. This sort of thing is normal
- Qu. 11. It could have been worse

Accountability

- Qu. 3. I am not really sure why this happened
- Qu. 6. It was obvious who/what was responsible
- Qu. 9. I know where to point the finger

Core relational theme (Other-blame)

- Qu. 2. The person/thing who caused this has a lot to answer for
- Qu. 5. I don't blame the person/thing that caused this to happen
- Qu. 10. No one was really responsible for what happened

Appendix C-1

Three item anger arousal scale

How would you feel

	Not at all	Somewhat	Moderately so	Very much so
1. I would feel irritated	1	2	3	4
2. I would feel anger	1	2	3	4
3. I would feel furious	1	2	3	4

Appendix C-2

Three item anger appraisal scale

How well do the following statements describe how you feel right now Please circle the appropriate answer.

	Not at all	Somewhat	Moderately so	Very much so
1. I feel irritated	1	2	3	4
2. I feel anger	1	2	3	4
3. I feel furious	1	2	3	4

Appendix C-3

Trait anger scale

How well do the following statements describe how you generally feel. Please circle the appropriate answer, and answer every question.

	Almost • never	Sometimes	Often	Almost always
1. I am quick tempered	1	2	3	4
2. I get angry when I am slowed down by other peoples mistakes	1	2	3	4
3. I have a hot temper	1	2	3	4
4. I feel annoyed when I am not given credit for doing good work	1	2	3	4
5. I am a hotheaded person	1	2	3	4
6. I fly off the handle	1	2	3	4
7. When I get mad, I say nasty things	1	2	3	4
8. It makes me angry when I am criticised in front of other people	1	2	3	4
9. When I get frustrated I feel like hitting someone	1	2	3	4
10. I feel angry when I do a good job and get a bad report	1	2	3	4

Appendix C-4

Level of violence scale

How often have you done the following aggressive acts to another person in the past year. Please do not count incidents where you were fooling-around, disciplining a child, or in combat sports (eg. boxing, karate). Please circle the appropriate answer.

	Never	1 - 2 Times	3 - 5 Times	6 - 10 Times	Over 10 Times
1. Threw something at someone	1	2	3	4	5
2. Pushed, grabbed, or shoved	1	2	3	4	5
3. Slapped or bit	1	2	3	4	5
4. Hit or kicked	1	2	3	4	5
5. Hit with an object	1	2	3	4	5
6. Other violent incident	1	2	3	4	5

Appendix C-5

Participants and researchers copy of the letter of consent

Dear Sir

This study is being conducted as part of my Honours degree in Psychology at Edith Cowan University, and I would be grateful for your assistance in it.

The purpose of this study is to investigate the levels of anger people experience, and the way they think about situations that could lead to anger. If you agree to take part in this study you will be shown a series of video clips and asked to imagine how you would feel if you were the person shown in the clip. You will be asked to complete some short questionnaires after each clip that measure how angry the clip made you feel and some of things you thought about.

Your participation is entirely voluntary, and you are free to withdraw at any stage, from all or any part of this study. There are no consequences for you if you choose not to participate.

It is hoped that this study will lead to a clearer understanding of when and why anger occurs, and that this understanding can lead to improvements in anger management programs.

The information obtained from you will be treated in the strictest confidence, and will remain anonymous. There is no need for you to record your name or any other information that could identify you.

Should you wish to find out about the results of this study or have any queries regarding it please feel free to contact me or my University supervisor.

Yours Sincerely,



Andrew Ellis

Tel. 

Supervisor, Kevin Howells,
Tel. (09) 400 5826

Consent form - researchers copy

Dear Sir

This study is being conducted as part of my Honours degree in Psychology at Edith Cowan University, and I would be grateful for your assistance in it.

The purpose of this study is to investigate the levels of anger people experience, and the way they think about situations that could lead to anger. If you agree to take part in this study you will be shown a series of video clips and asked to imagine how you would feel if you were the person shown in the clip. You will be asked to complete some short questionnaires after each clip that measure how angry the clip made you feel and some of things you thought about.

Your participation is entirely voluntary, and you are free to withdraw at any stage, from all or any part of this study. There are no consequences for you if you choose not to participate.

It is hoped that this study will lead to a clearer understanding of when and why anger occurs, and that this understanding can lead to improvements in anger management programs.

The information obtained from you will be treated in the strictest confidence, and will remain anonymous. There is no need for you to record your name or any other information that could identify you.

Should you wish to find out about the results of this study or have any queries regarding it please feel free to contact me or my University supervisor.

Yours Sincerely

Andrew Ellis

Tel. [REDACTED]

Supervisor, Kevin Howells,

Tel. (09) 400 5826

I have read this consent form, and have been given a signed copy of it. Any questions I have asked have been answered to my satisfaction. I agree to participate in this study, realizing I may withdraw at any time.

I agree that the research data gathered from this study may be published provided I am not identifiable.

Name _____

Signature _____ Date / /1996

Appendix D-1

Normality and summary data by cell

SCENARIO: 1.00 VERSION: 1.00

Number of valid observations (listwise) = 34.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	4.35	1.07	-.22	.79	.64	.40	34
ACCOUNT	4.53	1.53	.07	.79	-.87	.40	34
MOTCONG	5.32	1.00	-.64	.79	-.35	.40	34
MOTREL	2.26	1.05	.23	.79	.89	.40	34
BLAME	2.93	1.41	-.48	.79	.51	.40	34
CONTROL	3.21	1.28	-.77	.79	.14	.40	34
GLOBE	3.47	1.52	-.69	.79	.55	.40	34
INTENT	1.92	.92	2.51	.79	1.33	.40	34

SCENARIO: 1.00 VERSION: 2.00

Number of valid observations (listwise) = 34.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	7.53	2.64	-.82	.79	.22	.40	34
ACCOUNT	5.53	1.34	2.69	.79	-1.47	.40	34
MOTCONG	5.29	1.22	1.25	.79	-1.06	.40	34
MOTREL	3.30	1.56	-.76	.79	.28	.40	34
BLAME	5.10	1.58	.56	.79	-1.24	.40	34
CONTROL	5.22	1.19	-1.06	.79	-.18	.40	34
GLOBE	4.47	1.44	-.51	.79	-.43	.40	34
INTENT	3.94	1.75	-1.47	.79	-.26	.40	34

SCENARIO: 1.00 VERSION: 3.00

Number of valid observations (listwise) = 34.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	7.15	2.68	-.64	.79	.52	.40	34
ACCOUNT	5.09	1.64	-.31	.79	-.72	.40	34
MOTCONG	6.03	1.13	.23	.79	-1.05	.40	34
MOTREL	3.58	1.56	-.50	.79	.23	.40	34
BLAME	5.22	1.17	.37	.79	-.52	.40	34
CONTROL	4.49	1.33	-.80	.79	-.12	.40	34
GLOBE	4.16	1.31	-.36	.79	-.28	.40	34
INTENT	5.18	1.20	1.05	.79	-.96	.40	34

SCENARIO: 2.00 VERSION: 1.00

Number of valid observations (listwise) = 34.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	6.18	2.71	-.09	.79	.88	.40	34
ACCOUNT	4.93	1.13	.37	.79	-.11	.40	34
MOTCONG	4.12	1.37	-.09	.79	.10	.40	34
MOTREL	2.69	1.53	-.59	.79	.95	.40	34
BLAME	3.75	1.36	-1.04	.79	.34	.40	34
CONTROL	4.04	1.33	-.69	.79	.09	.40	34
GLOBE	3.40	1.28	-1.08	.79	.16	.40	34
INTENT	3.47	1.62	-.64	.79	.48	.40	34

SCENARIO: 2.00 VERSION: 2.00

Number of valid observations (listwise) = 34.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	6.18	1.98	-.08	.79	.74	.40	34
ACCOUNT	4.93	1.31	1.20	.79	-.70	.40	34
MOTCONG	3.38	1.64	-.79	.79	.41	.40	34
MOTREL	2.52	1.19	-.49	.79	.68	.40	34
BLAME	4.10	1.28	-.46	.79	-.24	.40	34
CONTROL	3.97	1.27	-.06	.79	-.48	.40	34
GLOBE	4.47	1.45	-.35	.79	-.50	.40	34
INTENT	3.12	1.24	-.39	.79	.56	.40	34

SCENARIO: 2.00 VERSION: 3.00

Number of valid observations (listwise) = 34.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	9.32	2.45	-.33	.79	-.65	.40	34
ACCOUNT	6.13	1.23	8.85	.79	-2.68	.40	34
MOTCONG	4.74	1.62	-.82	.79	-.48	.40	34
MOTREL	4.69	1.56	.08	.79	-.73	.40	34
BLAME	5.96	1.12	10.89	.79	-2.75	.40	34
CONTROL	4.50	1.51	-1.14	.79	-.12	.40	34
GLOBE	4.73	1.56	-1.10	.79	-.26	.40	34
INTENT	5.53	1.12	.27	.79	-.95	.40	34

SCENARIO: 3.00 VERSION: 1.00

Number of valid observations (listwise) = 34.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	5.79	1.75	1.11	.79	.98	.40	34
ACCOUNT	4.81	1.31	.46	.79	-.82	.40	34
MOTCONG	3.99	1.33	-.57	.79	.30	.40	34
MOTREL	3.09	1.29	-.93	.79	.30	.40	34
BLAME	3.72	1.21	-.23	.79	-.22	.40	34
CONTROL	4.87	1.18	.28	.79	-.60	.40	34
GLOBE	4.26	1.33	-.62	.79	-.47	.40	34
INTENT	2.52	1.04	-.40	.79	.65	.40	34

SCENARIO: 3.00 VERSION: 2.00

Number of valid observations (listwise) = 34.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	6.09	2.29	.78	.79	.84	.40	34
ACCOUNT	5.10	1.09	-.65	.79	-.19	.40	34
MOTCONG	5.04	1.01	-.22	.79	-.48	.40	34
MOTREL	3.89	1.63	-1.00	.79	.19	.40	34
BLAME	4.35	1.48	-1.13	.79	-.04	.40	34
CONTROL	4.82	1.10	-.14	.79	-.67	.40	34
GLOBE	3.53	1.30	-.76	.79	.18	.40	34
INTENT	3.24	1.38	-.64	.79	.23	.40	34

SCENARIO: 3.00 VERSION: 3.00

Number of valid observations (listwise) = 34.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	8.32	2.40	-1.09	.79	-.18	.40	34
ACCOUNT	5.57	1.10	-.80	.79	-.50	.40	34
MOTCONG	5.06	1.28	-.03	.79	-.60	.40	34
MOTREL	4.48	1.27	-.70	.79	-.49	.40	34
BLAME	5.70	.97	1.50	.79	-.98	.40	34
CONTROL	5.04	1.26	-.73	.79	-.41	.40	34
GLOBE	4.53	1.50	-1.44	.79	-.29	.40	34
INTENT	4.75	1.19	-.08	.79	-.31	.40	34

Appendix D-2

Normality and summary data by version

VERSION: 1.00 accident

Number of valid observations (listwise) = 102.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
ANGER	5.44	2.10	1.75	.47	1.33	.24	102
ACCOUNT	4.75	1.33	.52	.47	-.77	.24	102
MOTCONG	4.48	1.37	-.66	.47	-.13	.24	102
MOTREL	2.68	1.33	-.50	.47	.77	.24	102
BLAME	3.46	1.37	-.75	.47	.15	.24	102
CONTROL	4.04	1.43	-.76	.47	-.12	.24	102
GLOBE	3.71	1.42	-1.04	.47	.11	.24	102
INTENT	2.64	1.37	.68	.47	1.04	.24	102

VERSION: 2.00 ambiguous

Number of valid observations (listwise) = 102.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
WANGER	6.60	2.39	-.22	.47	.63	.24	102
ACCOUNT	5.19	1.26	.88	.47	-.79	.24	102
MOTCONG	4.57	1.56	-.54	.47	-.60	.24	102
MOTREL	3.24	1.56	-.68	.47	.47	.24	102
BLAME	4.52	1.50	-.86	.47	-.38	.24	102
CONTROL	4.67	1.29	-.09	.47	-.42	.24	102
GLOBE	4.16	1.45	-.82	.47	-.19	.24	102
INTENT	3.43	1.51	-1.06	.47	.24	.24	102

VERSION: 3.00 deliberate

Number of valid observations (listwise) = 102.00

Variable	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew	Valid N
WANGER	8.26	2.64	-1.10	.47	-.11	.24	102
ACCOUNT	5.60	1.40	1.21	.47	-1.23	.24	102
MOTCONG	5.27	1.45	-.24	.47	-.72	.24	102
MOTREL	4.25	1.53	-.67	.47	-.33	.24	102
BLAME	5.62	1.12	2.68	.47	-1.30	.24	102
CONTROL	4.68	1.38	-.93	.47	-.23	.24	102
GLOBE	4.47	1.46	-1.03	.47	-.19	.24	102
INTENT	5.15	1.20	.03	.47	-.67	.24	102

Appendix D-3

Summary data

Trait anger

ANGERTTT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	10.00	1	1.0	1.0	1.0
	13.00	6	5.9	5.9	6.9
	14.00	10	9.8	9.8	16.7
	15.00	8	7.8	7.8	24.5
	16.00	12	11.8	11.8	36.3
	17.00	13	12.7	12.7	49.0
	18.00	7	6.9	6.9	55.9
	19.00	12	11.8	11.8	67.6
	20.00	5	4.9	4.9	72.5
	21.00	5	4.9	4.9	77.5
	22.00	12	11.8	11.8	89.2
	23.00	3	2.9	2.9	92.2
	25.00	4	3.9	3.9	96.1
	26.00	1	1.0	1.0	97.1
	28.00	2	2.0	2.0	99.0
	31.00	1	1.0	1.0	100.0
	Total	102	100.0	100.0	
Mean	18.294	Std dev	3.817		
Valid cases	102	Missing cases	0		

Level of violence and state anger

VIOLENCE - level of violence

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	6.00	48	47.1	47.1	47.1
	7.00	20	19.6	19.6	66.7
	8.00	17	16.7	16.7	83.3
	9.00	7	6.9	6.9	90.2
	10.00	3	2.9	2.9	93.1
	11.00	3	2.9	2.9	96.1
	14.00	2	2.0	2.0	98.0
	16.00	1	1.0	1.0	99.0
	23.00	1	1.0	1.0	100.0
	Total	102	100.0	100.0	
Mean	7.422	Std dev	2.406		
Valid cases	102	Missing cases	0		

ANGERSSS - State anger scores

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	3.00	73	71.6	71.6	71.6
	4.00	21	20.6	20.6	92.2
	5.00	4	3.9	3.9	96.1
	6.00	3	2.9	2.9	99.0
	10.00	1	1.0	1.0	100.0
	Total	102	100.0	100.0	
Mean	3.441	Std dev	.960		
Valid cases	102	Missing cases	0		

Age

AGE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	17.00	6	5.9	5.9	5.9
	18.00	10	9.8	9.8	15.7
	19.00	9	8.8	8.8	24.5
	20.00	3	2.9	2.9	27.5
	21.00	3	2.9	2.9	30.4
	23.00	3	2.9	2.9	33.3
	24.00	1	1.0	1.0	34.3
	25.00	7	6.9	6.9	41.2
	26.00	1	1.0	1.0	42.2
	27.00	8	7.8	7.8	50.0
	29.00	1	1.0	1.0	51.0
	30.00	2	2.0	2.0	52.9
	31.00	2	2.0	2.0	54.9
	33.00	4	3.9	3.9	58.8
	34.00	2	2.0	2.0	60.8
	35.00	2	2.0	2.0	62.7
	36.00	3	2.9	2.9	65.7
	37.00	3	2.9	2.9	68.6
	38.00	8	7.8	7.8	76.5
	39.00	4	3.9	3.9	80.4
	40.00	4	3.9	3.9	84.3
	41.00	4	3.9	3.9	88.2
	42.00	2	2.0	2.0	90.2
	44.00	1	1.0	1.0	91.2
	45.00	1	1.0	1.0	92.2
	46.00	2	2.0	2.0	94.1
	48.00	1	1.0	1.0	95.1
	49.00	2	2.0	2.0	97.1
	54.00	1	1.0	1.0	98.0
	58.00	1	1.0	1.0	99.0
	60.00	1	1.0	1.0	100.0
	Total	102	100.0	100.0	
Mean	30.324	Std dev	10.504		
Valid cases	102	Missing cases	0		

Appendix E

Raw data

The data from the study is enclosed on a disc that has been submitted to the honours coordinator with this thesis, it is prepared for SPSS for Windows.

File name: Honours

This file shows the data after recoding (+ve and -ve), the scales used are included, and the high / low trait anger group identified. This is done so any further analyses can be carried out.

Appendix F-1

ANOVA for intent scores by version

SCENARIO: 1.00 beach

- - - - - O N E W A Y - - - - -

Variable ZINTENT
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	183.5904	91.7952	51.3905	.0000
Within Groups	99	176.8366	1.7862		
Total	101	360.4270			

SCENARIO: 2.00 car-park

- - - - - O N E W A Y - - - - -

Variable ZINTENT
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	115.3725	57.6863	32.0392	.0000
Within Groups	99	178.2484	1.8005		
Total	101	293.6209			

SCENARIO: 3.00 bar-money

- - - - - O N E W A Y - - - - -

Variable ZINTENT
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	87.7712	43.8856	29.8590	.0000
Within Groups	99	145.5065	1.4698		
Total	101	233.2778			

Appendix F-2

ANOVA for control scores by version

SCENARIO: 1.00 beach

- - - - - O N E W A Y - - - - -

Variable ZCONTROL
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	70.4379	35.2190	21.8789	.0000
Within Groups	99	159.3627	1.6097		
Total	101	229.8007			

SCENARIO: 2.00 car-park

- - - - - O N E W A Y - - - - -

Variable ZCONTROL
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	5.5506	2.7753	1.4774	.2332
Within Groups	99	185.9755	1.8785		
Total	101	191.5261			

SCENARIO: 3.00 bar-money

- - - - - O N E W A Y - - - - -

Variable ZCONTROL
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	.8719	.4359	.3128	.7321
Within Groups	99	137.9891	1.3938		
Total	101	138.8610			

Appendix F-3

ANOVA for anger scores by version

SCENARIO: 1.00 beach

- - - - - O N E W A Y - - - - -

Variable WANGER
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	204.4902	102.2451	20.0640	.0000
Within Groups	99	504.5000	5.0960		
Total	101	708.9902			

SCENARIO: 2.00 car-park

- - - - - O N E W A Y - - - - -

Variable WANGER
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	224.4902	112.2451	19.5184	.0000
Within Groups	99	569.3235	5.7507		
Total	101	793.8137			

SCENARIO: 3.00 bar-money

- - - - - O N E W A Y - - - - -

Variable WANGER
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	130.1176	65.0588	13.8890	.0000
Within Groups	99	463.7353	4.6842		
Total	101	593.8529			

Appendix B-4

ANOVA for accountability scores by version

SCENARIO: 1.00 beach

- - - - - O N E W A Y - - - - -

Variable XACCOUNT
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	17.0784	8.5392	3.7711	.0264
Within Groups	99	224.1765	2.2644		
Total	101	241.2549			

SCENARIO: 2.00 car-park

- - - - - O N E W A Y - - - - -

Variable XACCOUNT
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	32.9608	16.4804	10.9658	.0000
Within Groups	99	148.7868	1.5029		
Total	101	181.7475			

SCENARIO: 3.00 bar-money

- - - - - O N E W A Y - - - - -

Variable XACCOUNT
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	10.1176	5.0588	3.6835	.0286
Within Groups	99	135.9632	1.3734		
Total	101	146.0809			

Appendix F-5

ANOVA for blame scores by version

SCENARIO: 1.00 beach

- - - - - O N E W A Y - - - - -

Variable YBLAME
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	112.4989	56.2495	28.8304	.0000
Within Groups	99	193.1536	1.9510		
Total	101	305.6525			

SCENARIO: 2.00 car-park

- - - - - O N E W A Y - - - - -

Variable YBLAME
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	96.3747	48.1874	30.3920	.0000
Within Groups	99	156.9673	1.5855		
Total	101	253.3420			

SCENARIO: 3.00 bar-money

- - - - - O N E W A Y - - - - -

Variable YBLAME
By Variable VERSION version

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	69.4967	34.7484	22.6839	.0000
Within Groups	99	151.6536	1.5319		
Total	101	221.1503			

Appendix G

Long analyses stored on disc

The following analyses have been given on a disc to the honour coordinator with this thesis. The files and their names are listed below.

ANOVA : ANOVA by version for other variables

MR1 : Multiple regression analyses for intent and four other causal attributions

MR2 : Multiple regression analyses for three appraisal dimensions

MR3 : Multiple regression analyses for blame and three appraisal dimensions

MR4 : Multiple regression analyses for appraisal dimensions and attribution dimensions

MR5 : Multiple regression analyses for blame and attribution dimensions

MR6 : Multiple regression analyses for appraisal components and attribution dimensions

HAB : 3 x 3 scenario x version ANOVA

Appendix H

Descriptive statistics intent by version and anger group for scenario

Table H-1

Mean Intent Scores as a Function of Version and Anger Group for Beach Scenario

Anger group	Version		
	Accidental	Ambiguous	Deliberate
Low			
<u>M</u>	1.98	3.79	5.10
<u>SD</u>	1.07	1.84	1.09
<u>n</u>	20	14	16
High			
<u>M</u>	1.83	4.05	5.24
<u>SD</u>	.66	1.73	1.32
<u>n</u>	14	20	18

Table H-2

Mean Intent Scores as a Function of Version and Anger Group for Car-park Scenario

Anger group	Version		
	Accidental	Ambiguous	Deliberate
Low			
<u>M</u>	3.69	2.92	5.14
<u>SD</u>	1.36	1.08	1.15
<u>n</u>	16	20	14
High			
<u>M</u>	3.28	3.40	5.80
<u>SD</u>	1.83	1.44	1.03
<u>n</u>	18	14	20

Table H-3

Mean Intent Scores as a Function of Version and Anger Group for Bar Scenario

Anger group	Version		
	Accidental	Ambiguous	Deliberate
Low			
<u>M</u>	2.69	3.79	4.52
<u>SD</u>	1.16	1.24	1.22
<u>n</u>	14	16	20
High			
<u>M</u>	2.40	2.74	5.07
<u>SD</u>	.95	1.35	1.12
<u>n</u>	20	18	14

Appendix I

SPSS outputs of ANOVA results for intent by version and anger group for scenarios

SCENARIO: 1.00 beach

* * * ANALYSIS OF VARIANCE * * *

ZINTENT
by VERSION version
HIORLOW

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	184.382	3	61.461	33.540	.000
VERSION	180.730	2	90.365	49.313	.000
HIORLOW	.174	1	.174	.095	.758
2-Way Interactions	.742	2	.371	.202	.817
VERSION HIORLOW	.742	2	.371	.202	.817
Explained	184.509	5	36.902	20.138	.000
Residual	175.918	96	1.832		
Total	360.427	101	3.569		

102 cases were processed.
0 cases (.0 pct) were missing.

SCENARIO: 2.00 car-park

* * * ANALYSIS OF VARIANCE * * *

ZINTENT
by VERSION version
HIORLOW

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	109.742	3	36.581	20.500	.000
VERSION	103.485	2	51.743	28.996	.000
HIORLOW	1.499	1	1.499	.840	.362
2-Way Interactions	5.516	2	2.758	1.545	.218
VERSION HIORLOW	5.516	2	2.758	1.545	.218
Explained	122.313	5	24.463	13.709	.000
Residual	171.308	96	1.784		
Total	293.621	101	2.907		

102 cases were processed.
0 cases (.0 pct) were missing.

SCENARIO: 3.00 bar-money

* * * A N A L Y S I S O F V A R I A N C E * * *

ZINTENT
by VERSION version
HIORLOW

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	94.293	3	31.431	22.700	.000
VERSION	86.936	2	43.468	31.394	.000
HIORLOW	1.715	1	1.715	1.238	.269
2-Way Interactions	10.771	2	5.386	3.890	.024
VERSION HIORLOW	10.771	2	5.386	3.890	.024
Explained	100.356	5	20.071	14.496	.000
Residual	132.922	96	1.385		
Total	233.278	101	2.310		

102 cases were processed.

0 cases (.0 pct) were missing.

Appendix J

Descriptive statistics for anger arousal by version and anger group for scenario

Table J-1

Mean Anger Arousal Scores as a Function of Version and Anger Group for BeachScenario

Anger group	Version		
	Accidental	Ambiguous	Deliberate
Low			
<u>M</u>	4.60	7.14	6.56
<u>SD</u>	1.19	2.96	2.45
<u>n</u>	20	14	16
High			
<u>M</u>	4.00	7.80	7.67
<u>SD</u>	.78	2.44	2.83
<u>n</u>	14	20	18

Table J-2

Mean Anger Arousal Scores as a Function of Version and Anger Group for Car-parkScenario

Anger group	Version		
	Accidental	Ambiguous	Deliberate
Low			
<u>M</u>	5.38	5.80	7.79
<u>SD</u>	2.87	1.96	2.36
<u>n</u>	16	20	14
High			
<u>M</u>	6.89	6.71	10.40
<u>SD</u>	2.42	1.94	1.90
<u>n</u>	18	14	20

Table J-3

Mean Anger Arousal Scores as a Function of Version and Anger Group for BarScenario

Anger group	Version		
	Accidental	Ambiguous	Deliberate
Low			
<u>M</u>	5.29	5.81	7.60
<u>SD</u>	1.49	1.56	2.44
<u>n</u>	14	16	20
High			
<u>M</u>	6.15	6.3	9.36
<u>SD</u>	1.87	2.81	1.98
<u>n</u>	20	18	14

Appendix K

SPSS outputs of ANOVA results for anger arousal by version and anger group for scenarios

SCENARIO: 1.00 beach

*** ANALYSIS OF VARIANCE ***

WANGER
by VERSION version
HIORLOW

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	215.440	3	71.813	14.137	.000
VERSION	199.450	2	99.725	19.632	.000
HIORLOW	3.737	1	3.737	.736	.393
2-Way Interactions	12.979	2	6.490	1.278	.283
VERSION HIORLOW	12.979	2	6.490	1.278	.283
Explained	221.338	5	44.268	8.715	.000
Residual	487.652	96	5.080		
Total	708.990	101	7.020		

102 cases were processed.
0 cases (.0 pct) were missing.

SCENARIO: 2.00 car-park

*** ANALYSIS OF VARIANCE ***

WANGER
by VERSION version
HIORLOW

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	285.094	3	95.031	18.743	.000
VERSION	185.720	2	92.860	18.315	.000
HIORLOW	70.450	1	70.450	13.895	.000
2-Way Interactions	12.251	2	6.125	1.208	.303
VERSION HIORLOW	12.251	2	6.125	1.208	.303
Explained	307.072	5	61.414	12.113	.000
Residual	486.742	96	5.070		
Total	793.814	101	7.860		

102 cases were processed.
0 cases (.0 pct) were missing.

SCENARIO: 3.00 bar-money

* * * ANALYSIS OF VARIANCE * * *

WANGER
by VERSION version
HIORLOW

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	161.403	3 *	53.801	12.015	.000
VERSION	149.053	2	74.526	16.644	.000
HIORLOW	27.358	1	27.358	6.110	.015
2-Way Interactions	6.773	2	3.386	.756	.472
VERSION HIORLOW	6.773	2	3.386	.756	.472
Explained	163.994	5	32.799	7.325	.000
Residual	429.859	96	4.478		
Total	593.853	101	5.880		

102 cases were processed.
0 cases (.0 pct) were missing.

Appendix L

SPSS outputs of ANOVA results for anger arousal by version and anger group using
state anger scores as covariable for scenarios

SCENARIO: 1.00 beach

* * * ANALYSIS OF VARIANCE * * *

WANGER
by VERSION version
HIORLOW
with ANGERSSS

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Covariates	17.734	1	17.734	3.585	.061
ANGERSSS	17.734	1	17.734	3.585	.061
Main Effects	215.365	3	71.788	14.513	.000
VERSION	197.969	2	98.985	20.011	.000
HIORLOW	4.383	1	4.383	.886	.349
2-Way Interactions	14.516	2	7.258	1.467	.236
VERSION HIORLOW	14.516	2	7.258	1.467	.236
Explained	239.073	6	39.845	8.055	.000
Residual	469.918	95	4.947		
Total	708.990	101	7.020		

102 cases were processed.
0 cases (.0 pct) were missing.

SCENARIO: 2.00 car-park

* * * ANALYSIS OF VARIANCE * * *

WANGER
by VERSION version
HIORLOW
with ANGERSSS

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Covariates	46.483	1	46.483	10.030	.002
ANGERSSS	46.483	1	46.483	10.030	.002
Main Effects	302.010	3	100.670	21.723	.000
VERSION	198.088	2	99.044	21.372	.000
HIORLOW	74.813	1	74.813	16.143	.000
2-Way Interactions	12.285	2	6.143	1.325	.271
VERSION HIORLOW	12.285	2	6.143	1.325	.271
Explained	353.554	6	58.926	12.715	.000
Residual	440.260	95	4.634		
Total	793.814	101	7.860		

102 cases were processed.
0 cases (.0 pct) were missing.

SCENARIO: 3.00 bar-money

* * * ANALYSIS OF VARIANCE * * *

WANGER
by VERSION version
HIORLOW
with ANGERSSS

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Covariates	5.745	1	5.745	1.287	.259
ANGERSSS	5.745	1	5.745	1.287	.259
Main Effects	162.750	3	54.250	12.152	.000
VERSION	149.783	2	74.891	16.775	.000
HIORLOW	28.290	1	28.290	6.337	.014
2-Way Interactions	6.154	2	3.077	.689	.504
VERSION HIORLOW	6.154	2	3.077	.689	.504
Explained	169.739	6	28.290	6.337	.000
Residual	424.114	95	4.464		
Total	593.853	101	5.880		

102 cases were processed.
0 cases (.0 pct) were missing.

Appendix M

SPSS output of ANOVA results for intentionality scores by version and scenario

* * * A N A L Y S I S O F V A R I A N C E * * *

ZINTENT
by VERSION version
SCENARIO scenario

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	352.010	4	88.003	52.212	.000
VERSION	336.633	2	168.316	99.852	.000
SCENARIO	15.378	2	7.689	4.562	.011
2-Way Interactions	50.102	4	12.525	7.431	.000
VERSION SCENARIO	50.102	4	12.525	7.431	.000
Explained	402.112	8	50.264	29.822	.000
Residual	500.592	297	1.685		
Total	902.703	305	2.960		

306 cases were processed.
0 cases (.0 pct) were missing.