

**The role of psychological
factors in the management
of crisis situations**

Dr Gary Buck C.Psychol. AFBPsS

University of Westminster

November 2003

1 SUMMARY

Research literature suggests a number of psychological factors that affect the management of critical situations. Firstly, the complexity of an individual's information processing has been linked to successful management of critical situations. To be able to process information in a complex manner, an individual must have the underlying capacity to operate at such high levels. This capacity (referred to as conceptual complexity) can be characterised by personality traits such as open-mindedness and flexible, or perhaps better viewed as the non-authoritarian and non-obsessive personalities. The underlying motives of the individual, (whether they are primarily motivated by a need for achievement, power or affiliation), will affect which goals the individual sees as important and in part how they interpret the stressfulness of the situation. The stressful nature of the situation will also be buffered to a greater or lesser extent by the hardiness of the individual (the extent to which they see the situation as a challenge, feel committed to solving the problem and feel they can control the situation). The level of stress perceived by the individual will then lead them to adopt a pattern of coping behaviours, (unconflicted adherence, unconflicted change, defensive avoidance, hypervigilance and vigilance), in order to deal with the psychological conflict caused by the situation and the stress engendered by it. The quantity, quality and more specifically the complexity of the individual's information processing (and thus the likelihood for success) will vary with the adoption of one of these patterns.

Verbal protocols of both U.S. President and Secretary of State involved in 10 historical international crises (5 with successful and 5 with unsuccessful outcomes), were scored for integrative complexity, hardiness, coping strategy, need for Achievement, need for Power and need for Affiliation. Analysis of the results show a clear difference in that successful outcomes were characterised by high levels of integrative complexity, hardiness, coping strategy and need for Achievement with low levels of need for Power. Need for Affiliation played no moderating role. These variables appear to be part of an overall factor related to the ability to function well in difficult circumstances. Furthermore, it would appear that individuals involved in these incidents developed a shared approach to the situation based on the lowest common denominator. Also, individuals involved in successful incidents generally maintained their level of complexity (in comparison to other less stressful situations) whereas those involved in unsuccessful situations dropped in complexity.

These results suggest applications for the methodologies in the monitoring of international relations. Firstly, the methods used here may be useful in predicting surprise attacks, outbreaks of hostilities and deterioration of international relations. Secondly, the methods could be used to monitor the effectiveness of both allied and opposing side's crisis management during ongoing incidents.

2 INTRODUCTION

The purpose of this study is to investigate the role of individual psychological factors in the management of critical situations. Individuals faced with critical situations do not operate within a vacuum. The nature of the critical situation itself, the availability of information, time pressures etc. will clearly affect the behaviour of the individual. Other external factors such as organisational culture, standard doctrine and procedures, and group dynamics will all play a role in determining how an individual manages a critical situation. The individual will also be guided by other, more personal factors such as training and experience. However, the fact remains that individuals with similar experience and training, operating in similar organisations and groups, with similar procedures available, behave differently when faced with broadly similar situations. This implies that individual, psychological factors also play a key role in determining a person's approach to handling a critical situation. This study is focused on the role of these individual psychological factors in the management of critical situations and in particular describing why and how errors occur.

2.1 Underlying Motives

An individual's interpretation of the situation they face, but more importantly the goals and values they identify as important are likely to be determined in part by the underlying motives that the individual brings to the situation. The nature of their underlying motivations will help to shape the nature, quantity and quality of the action that they take to manage the situation in that motivation can be defined in the extent to which it energises, directs and selects behaviour (McClelland 1992). As Winter (1992) points out, researchers have conducted work to examine the motives of a wide range of people engaged in instrumental activity. Work has focused on the underlying motivational basis of broad historical trends and cultural developments whilst other work has looked at the processes and relationships peculiar to certain groups such as political leaders. The majority of this work has been based on three motivational determinants, these being the need for achievement (*n Achievement*), the need for Power (*n Power*) and the need for affiliation (*n Affiliation*). These three motive systems have been derived from Murray's (1938) original work on motives and further refined by McClelland in particular (McClelland et al, 1953).

The first and perhaps best known of these three motivational determinants is the achievement motive. Achievement motivation (*n Achievement*) is defined as a concern with 'doing things better, with surpassing standards of excellence'. The affiliation motive (*n Affiliation*) is defined as a concern for establishing, maintaining, or restoring a positive affective relationship with another person or group of persons, (Koestner & McClelland, 1992). The initial work on power motivation (*n Power*) originally focused on this motive as an alternative to affiliation. The original speculations were based on the thinking of Adler (see Veroff 1992), with regard to peoples' concern with power, in particular an individual's concern about influence that was derived from having been strongly influenced by others (especially in the childhood family). Veroff also gave some consideration to the notion that power motivation might be linked to the authoritarian personality (which will be discussed later in this review), (Veroff 1992). The definition of the power motive is that it is concerned with controlling the means of influence, not necessarily influencing others.

A wide range of studies has shown that motivational determinants do relate to instrumental activity. Of particular relevance to this study is the relationship between power and affiliation motivation and war. McClelland suggested that periods in which power and affiliation motives were both high were followed in 10 to 25 years by some form of religious or secular crusade. Typically, *n Affiliation* levels fell leading to a war 10 to 25 years later. After this war, *n Power* then dropped and *n Affiliation* then increased which led to a period of peace until *n Power* rose again and the cycle was repeated. He also found that high *n Power* combined with low *n Affiliation* led to greater governmental expenditure on military forces, (Winter 1992). Winter tested this model by scoring three sets of historical materials. These were the British Sovereign's Speech at the Opening of Parliament, inter-governmental communications between Britain and Germany immediately before the outbreak of the First World War, and the statements and letters passed between Kennedy and Khrushchev during the Cuban Missile Crisis. He found that combined power minus affiliation motive scores were significantly higher in the years before Britain entered a war in comparison to years of peace. This combined score also increased rapidly during the crisis leading up to World War One, but decreased from the beginning to the end of the missile crisis. He also found that British wars tended to end only after *n Power* levels dropped, Winter (1992). Herman (1980), scored for affiliation and power motivation transcripts of press conferences given by 45 world leaders. Power motivated leaders were found to be more independent and confrontational in their

foreign policy stance, whereas affiliation motivated individuals were found to promote a co-operative and interdependent foreign policy.

Walker (1995), scored American president Woodrow Wilson's speeches made during three events, the ratification of the Versailles Treaty (which ended World War I but with undue burden placed on Germany and which also hampered the successful operation of the League of Nations which eventually was unable to prevent the breakdown in international order which led to World War II), and his decisions to intervene in the Mexican Revolution and enter World War I. These events were taken by Walker to be examples of poor decision-making. The focus of this study was the relative frequency of the achievement, affiliation and power motives in his speeches. In all three cases Wilson's dominant need was Power with moderate Achievement and low Affiliation.

The studies discussed above indicate that an individual's motivational state affects the manner in which they perceive different situations, in particular, cues within the situation and thus have consequences on the way in which these situations are handled. Thus depending on the underlying motives, a person may see a situation as threatening (a relationship, means of influence or attainment of a goal) or alternatively as an opportunity. In other words, the underlying motives of the individual will affect the extent to which an individual perceives a situation as stressful. The magnitude of the stressful appraisal will also be affected by other psychological factors such as individual buffering mechanisms.

2.2 Stress Resistance

Kobasa (1979) states that personality may moderate the detrimental effects of stress on behaviour by its influence on the way persons feel, think and act. Larsson (1989) found that low trait anxiety led to better performance in a stressful simulation amongst Swedish conscripts. This builds on other work, e.g. Goodhart (1986) and Larsson et al (1988) in which personality characteristics were related to appraisal processes, coping and performance. This is supported by Westman (1990) who found that the personality characteristic of hardiness buffered Israeli Defence Force cadets from the detrimental effects of stress.

Hardiness is conceptualised as a constellation of personality characteristics, which is composed of three different dimensions, commitment, control and challenge (Kobasa 1979). Kobasa (1979) defines commitment as an individual's ability to feel deeply involved in or committed to the activity of their lives. Committed persons have a belief system that minimises the perceived threat of any given stressful life event. An ability to recognise one's distinctive values, goals, and priorities and an appreciation of one's capacity to have purpose and to make decisions is seen by Kobasa as central to the accurate assessment of the threat posed by a particular life situation and for the competent handling of it. Control is defined as an individual's belief that they can control or influence the events of their experience. Control in this sense is comprised of: decisional control, or the capability of autonomously choosing among various courses of action to handle the stress; cognitive control, or the ability to interpret, appraise, and incorporate various sorts of stressful events into an ongoing life plan and, thereby, deactivate their jarring effects; and coping skill, or a greater repertoire of suitable responses to stress developed through a characteristic motivation to achieve across all situations. Finally, challenge is defined by Kobasa as the anticipation of change as an exciting challenge to further development. Thus, persons who feel positively about change are catalysts in their environment and are well practised at responding to the unexpected. Because they value a life filled with interesting experiences, change seekers have well explored their environment and know where to turn for resources to aid them in coping with stress.

Westman (1990), investigated the relationship of hardiness to stress and to performance, as well as its moderating effect on the relationship between stress and performance. This study focused on 326 officer cadets in the Israeli Defence Forces who completed self-report stress questionnaires during four critical events in their training course and hardiness questionnaires at the beginning and end of the course. In this study hardiness was consistently negatively related to experienced stress, thus more hardy individuals appraised the situations they faced as less stressful than non-hardy individuals. Furthermore, hardiness was also consistently positively related to objectively assessed performance throughout the course and in a subsequent course as well as to the first on-the-job performance appraisal a year later. It seems that more hardy individuals were able to perform more effectively than their less hardy colleagues. In addition to these main effects, hardiness buffered the cadets from the detrimental effects of stress on performance in that for cadets who were high in hardiness, stress was

not a significant predictor of performance. A number of interesting conclusions can be drawn from the Westman (1990) study. Firstly, it seems that the hardy individual tends to interpret events as less stressful. More specifically, he/she does not perceive the situation as any less challenging instead they view themselves as possessing adequate resources to cope with the situation. Westman suggests that, because hardy individuals tend to perceive and interpret a situation in more benign terms, they therefore experience less emotional upheaval and thus in turn their coping efforts are directed less toward assuaging disruptive emotions and thoughts and more toward solving the problems of the different stressful demands.

Both underlying motives and buffering mechanisms will affect the extent to which an individual appraises a situation as stressful. Irrespective of the level of perceived stress, once a situation has been perceived as stressful, the negative effects of that appraisal must be coped with.

2.3 Coping with Stress

Janis & Mann (1977), suggest that to operate effectively in critical situations, an individual must accept and cope with the conflict that there are different alternatives and that a decision must be made between them that may lead to significant losses (i.e. self-esteem, money or life) as well as the emotions provoked by the stressful stimuli. They postulated five basic patterns for coping with this decisional conflict. These coping patterns are:

- Unconflicted adherence:* The decision maker complacently decides to continue whatever he/she has been doing, ignoring information about the risks.
- Unconflicted change:* The decision maker uncritically adopts whichever new course of action is most salient or most strongly recommended, without making any contingency plans and without psychological preparation for setbacks.
- Defensive Avoidance:* The decision maker evades the conflict by a) procrastinating, b) shifting responsibility for making the decision to someone else or c) constructing wishful rationalisations that bolster the least objectionable alternative, minimising the expected unfavourable consequences and remaining selectively inattentive to corrective information.
- Hypervigilance:* The decision maker in a panic-like state searches frantically for a way out of the dilemma, rapidly shifting back and forth between alternatives, and impulsively seizes upon a hastily contrived solution that seems to promise immediate relief.
- Vigilance:* The decision maker searches painstakingly for relevant information, assimilates information in an unbiased manner, and appraises alternatives carefully before making a choice.

Janis & Mann suggest that there are marked individual differences in preference for the different coping patterns, but that all five patterns are in the repertoire of every person. In different circumstances the same person will use different coping patterns depending on his/her appraisal of the situation. The first four coping patterns are viewed as dysfunctional strategies with only vigilance leading to effective information search and processing. Janis & Mann (1977), highlight the information-processing component of decision making and identified seven criteria of information processing which if met would lead to effective decision-making. These criteria in essence relate to the generation and comparison of alternatives, such as is needed in complex thinking. Thus, vigilant information processing involves the generation and comparison of different alternatives or dimensions in a situation requiring a high degree of complex thinking. This complex information processing only occurs, according to Janis & Mann if the individual is operating within the vigilant coping pattern.

In a test of Janis & Mann's theoretical model, Herek et al (1987), examined whether the outcome of US Presidential decision-making during 19 international crises since World War II were related to the fulfilling for the seven criteria for vigilant information processing. Bibliographic sources describing the decision-making process in each crisis were content analysed and rated on the seven criteria using a five point rating scale. Crisis outcomes were rated by experts in terms of their effect on U.S. vital

interests and on international conflict. Results indicated that crisis outcomes had more adverse effects on US interests and increased international conflict when the decision making process met less of these criteria. The Herek et al (1987) study suggests that the information processing of unsuccessful US decision-makers was adversely affected by the stressful nature of the situations they faced. Thus the stressful nature of the situation effectively reduced the complexity of their information processing and this reduction in complexity adversely impacted on the outcome of the crisis.

2.4 Effects of Stress on Complexity

Schroder et al (1967) have also shown that stress has a deleterious effect on an individual's level of complexity of information processing. For instance, in international game simulations, an increase in "military threat" decreased the level of complexity of the players' approach to making decisions. In another study, Porter & Suedfeld (1981) looked at the effect of societal and personal stress and showed that the information processing complexity of eminent British literary figures decreased during periods of war (which the nation, not they were involved in - societal stress) and personal illness (personal stress). In another study, Suedfeld (1985) found that presidential addresses of the American Psychological Association had lower levels of complexity of thinking during time of war. Looking at political rhetoric during the Gulf War in 1990-91, Wallace et al (1993) found reductions in the complexity of leaders' communications provided an indicator of the presence of stress during a crisis. Suedfeld & Granatstein (1995), looking at the experiences of a senior Canadian Officer during World War II, found complexity of thinking decreased in a time of professional criticism and failure, increased during professional success and increased again when final failure occurred and he was relieved from the stress. Additionally, Suedfeld et al (1977) studied the complexity of speeches given at the UN on the Middle East during 1947-76. They found decreases in complexity in speeches made in months preceding the outbreak of war. Finally, Wallace & Suedfeld (1988), looking at a wide variety of leaders in a range of situations demonstrated that the ability to maintain complexity under stress is closely linked with the ability to resolve a crisis without resort to war. The authors concluded that stress had the effect of inducing:

"a lessened likelihood of accurately distinguishing between relevant and irrelevant information, reducing search for novel information, the suppression or ignoring of unpleasant inputs long-term plans tend to be ignored in favour of stimulus-bound reactions, fine distinctions among items of information or among other participants in the crisis are abandoned, and responses and attitudes become increasingly stereotyped."

The relationship between stressful appraisals of critical situations and the complexity of information processing has been the focus of a good deal of research. Integrative complexity is defined as the level of complexity shown in thought and behaviour in a particular context or situation and in the relationship between such complexity and a wide variety of environmental, interpersonal and internal factors (Suedfeld et al, 1992). As such, integrative complexity is seen as a mental state dependent on the interaction between environmental characteristics and an individual's capabilities. Integrative complexity is a dimension characterised at the lower end by rigidity, gross distinctions, simple responses and restricted information usage, and at the high end by flexibility, fine distinctions, complexity and extensive information search and usage (Suedfeld & Tetlock, 1977). Complexity is defined in terms of degrees of differentiation and integration. Differentiation refers to the perception of different dimensions within a stimulus domain and to the taking of different perspectives when considering the domain. A differentiated characteristic is an independent attribute perceived by the observer, along which the stimulus can be scaled. These are the characteristics that are considered in the decision-making process. For example, an individual decision maker may process information relating to policy options in an undifferentiated way by placing options into two categories, good 'patriotic' policies and bad 'defeatist' policies. A more differentiated approach would recognise that policy options can have multiple, often contradictory effects and cannot be classified on a single evaluative dimension of judgement. Differentiation is a necessary but not sufficient prerequisite for integration, which is the development of conceptual connections between the differentiated dimensions or perspectives. The complexity of the integration is related to whether the differentiated characteristics are seen as operating in isolation, in hierarchical interaction and according to multiple patterns.

Integrative complexity research has addressed a number of different areas. Suedfeld & Tetlock (1977), have shown that low levels of integrative complexity are evident in international crises that were handled badly whereas high levels of integrative complexity were related to successful outcomes. In

this study, diplomatic communications during international crises that resulted in war (World War One, 1914 and the Korean War, 1950) and crises that were settled peacefully (the Moroccan Crisis, 1911; Berlin Blockade, 1948 and Cuban Missile Crisis, 1962) were scored for integrative complexity. The complexity of messages produced by government leaders was significantly lower in crises that ended in war. In particular, as the crisis approached its climax, complexity declined in 1914 and increased in 1962. Referring to the avoidance of war as a successful outcome to a crisis is subjective in nature, but few would argue that in most cases the effective handling of an international crisis is one where large scale death and suffering are avoided.

Suedfeld et al (1977), looked at UN General Assembly speeches concerning the Middle East conflict (1947-1976) made by representatives of various countries. The integrative complexity of speeches was found to significantly reduce in those made in the months preceding the outbreak of war. Low levels of integrative complexity were evident in both Arab and Israeli speeches and the authors of the study suggest may be a predictor of a major outbreak of hostilities in the near future. Suedfeld, Corteen & McCormick (1986), looked at the role of integrative complexity in military leadership. General Robert E. Lee was able to defeat opponents in six battles during the American Civil War when his level of integrative complexity was higher than that of the opposing commander. Paragraphs selected from material written by General Lee and his opposing Union generals were scored for integrative complexity. Lee was victorious in battles where his level of integrative complexity was higher than his opponents; conversely, opponents who showed higher levels of integrative complexity defeated him. Suedfeld & Bluck (1988) showed that countries who mounted a surprise attack as the culmination to an international crisis demonstrated drops in the integrative complexity of diplomatic communications, (the attack by the Japanese Navy on the US fleet at Pearl Harbour in 1941 is a good example of this). The study looked at nine such surprise attacks using documents drawn from UN General Assembly or Security Council proceedings as well as from speeches made by high-level government officials to their own parliaments, the general public or the media. In all the cases, the integrative complexity of communications by representatives of the eventual attacker showed significant reductions between three months and one week before the attack. Raphael (1982) investigated whether integrative complexity measures could be employed to forecast international crises. Focusing on the relationship between the U.S. and the USSR in Berlin between 1946 and 1962, Raphael found that the integrative complexity of U.S. and USSR foreign policy elites declined just prior to the onset of crises in 1948 and 1961. Following the onset of the crises, integrative complexity rose leading to peaceful conflict resolution.

Suedfeld & Rank (1976) conducted another interesting study. This study looked at the long-term success of revolutionary leaders as a function of changes in complexity of information processing. The results indicated that long-term success was related to low complexity during the initial revolutionary struggle (calling for a single-minded approach) with a shift to high integrative complexity during the post-revolution period in government (requiring a more flexible and complex view). Porter & Suedfeld (1981) were also able to differentiate between a group of leaders who possessed the ability to maintain complexity under stress and those who were not. These two studies suggest that there are stable, underlying differences in an individual's maximal level of integrative complexity. In other words, an underlying capacity for complex thinking in some way sets a limit on the level of integrative complexity that an individual can use in any given situation.

2.5 Underlying Capacity for Complexity

Integrative complexity is seen as the state component of the conceptual/integrative complexity construct, with conceptual complexity forming the personality trait or underlying characteristic component. The construct of conceptual/integrative complexity is a descendant of Kelly's Personal Construct Theory (Suedfeld, Tetlock & Streufert, 1992), which was further refined by the work of Schroder and his colleagues with their work on conceptual complexity (Porter & Suedfeld, 1981). According to this theory, the dimension of conceptual complexity reflects the information processing capacity of the individual. Harvey et al (1961) focused on stylistic modes of information processing as dimensions of personality organisation. According to the theory, individuals progress and may become fixated at various levels along the dimension of simplicity-complexity of information processing. Individuals at the simple end are characterised by rigid evaluations of stimuli, the rejection of dissonant information and submissiveness to authority. At the complex end, individuals are shown to exhibit flexible and open cognitive systems, a search for novelty and further information and the ability to consider multiple points of view simultaneously. Conceptual complexity as a personality construct has

been related to a variety of other personality traits, such as dogmatism, conservative attitudes and the authoritarian personality, Barron (1953), Kelman & Barclay (1963), Steiner & Johnson (1963) and Vannoy (1965).

Dixon (1976) highlighted a number of characteristics, which differentiated competent and incompetent decision makers in a military context. Through a series of case studies he identified a number of personality traits, which were common characteristics of historical military commanders who were demonstrably incompetent. He also goes on to suggest that it is these characteristics, which have led to incompetent military decision-making and not stupidity or a lack of intelligence. As Dixon points out, traditional critics of military incompetents have suggested stupidity or lack of intelligence as the critical factors on causing these debacles, as Dixon puts it, the 'bloody fool' theory. In his book, utilising a series of case studies like the one briefly described above, he builds up a persuasive argument that it is not stupidity but personality factors that may play a role. As Dixon suggests:

"Of all the instances of military incompetence it is the fall of Singapore which most clearly gives the lie to the so-called 'bloody fool' theory of military ineptitude. Percival was in fact highly intelligent and had shown himself in previous years to be a brilliant staff officer. What he shared with other, earlier, military incompetents were passivity and courtesy, rigidity and obstinacy, procrastination, gentleness and dogmatism".

These characteristics are a common theme in his case studies and contain those that have been correlated with low levels of conceptual complexity. One of the characteristics that he discusses at length as playing a key role is the Authoritarian Personality as described by Adorno et al (1950). This cluster of traits looks at an individual's predisposition towards amongst other things conventionalism, authoritarian submission, superstition and stereotyping and a puritanical prurience and as Kohn (1972) points out such attitudes reflect cognitive simplism or lack of sophistication (i.e. low levels of conceptual complexity). Authoritarian personalities value membership of the in-group and are hostile towards out-groups. Within the authoritarian personality cluster of traits, power is valued as is a preference for dominant-submissive relationships as well as a concern for love and respect within the in-group. Thus the motivational determinants of *n* Power and *n* Affiliation may be related to the authoritarian personality.

Dixon also identifies the obsessive personality as a common characteristic of senior military commanders whom he identified as examples of historical military incompetence. Finney (1961), points out the positive relationship between obsessiveness and authoritarianism. This link is supported by Kline & Cooper (1984) who also drew strong links between the obsessive and authoritarian personalities. Kline's work establishes the validity of the obsessive personality as one where the individual is overly concerned with order, control and cleanliness. These attributes have been found in the authoritarian personality and indeed the work by Kline quoted above indicates a strong relationship between the two. Dixon highlights these characteristics in his list of military incompetents and it is clear that an obsessive need to maintain order and control would prevent individuals from being open to new ideas and information, particularly those that would challenge the established order or status quo.

The third main characteristic highlighted by Dixon as playing a role in military incompetence is that of field dependency. This is an aspect of perception, which relates to the extent to which individuals can ignore irrelevant visual impressions when these conflict with other sources of sensory information and the degree to which people can respond analytically rather than globally to the mass of information reaching them. Field-dependents tend to be less mature, more passive and conforming. They also tend to be more authoritarian.

Incorporating these three characteristics, the obsessive and authoritarian personalities and field dependency, Dixon builds up a picture of the historically incompetent military commander. Dixon's work is useful in highlighting the role of the obsessive and authoritarian personalities and field dependency in military incompetence. He focuses on their origins in early childhood and their function as a defence mechanism against anxiety and aggression. This takes his work into the realm of psychodynamic theory, which makes it more tentative and non-empirical. By emphasising the cognitive and perceptual aspects of these traits and their link with conceptual complexity rather than their idiosyncratic social quirks, these characteristics take on a stronger role in explaining individual differences in managing stressful situations in a wider and more modern context.

In summary then, review of the research literature suggests a number of psychological factors that affect the management of critical situations. Firstly, the complexity of an individual's information processing has been linked to successful management of critical situations. To be able to process information in a complex manner, an individual must have the underlying capacity to operate at such high levels. This capacity (referred to as conceptual complexity) can be characterised by personality traits such as open-mindedness and flexible, or perhaps better viewed as the non-authoritarian and non-obsessive personalities. The underlying motives of the individual, (whether they are primarily motivated by a need for achievement, power or affiliation), will affect which goals the individual sees as important and in part how they interpret the stressfulness of the situation. The stressful nature of the situation will also be buffered to a greater or lesser extent by the hardiness of the individual (the extent to which they see the situation as a challenge, feel committed to solving the problem and feel they can control the situation). The level of stress perceived by the individual will then lead them to adopt a pattern of coping behaviours, (unconflicted adherence, unconflicted change, defensive avoidance, hypervigilance and vigilance), in order to deal with the psychological conflict caused by the situation and the stress engendered by it. The quantity, quality and more specifically the complexity of the individual's information processing (and thus the likelihood for success) will vary with the adoption of one of these patterns.

3 RATIONALE

Thus, certain underlying and enduring antecedent characteristics, conceptual complexity, motivational needs and resistance to stress (hardiness) determine the relative amount and nature of the coping behaviours that an individual uses in a critical situation. These coping behaviours in turn then determine the quality and quantity (complexity) of the individual's problem solving and decision making activities and so their ability to manage the situation effectively.

This suggests that effective managers of critical situations will:

- possess high levels of conceptual complexity (be open-minded and flexible)
- be motivated by the need to achieve
- be hardy individuals (feel committed and in control)

whilst their management of the situation will be characterised by:

- more effective coping patterns (vigilance)
- higher levels of integrative complexity (fine distinctions, complex responses and extensive information search and usage)

Conversely, ineffective managers of critical situations will:

- possess lower levels of conceptual complexity (as characterised by the authoritarian and obsessive personalities)
- be motivated by the need for affiliation or power
- be less hardy individuals (feel threatened and powerless)

whilst their management of the situation will be characterised by:

- less effective coping patterns (unconflicted adherence or change, defensive avoidance or hypervigilance)
- lower levels of integrative complexity (gross distinctions, simple responses and restricted information usage)

The analysis of real life critical situations that were handled both effectively and ineffectively should be characterised by these psychological factors.

4 CONTENT ANALYTICAL CASE STUDIES OF INTERNATIONAL CRISES

4.1 Introduction

The integrative complexity approach has been developed via the content analysis of official documents generated during international crises situations, (Suedfeld & Rank 1976, Suedfeld & Tetlock 1977, Suedfeld et al 1977, Tetlock 1979, Tetlock 1985, Herek et al 1987, Suedfeld & Granatstein 1995). The studies have shown that content analysis of archival documents are an effective method for examining the quality of thinking, decision making and motivations of key players in international crises situations. In general, higher complexity scores are found in material that has been generated after some thought or planning has taken place and under conditions of little or no time constraint. Written accounts tend to have higher scores than verbal material (such as transcripts of interviews).

One potential problem with the scoring of prepared speeches is the question of who actually wrote the material. This question poses problems for the validity of the technique. However, Baker-Brown et al (1991) suggest that this is not a problem in reality. They suggest that it is reasonable to assume that 'ghost-written' material is not accepted for presentation unless it reflects the complexity of the speaker. They quote an unpublished study, which found no difference in mean complexity between prepared and spontaneous speeches given by Canadian Prime Ministers.

One study of particular interest is that of Herek et al (1987). This study examined U.S. Presidential decision making during 19 international crises since the Second World War. These crises ranged from actions taken during the Korean War in 1950, through to the Cuban Missile Crisis in 1962, to the U.S. actions during the Yom Kippur War in 1973. The U.S. Presidents thus involved included Harry Truman, Dwight Eisenhower, John Kennedy, Lyndon Johnson and Richard Nixon. The decision-making processes of the U.S. Presidents involved were scored for the seven criteria of vigilant information processing as defined by Janis & Mann (1977). Crisis outcomes were rated by outside experts in terms of their effect on U.S. vital interests and on international conflict. Results of this study indicated that crisis outcomes tended to have more adverse effects on U.S. interests and were more likely to increase international conflict when the decision-making process was characterised by less vigilant criteria being met. The authors concluded that policy makers appeared to be capable of using analytical problem-solving procedures during large-scale situations. This also supports the theoretical model for this thesis in that these international crises are traditional non-Naturalistic Decision Making situations, which require creative/analytical problem solving of the sort indicated by the seven criteria for vigilant information processing criteria.

The crises used in the Herek et al (1987) study are useful research ground and so provide a good area for this study. The other added advantage is that external experts have already rated the crises in terms of their outcome.

4.2 Method

This study uses a selection of 10 of the 19 international crises examined in the Herek et al (1987) study. Ten were selected because of the scale of the work required. The 10 situations were selected on the basis of two criteria. One was the clearest agreement between the external experts from the Herek et al study on the outcome of the situations and the other more practical criteria was the availability of archive material.

This sifting process resulted in the following crises being selected:

1. U.S. Crossing of the 38th Parallel in Korean War 1950 (Truman Administration)
Decision to invade North Korea in order to defeat the North Korean army and unify Korea.
2. Taiwan Straits I 1954 – 55 (Eisenhower Administration)
Decision to oppose a threatened attack by Communist China on the offshore islands of Quemoy and Matsu in the Formosa Straits
3. Taiwan Straits II 1958 (Eisenhower Administration)
Decision to oppose a threatened attack by Communist China on the offshore islands of Quemoy and Matsu in the Formosa Straits
4. Laos 1961 (Kennedy Administration)
Decision to agree to the convening of an international conference on the neutralisation of Laos, but only after an effective cease-fire had been established on the ground in Laos
5. Cuban Missile Crisis 1962 (Kennedy Administration)
Decision to compel the USSR to remove ballistic missiles placed in Cuba
6. Gulf of Tonkin 1964 (Johnson Administration)
Decision to retaliate with air strikes against military targets along the North Vietnamese coastline in response to attacks on U.S. naval forces
7. Arab-Israeli War 1967 (Johnson Administration)
Decision not to send a naval force to the Straits of Tiran to ensure the right of free passage following its closure by Egypt
8. Cambodian Invasion 1970 (Nixon Administration)
Decision to attack North Vietnamese military bases and sanctuaries in Cambodia
9. Indo-Pakistani War 1971 (Nixon Administration)
Decision to attempt to deter Indian offensive operations against West Pakistan
10. Yom Kippur War 1973 (Nixon Administration)
Decision to negotiate a cease-fire to prevent either Israel or the Arab states from being defeated and to place U.S. military forces on world-wide alert in an attempt to deter possible Soviet intervention in support of Egypt

Based on the external expert ratings, these 10 crises were allocated to the categories of successful and unsuccessful as follows:

Successful

1. Taiwan Straits I 1954 – 55
2. Taiwan Straits II 1958
3. Laos 1961
4. Cuban Missile Crisis 1962
5. Yom Kippur War 1973

Unsuccessful

6. U.S. Crossing of the 38th Parallel in Korean War 1950
7. Gulf of Tonkin 1964
8. Arab-Israeli War 1967
9. Cambodian Invasion 1970
10. Indo-Pakistani War 1971

This study was designed to examine the role of the two main decision makers in each incident, thus for each crisis both the U.S. President and Secretary of State were included. A full list of decision-makers is given below in table 4.1:

Table 4.1 List of Decision-Makers in International Crises

| Crisis | President | Secretary of State |
|--|-------------------|---------------------------|
| U.S. Crossing of 38 th Parallel | Harry Truman | Dean Acheson |
| Taiwan Straits 1 1954 – 1955 | Dwight Eisenhower | John Foster Dulles |
| Taiwan Straits 2 1958 | Dwight Eisenhower | John Foster Dulles |
| Laos 1961 | John Kennedy | Dean Rusk |
| Cuban Missile Crisis 1962 | John Kennedy | Dean Rusk |
| Gulf of Tonkin 1964 | Lyndon Johnson | Dean Rusk |
| Arab-Israeli War 1967 | Lyndon Johnson | Dean Rusk |
| Cambodian Invasion 1970 | Richard Nixon | William Rogers |
| Indo-Pakistani War 1971 | Richard Nixon | George Bush (U.N.) |
| Yom Kippur War 1973 | Richard Nixon | Henry Kissinger |

Due to a lack of suitable material, George Bush the United Nations Representative was used not the Secretary of State for the 1971 Indo-Pakistani incident.

Three main sources were used to obtain suitable paragraphs. These were The Public Papers of the President, State Department Bulletin and Vital Speeches of the Day. These publications contain news conferences, speeches, letters, official statements and interviews all made by the President or Secretary of State. As with previous studies, the paragraph was taken as the basis for analysis. The following procedure was used to select suitable paragraphs for analysis.

Firstly, the editions of the publications were obtained for the relevant year. The main researcher identified potentially suitable sections by using the indices. These were then photocopied without reading through the sections. An assistant who was unfamiliar with the nature of the research and particularly the aim of this study then read through each photocopied section and identified paragraph units within the text, which referred to the incident in question. As with previous studies a paragraph may be made up of more than one physical paragraph, the idea that a 'paragraph' unit represents a whole idea or notion that is followed through to conclusion. Thus a paragraph unit may actually spread across more than one paragraph on the page. Alternatively, a large paragraph may be split up into more than one paragraph unit. The assistant then assigned each paragraph a score of 1 if it was highly relevant to the decision point in the crisis using only the description provided above. A score of 2 was assigned if the section referred to the situation in general i.e. referred to the Vietnam War but not about the decision to invade Cambodia specifically. Next, the paragraphs were grouped together according to the crisis they related to. These groups were further divided into the official to whom the text belonged. Thus there were 20 separate groups each containing paragraphs, which belonged to a specific official talking about a specific crisis. Then, the assistant sorted the paragraphs into order of relevance within each person/incident group, in other words, those with a score of 1 first followed by the 2 paragraphs. Paragraphs that were not scored 1 or 2 and thus not relevant were excluded from the analysis. Paragraphs were then randomly selected from the available collection, starting with those scored 1 and then moving onto the group scored 2 if required. The target was to obtain 10 paragraphs for each person in each incident. The assistant then went through the paragraphs and blinded them by removing any reference, which would identify the situation such as geographical locations, people, dates etc. The

assistant researcher then numbered the collections so that the main researcher was not aware which collection belonged to which official/incident. In this way, every effort was made to anonymise the paragraphs and so that the researcher who scored the paragraphs was as unaware as possible of the originator of the statements. A total of 194 paragraphs were finally submitted for scoring.

Each paragraph was then scored for each of the following variables, Motivational Needs (Achievement, Power and Affiliation), Hardiness, Coping Strategy (from the Decisional Conflict Model) and Integrative Complexity. The existing scoring systems for Motivational Needs (McClelland & Koestner 1992) and Integrative Complexity (Baker-Brown et al 1991) were used new systems were developed for Hardiness and Coping Strategy. A questionnaire exists for Hardiness but was not suitable for the indirect testing needed here and so the questionnaire was adapted into content analytical scoring mechanisms. A new scoring system was developed for the Coping Strategy based on Janis & Mann's (1977) description of the associated behaviours.

This process meant that each paragraph was scored six times. A decision was made to exclude a paragraph from analysis for a particular variable if the nature of the text meant that the variable was unscorable. This decision was made so as not to lower the mean score for the variable by entering a paragraph with a score of 0 when this would not be a true reflection. For example, a paragraph containing a list of actions to be taken is not scorable for integrative complexity as it is simply a list of actions and does not describe a person's thinking. However, these actions can be scored for motivational imagery such as need for Power or need for Affiliation.

To provide some indication of the reliability of the scoring, the main researcher scored all 194 paragraphs a second time for each variable after a period of 2 months. Differences in scores were re-analysed and a score assigned. This provides an indication of intra-rater reliability. It would have been preferable for a second person to conduct the second scoring process but this was impossible due to the time consuming nature of the task. (The research assistant took 60 hours to provide the 194 paragraphs and the scoring of all 6 variables (once) took a total of 90 hours).

In order to get an indication of an individual's conceptual complexity, (their underlying level of complexity), two data points were selected for each individual. These data points were years either side of the incident or incidents that the individual was involved in. For example, Secretary of State Dean Acheson was involved in the 1950 Korean incident. Paragraphs were selected from 1949 and 1951. The main researcher randomly selected speeches etc. from the relevant publications. The assistant then selected 10 paragraphs (for each year) that were not related to the incident and again blinded and numbered these so that the main researcher was unaware of the person and year of publication. It was possible to get paragraphs from two years for Presidents Eisenhower and Kennedy due to missing publications in the collection. A total of 210 paragraphs were submitted for analysis, (taking 10 hours for the assistant to produce the paragraphs and 20 hours for the main researcher to score them), and scored for integrative complexity. Again the main researcher re-scored the paragraphs again, this time after a period of one month. Again differences were re-analysed and a score assigned.

Once all the scoring was complete, the identity of the paragraphs were revealed to the main researcher and were then submitted to a number of statistical analyses, the results of which are described below.

4.3 Results

Before looking at the validity of the scoring process, the reliability of the scoring is examined.

4.3.1 Intra-rater reliability

As described above in the methodology section, each variable was scored a second time after a period of 2 months, (one month in the case of conceptual complexity). The two scores were correlated together using a Pearson Product Moment correlation, the results of which are presented below in table 4.2:

Table 4.2 Intra-rater reliability for research variables

| Variable | Coefficient |
|------------------------|-------------|
| Conceptual complexity | .89 |
| Integrative complexity | .92 |
| Hardiness | .87 |
| Coping | .95 |
| Need for Achievement | .89 |
| Need for Power | .83 |
| Need for Affiliation | .88 |

The scoring manuals for need for Achievement (McClelland & Koestner, 1992); need for Power (Veroff, 1992), need for Affiliation (Koestner & McClelland, 1992) and integrative complexity (Baker-Brown et al, 1991) suggest that an acceptable level of agreement between raters is a correlation coefficient of .85. Apart from need for Power, all the variables achieve this standard, need for Power nearly doing so. The table above suggests that the scoring process achieved good intra-rater reliability.

4.3.2 Construct validity

A number of the crises in the study have been scored for integrative complexity in other published studies. A comparison of the two scores provides some external benchmark that would equate to construct validity. Three incidents, the Cuban Missile Crisis, Crossing of the 38th Parallel in Korea and the Gulf of Tonkin decision have been previously scored for the integrative complexity of both the President and Secretary of State (Tetlock, 1979). The scores from the Tetlock and this study are presented below in table 4.3:

Table 4.3 Comparison of integrative complexity between Tetlock and research study

| Crisis | Person | Tetlock Score | Research Score |
|---|---------|---------------|----------------|
| Crossing 38 th Parallel (1950) | Truman | 1.00 | 1.90 |
| | Acheson | 1.83 | 2.00 |
| Cuban Missile Crisis (1962) | Kennedy | 4.33 | 4.22 |
| | Rusk | 3.16 | 4.00 |
| Gulf of Tonkin (1964) | Johnson | 2.16 | 1.20 |
| | Rusk | 2.50 | 1.33 |

The scores for Acheson and Kennedy are extremely close in the two studies. The other are broadly similar, Truman and Rusk (1962) were scored higher in the research study whilst Johnson and Rusk (1964) were scored lower. The scores are generally within one point. The integrative complexity manual states that disagreements of 1 point are rare. Some variation is to be expected due to differences in samples and so although there are some differences in scores, there is enough correspondence to suggest that the scoring for the research study is broadly correct in relation to other external benchmarks.

4.3.3 Effect of Position

Before going on to look at the results between the successful and unsuccessful outcomes, it is important to determine whether there is any confounding effect of type of position because both President and Secretary of State are treated together for each incident. The means for each category of position are presented below in table 4.4:

Table 4.4 Means for type of position

| Variable | President | State |
|------------------------|-----------|-------|
| Integrative complexity | 2.77 | 2.69 |
| Hardiness | 2.38 | 1.65 |
| Coping strategy | 2.00 | 1.85 |
| Need for Achievement | 1.47 | 1.23 |
| Need for Power | 1.22 | 1.07 |
| Need for Affiliation | .61 | .57 |

Inspection of the table above indicates that of five of the variables, integrative complexity, coping and the motivational needs, there is little difference between the Presidents and Secretaries of State. There is a reasonable difference between the two positions on hardiness, with the Presidents scoring higher. To test for the significance of this difference (and the other relationships) a series of *t* – tests were conducted, the results of which are shown below in table 4.5:

Table 4.5 Differences between type of position

| Variable | <i>t</i> – value | p value |
|------------------------|------------------|---------|
| Integrative complexity | .29 | .77 |
| Hardiness | 2.3 | .03 |
| Coping strategy | .68 | .50 |
| Need for Achievement | 1.00 | .32 |
| Need for Power | .60 | .55 |
| Need for Affiliation | .25 | .80 |

These results indicate that the only significant difference between the President and the Secretary of State is on hardiness. The lack of substantial differences between the two positions indicates that the two offices can be paired together in each incident without skewing any analyses.

4.3.4 Comparison between successful and unsuccessful incidents

Of main interest in this study is the difference in the research variables between the successful and unsuccessful incidents. For ease of interpretation, rather than detailing the individual scores for each person in each incident, the overall mean scores for each type of incident are presented in summary form in below in table 4.6:

Table 4.6 Comparison of scores between successful and unsuccessful incidents

| Variable | Unsuccessful | Successful |
|------------------------|--------------|------------|
| Integrative complexity | 1.58 | 3.92 |
| Hardiness | 1.09 | 2.98 |
| Coping strategy | 0.90 | 2.73 |
| Need for Achievement | 0.55 | 2.23 |
| Need for Power | 2.01 | .26 |
| Need for Affiliation | 0.69 | .49 |

The difference between the two types of incident is quite clear, with integrative complexity, hardiness, coping strategy and need for Achievement all scoring higher in the successful group. This is in line with the theoretical model. Need for Power was scored higher in the unsuccessful group, again this is in line with the theoretical model. Need for Affiliation is the only variable which does not show a difference. The differences between the two groups are quite clear.

To test for significance, a series of *t*-tests were conducted, the results are shown below in table 4.7:

Table 4.7 Difference between successful and unsuccessful outcomes

| Variable | t – value | p value |
|------------------------|-----------|---------|
| Integrative complexity | -13.09 | .00 |
| Hardiness | -7.00 | .00 |
| Coping strategy | -11.02 | .00 |
| Need for Achievement | -8.02 | .00 |
| Need for Power | 8.46 | .00 |
| Need for Affiliation | 1.29 | .20 |

The table above clearly shows that five of the experimental variables have statistically significant differences. The only non-significant difference is that of need for Affiliation, this is as expected due to the similarity of the means. The final point of interest in the data is the relationship between conceptual and integrative complexity. This is concerned with the difference between an individual's typical level of complexity and the level they displayed during the incidents themselves. Conceptual complexity was estimated by taking two data points either side of the incident that the individual was involved in. A mean score was calculated for each individual from these two time points and these are shown below in table 4.8 along with the mean integrative complexity score for each incident:

Table 4.8 Comparison of conceptual and integrative complexity scores

| Person | Incident | Score |
|------------|--|-------|
| Eisenhower | Conceptual Complexity | 3.13 |
| | Taiwan Straits 1954 (Successful) | 4.67 |
| | Taiwan Straits 1958 (Successful) | 4.13 |
| Dulles | Conceptual Complexity | 3.07 |
| | Taiwan Straits 1954 (Successful) | 4.00 |
| | Taiwan Straits 1958 (Successful) | 3.33 |
| Kennedy | Conceptual Complexity | 3.22 |
| | Laos 1961 (Successful) | 4.00 |
| | Cuban Missile Crisis 1962 (Successful) | 4.22 |
| Rusk | Conceptual Complexity | 4.19 |
| | Laos 1961 (Successful) | 3.80 |
| | Cuban Missile Crisis 1962 (Successful) | 4.00 |
| | Gulf of Tonkin 1964 (Unsuccessful) | 1.33 |
| | Straits of Tiran 1967 (Unsuccessful) | 1.67 |
| Nixon | Conceptual Complexity | 3.20 |
| | Yom Kippur War 1973 (Successful) | 3.29 |
| | Cambodian Invasion 1970 (Unsuccessful) | 1.40 |
| | Indo-Pakistani War 1971 (Unsuccessful) | 1.44 |
| Kissinger | Conceptual Complexity | 3.28 |
| | Yom Kippur War 1973 (Successful) | 3.78 |
| Truman | Conceptual Complexity | 2.72 |
| | Crossing 38 th Parallel 1950 (Unsuccessful) | 1.90 |
| Acheson | Conceptual Complexity | 4.12 |
| | Crossing 38 th Parallel 1950 (Unsuccessful) | 2.00 |
| Johnson | Conceptual Complexity | 3.82 |
| | Gulf of Tonkin 1964 (Unsuccessful) | 1.20 |
| | Straits of Tiran 1967 (Unsuccessful) | 2.11 |
| Rogers | Conceptual Complexity | 2.59 |
| | Cambodian Invasion 1970 (Unsuccessful) | 1.60 |
| Bush | Conceptual Complexity | 2.85 |
| | Indo-Pakistani War 1971 (Unsuccessful) | 1.30 |

The results from this analysis are very interesting. Those involved in successful incidents, Eisenhower, Dulles, Kennedy, Rusk, Nixon and Kissinger all maintained their level of complexity during the crisis, indeed, Eisenhower and Kennedy's complexity actually increased. Conversely, those involved in unsuccessful incidents, Truman, Acheson, Johnson, Rusk, Nixon, Rogers and Bush all dropped in

complexity during the crisis. Of particular interest are Rusk and Nixon who both appear in successful and unsuccessful outcomes and whose level of complexity varies.

These results are discussed in more depth below.

4.4 Discussion

The results outlined above are generally supportive of the study rationale. The measures either taken from existing scoring systems or developed for this study appear to have been applied in a reliable manner. Although not as good an indicator as inter-rater reliability, the intra-rater reliability coefficients are high and mostly achieve the level of .85 outlined in the relevant scoring manuals. As discussed earlier, it was impossible to obtain inter-rater reliabilities due to the lengthy nature of the scoring process (a total of 110 hours for scoring all of the seven criteria). Also it was not totally satisfactory to use only two people in the study. An ideal division of responsibility would have been having one person acting as library researcher and obtaining the photocopied texts to begin with; then a second person to select and blind the paragraphs, and then third and fourth person to have scored the paragraphs them self. Also, it would have been ideal if all four of these people were unfamiliar with the nature and theoretical rationale of the study. It was not possible to get four separate people but every effort was taken to prevent experimenter bias. The main researcher photocopied the texts but did so by using the indices in the publications and simply photocopying whole texts without reading the content. Thus, the selection of texts was reasonably unbiased. Secondly, the assistant researcher was unfamiliar with the rationale of the study and indeed the nature of many of the incidents and selected paragraphs initially only on the basis of relevance to the topic. This created a pool of paragraphs from which ten were randomly selected. These paragraphs then had all identifiers blanked so that it was impossible to tell which person or specific incident was being discussed. In practice, the main researcher when scoring the paragraphs could tell in certain cases whether the incident in question was occurring in the Middle or Far East but could not tell which incident was which because both successful and unsuccessful incidents were drawn from these geographical regions. Thus it seems reasonable to suggest that any experimenter bias of knowing the outcome of the situation was controlled to a sufficient level. The other estimate of reliability, the benchmarking of integrative complexity scores with the Tetlock (1979) study also indicates that the scoring was completed effectively. In some cases the scores were extremely close and in the other cases were within one point. An acceptable level as described in the relevant scoring manuals. These differences may well be due to small sampling differences. Thus it would appear reasonable to assert that the scoring process was conducted in a rigorous and reliable manner.

As to the results, the most relevant set of findings lies in the difference in scores between the successful and unsuccessful incidents. Clear differences emerge here. Overall, the successful outcomes were characterised by higher levels of integrative complexity and hardiness, more effective coping strategies (according to the Decisional Conflict Model), higher levels of need for Achievement imagery and lower levels of need for Power imagery. The unsuccessful incidents showed the reverse of this pattern. Of particular interest is that need for Power imagery was particularly high in the incidents that involved conflict, i.e. the crossing of the 38th Parallel, the Gulf of Tonkin and the Cambodian Invasion. The question arises as to whether the greater need for Power was driving the decision-makers towards resolving the dispute with force or that the imagery in the individual's verbal protocols simply reflected a more belligerent attitude? Veroff (1992) reviews a number of studies, which suggest that implicit motives (such as the need for Power) do lead to related behaviour over time as well as predicting subsequent conflict. Thus it seems reasonable to conclude that the need for Power drives the decision-making rather than simply describing it.

The one variable that does not seem to play any role is that of need for Affiliation. This may be due to a number of causes. The first that should be considered is problems with sampling in that the texts selected simply did not contain affiliation imagery due to chance. What is more likely is that the actual nature of the incidents being studied. All of the situations involved heightened tensions where the decision makers were either more motivated by attaining an achievement goal (in the case of successful outcomes) or by a need to establish mastery over others (in the case of unsuccessful outcomes). It would appear that need for Achievement plays a large role in the successful conclusion of crisis situations. This implicit need becomes subordinated in unsuccessful outcome situations by the need for Power.

Another interesting set of findings is connected with the position held by the individual. As a side issue it is interesting to note that the Presidents as a group demonstrated higher levels of hardiness than the Secretaries of State. It may be that the office of President and the route getting to the office is more stressful and demanding and so the incumbents have either developed or require higher levels of hardiness. This is to some extent a side issue but has interesting implications for examining the personal qualities of U.S. Presidents and Presidential candidates. Of more interest is the similarity of scores on the other variables. Both the Presidents and Secretaries generally scored in a similar fashion within each incident. This may simply be due to the nature of each incident and that the prevailing culture led both individuals to respond in a similar fashion. Another interpretation is that the two people affected each other's thinking and that they developed a common approach to the problem. This seems plausible as the President and Secretary of State would obviously be in discussion about the situation. A good example of this is Rusk who demonstrated high levels of integrative complexity and low levels of Power imagery along with Kennedy in the Cuban Missile Crisis but had lower levels of integrative complexity and higher levels of Power imagery along with Johnson in the Gulf of Tonkin incident. This shared approach corresponds to Janis' notion of Groupthink (Janis 1972). This is where consensus and group harmony override a group's ability to appraise its actions critically and leads to a shared view, which may be dysfunctional. More recently, Orasanu and Salas (1993) have talked about 'shared mental models' in which team members develop a common schema of a situation comprising knowledge, skill and needs. It may be that the shared mental model of the individuals in this study operated at the lowest common denominator, especially if that is the person in the superior position.

Finally, another interesting aspect of the findings relates to Rusk's shifts in complexity and the relationship between conceptual and integrative complexity. The individuals involved in the successful situations maintained their level of complexity whereas those involved in the unsuccessful outcomes dropped in complexity. Indeed, some individuals, Eisenhower, Dulles and Kennedy actually raised their level of complexity slightly during the crisis. This supports the notion that a limited attentional capacity will be eroded by the coping mechanisms of the individual when involved in stressful situations. In complexity terms, those who were less able to cope with the stressful circumstances, (those that scored lower on hardiness and coping strategy) generally dropped in complexity. Thus conceptual complexity defines the starting point for the individual but the level of complexity actually deployed is moderated by the coping mechanisms and hardiness of the individual. This pattern of results provides strong support for the experimental model.

In conclusion, a cluster of traits, complexity, hardiness, coping strategies and motivational needs are clear differentiators in the outcome of international crisis situations. Furthermore, it would appear that individuals involved in the incident develop a shared approach to the situation based on the lowest common denominator. Whether these variables actually drive individual's approach to the situation or simply reflect it may be open to interpretation.

These results suggest applications for the methodologies described above in the monitoring of international relations. Firstly, the methods used here may be useful in predicting surprise attacks, outbreaks of hostilities and deterioration of international relations. The utility of integrative complexity in predicting surprise attacks was demonstrated in the Suedfeld & Bluck (1988) study. The Suedfeld & Bluck study used only integrative complexity as a measure; inclusion of the other variables discussed in this study may further enhance the predictive power of monitoring international communications with regard to providing warning of surprise attacks. Secondly, the methods could be also used to monitor the effectiveness of both allied and opposing side's crisis management during ongoing incidents. Information gained in this way may be of use in improving the crisis management of the allied decision makers and possibly in predicting likely developments by the opposing side. Further work needs to be conducted to establish whether timely access can be gained to the right material in order to provide practical information to crisis managers.

From this picture, it is possible to draw some tentative conclusions about the characteristics of the effective critical situation manager. The characteristics fall into two areas, mediating variables and antecedent variables. The antecedent variable is trait complexity as this defines the total possible amount of problem-focused coping resources that an individual can bring to bear on a situation. The mediating variables are hardiness, coping strategy and motivational needs. These mediate the management process by defining the actual amount of problem-focused coping behaviour the individual can apply to a situation by using up attentional capacity for emotion-focused coping. From this

description it is also possible to develop a competency-based description of effective critical situation management behaviours:

Table 4.9 Critical Situation Management Competency

| Negative Indicators | Positive Indicators |
|---|---|
| <p><i>Stress Resistance</i></p> <ul style="list-style-type: none"> • Feels alienated from situation • Feels detached from situation • Feels uninvolved or sees little reason to get involved • Feels powerless • Sees self as victim • Is overly pessimistic • Looks to others to resolve situation • Focuses on negative issues • Looks for the easy way out | <p><i>Stress Resistance</i></p> <ul style="list-style-type: none"> • Sees situation as interesting • Sees own involvement as worthwhile • Sees situation and any likely outcomes as meaningful • Feels can influence events • In control of own destiny • Is optimistic about achieving success • Willing to take the situation on • Open to change • Accepts hardships of situation |
| <p><i>Coping Mechanisms</i></p> <ul style="list-style-type: none"> • Perception that a solution is impossible • Construction of wishful rationalisations that bolster the least objectionable alternative • Refusal to come to a decision • Demands more time or concerned to not act too quickly • Blames others for problem • Others have responsibility to resolve situation • Sees little/no need to examine situation closely | <p><i>Coping Mechanisms</i></p> <ul style="list-style-type: none"> • Acknowledges difficulty of situation and riskiness of available solutions • Perception that a solution can be found • Accepts solution may not be best but will have to do due to urgency of situation • Perceives sufficient time available for choosing and implementing solution • States need to give situation careful consideration |
| <p><i>Motivation</i></p> <ul style="list-style-type: none"> • Focused on exerting influence or control over others • Concerned about losing control or influence over others | <p><i>Motivation</i></p> <ul style="list-style-type: none"> • Focused on achieving a goal relevant to positive outcome of situation • Concerned about problems frustrating progress towards achievement goal |
| <p><i>Information Processing</i></p> <ul style="list-style-type: none"> • Situation assessment is too simplistic/complex in comparison with task complexity • Application of response is too simplistic/complex in comparison with task complexity | <p><i>Information Processing</i></p> <ul style="list-style-type: none"> • Matches complexity of situation assessment with task complexity • Matches complexity of response application with task complexity |

Further development of behavioural indicators would be required at each level in order to define more closely competent performance in critical situations.

4.5 Implications

A number of implications arise in terms of practical applications for the results of the studies. The first is in the area of recruitment of critical incident managers. The research discussed above highlights a number of characteristics, which are stable across both time and situations. These represent individual differences, which are available to assessment and may therefore be of use in recruiting critical situation managers. Irrespective of the level of complexity required to manage a situation a number of characteristics appear to play a mediating role. These characteristics are hardiness and motivational needs. Kobasa (1979) defines hardiness as a cluster of personality traits and a personality measure is available which assesses a person's level of hardiness. Also, motivational needs are defined by McClelland (1992) as energising and directing behaviour and are also relatively stable over time. Thus assessing these characteristics may provide extra information for the recruitment of critical situation managers. With regard to trait or conceptual complexity, it may be more appropriate to use the assessment of this characteristic in two ways. Firstly, as a method for assessing potential to progress to higher levels within the organisation, at the stage of initial recruitment. Early identification of potential

'high fliers' may allow them to be fast tracked into roles where their higher level of conceptual complexity would allow them to handle the greater task complexity found at this level. Secondly, assessment of conceptual complexity could also be used for making promotion decisions at the higher levels of the organisation, again due to the higher level of task complexity. As with all potential uses of psychometric instruments, any use of personality measures should not happen in isolation but should be used in conjunction with other methods. Having said this, the assessment of these characteristics may provide useful information as part of an assessment process. Other available instruments may be of benefit here; such as the Myers Briggs Type Indicator (MBTI), which provides useful information on individual biases in decision-making and how different types of individual react in stressful situations. Belbin's Team Role model and questionnaire may also provide useful information in this context as it highlights the different roles that need to be fulfilled in a group for it to function effectively along with individual's preferences for these roles.

In terms of training and the development of procedures for handling critical situations, a number of specific issues need to be addressed. Hardiness as a mediating process against stress has been developed as a stress management programme by the Institute of Hardiness. This organisation offers a training programme to increase hardy attitudes in individuals and thus their resistance to stress in difficult circumstances. It therefore may be beneficial for all potential critical incident managers to undergo some form of hardiness training to increase their resistance to stress and its negative effects. The adoption of effective coping strategies is again something that could be trained or written into standard operating procedures. The adoption of coping strategies in the Decisional Conflict Model is dependent on the perception of a number of questions such as whether there is sufficient time or whether a possible solution exists. Some form of aide memoir might be produced to support decision makers in appraising their own performance concurrently. This could act as a form of 'health check' for the decision making process and would be similar to the mind guards suggested by Janis as a method of counteracting groupthink. Included in this health check also could be reference to motivational needs, supporting actions which are achievement oriented and drawing attention to those which are motivated primarily by a Need for Power. It would also be appropriate to include reference to the appropriate level of complexity of information processing. In fact the competency description outlined above would provide a good basis for this health check. One objection to using such a methodology would be the lack of time in acutely pressured situations. However, flight crews make effective use of checklists when handling emergency situations and some form of check before commitment to action may prove useful. Two aide memoirs/health checks suggest themselves. Firstly the experimental model (shown below) could be adapted to act as some form of flowchart for guiding initial situation assessment and response application. Secondly, the competency description outlined above might then be used as a method for checking the effectiveness of the individual's personal coping ability.

5 REFERENCES

- Adorno T et al (1950) The Authoritarian Personality, Harper, New York.
- Baker-Brown G et al (1991) Coding Manual for Conceptual/Integrative Complexity. University of British Columbia.
- Barron F (1953) Complexity-Simplicity as a personality dimension, *Journal of Abnormal & Social Psychology*, 48, 2.
- Dixon N (1976) On the Psychology of Military Incompetence, Futura, London.
- Finney J (1961) The M.M.P.I. as a measure of character structure as revealed by factor analysis, *Journal of Consulting Psychology*, 25, 327-336.
- Goodhart D (1986) The effects of positive and negative thinking on performance in achievement situations, *Journal of Personality and Social Psychology*, 51, 117-124.
- Harvey O et al (1961) Conceptual Systems and Personality Organisation, New York, Wiley.
- Herek, Janis & Huth (1987) Decision making during international crises. Is quality of process related to outcome?, *Journal of Conflict Resolution*, 31, 2, 203-226.
- Herman M (1980) Explaining foreign policy behaviour using personal characteristics of political leaders, *International Studies Quarterly*, 24, 7-46.
- Holsti O (1972) Crisis, escalation, war, McGill University Press, Montreal.
- Janis I (1972) Victims of Groupthink, Houghton Mifflin, Boston.
- Janis I & Mann L (1977) Decision Making: A Psychological Analysis of Conflict, Choice and Commitment, Free Press, New York.
- Kelman H & Barclay J (1963) The F-Scale as a measure of breadth of perspective, *Journal of Abnormal & Social Psychology*, 67, 6, 608-615.
- Kline P & Cooper C (1984) A factorial analysis of the authoritarian personality, *British Journal of Psychology*, 75, 171-176.
- Kobasa S (1979) Stressful life events, personality, and health: An enquiry into hardiness, *Journal of Personality & Social Psychology*, 37, 1, 1-11.
- Koestner & McClelland (1992) The affiliation motive in: Smith C (ed.) *Motivation and personality – Handbook of thematic content analysis*, New York, Cambridge University Press.
- Kohn P (1972) The Authoritarian-Rebellion Scale: A balanced F scale with left wing reversals, *Sociometry*, 35, 1, 176-189.
- Larsson G (1989) Personality, appraisal and cognitive coping processes, and performance during various conditions of stress, *Military Psychology*, 1, 3, 167-182.
- Larsson G et al (1988) Appraisal and coping processes in acute, time-limited stressful situations: A study of police officers, *European Journal of Psychology*, 2, 259-276.
- McClelland D et al (1953) The achievement motive, New York, Appleton-Century-Crofts.

- McClelland D et al (1992) How do self-attributed and implicit motives differ? in: Smith C (ed.) Motivation and personality – Handbook of thematic content analysis, New York, Cambridge University Press.
- McClelland & Koestner (1992) The achievement motive in: Smith C (ed.) Motivation and personality – Handbook of thematic content analysis, New York, Cambridge University Press.
- Murray H (1938) Explorations in personality, New York, Oxford University Press.
- Orasanu J (1996) Shared problem models and flight crew performance: In Flin R (1996) Sitting In The Hot Seat, Wiley, London.
- Porter C & Suedfeld P (1981) Integrative Complexity in the Correspondence of Literary Figures: Effects of Personal and Societal Stress, Journal of Personality & Social Psychology, 40, pp 321-330.
- Raphael T (1982) Integrative complexity theory and forecasting international crises, Journal of Conflict Resolution, 26, 3, 423-450.
- Schroder H et al (1967) Human information processing, Holt, New York.
- Steiner I & Johnson H (1963) Authoritarianism and "tolerance of trait inconsistency", Journal of Abnormal & Social Psychology, 67, 4, 388-391.
- Suedfeld P (1985) APA Presidential Addresses: The relation of integrative complexity to historical, professional and personal factors, Journal of Personality & Social Psychology, 49, 6, 1643-1651.
- Suedfeld P & Bluck S (1988) Changes in integrative complexity prior to surprise attacks, Journal of Conflict Resolution, 32, 4, 626-635.
- Suedfeld P, Corteen R & McCormick C (1986) The role of integrative complexity in military leadership: Robert E Lee and his opponents, Journal of Applied Social Psychology, 16, 6, 498-507.
- Suedfeld & Granatstein (1995) Leader Complexity in Personal and Professional Crises: Concurrent and Retrospective Information Processing, Political Psychology, 16, 3, 509-522.
- Suedfeld P & Rank D (1976) Revolutionary leaders: Long-term success as a function of changes in conceptual complexity, Journal of Personality & Social Psychology, 34, 2, 169-178.
- Suedfeld P & Tetlock P (1977) Integrative Complexity of Communications in International Crises, Journal of Conflict Resolution, 21, 1, pp 169 - 184.
- Suedfeld P, Tetlock P (1977) War, Peace and Integrative Complexity: UN Speeches on the Middle East Problem, 1947-1976, Journal of Conflict Resolution, 21, 3, 427-441.
- Suedfeld P, Tetlock P (1992) Conceptual/integrative complexity: In Smith P et al Motivation and & Streufert H personality: Handbook of thematic content analysis, New York, Cambridge University Press.
- Tetlock P (1979) Identifying victims of groupthink from public statements of decision makers, Journal of Personality & Social Psychology, 37, 8, 1314-1324.
- Tetlock P (1985) Integrative complexity of American and Soviet foreign policy rhetoric: A time-series analysis, Journal of Personality & Social Psychology, 49, 6, 1565-1585.

- Vannoy J (1965) Generality of cognitive complexity-simplicity as a personality construct, *Journal of Personality & Social Psychology*, 2, 3, 385-396.
- Veroff J (1992) Power motivation in: Smith C (ed.) *Motivation and personality – Handbook of thematic content analysis*, New York, Cambridge University Press.
- Walker S (1995) Psychodynamic processes and framing effects in foreign policy decision making: Woodrow Wilson's operational code, *Political Psychology*, 16, 4, 697-717.
- Wallace M & Suedfeld P (1988) Leadership Performance in Crisis: The Longevity-Complexity Link, *International Studies Quarterly*, 32, 439-451.
- Wallace M et al (1993) Political rhetoric of leaders under stress in the gulf crisis, *Journal of Conflict Resolution*, 37, 1, 94-107.
- Westman M (1990) The Relationship Between Stress and Performance: The Moderating Effect of Hardiness, *Human Performance*, 3, 3, 141-155.
- Winter D (1992) Content analysis of archival materials, personal documents, and everyday verbal protocols in: Smith C (ed.) *Motivation and personality – Handbook of thematic content analysis*, New York, Cambridge University Press.