Preventing poor intelligence cycles during crisis decision making

Evaluating prescriptions and bridging the gap between science and practice

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1. Introduction¹

The quality and efficacy of political-military decision making and command depends to a large extent on the quality of the ongoing intelligence cycle. In other words, the more errors organizations and decision makers make during the ongoing cycles of information collection, analysis, information dissemination, and information utilization/response, the more these processes will result in poor decisions, unanticipated risks, costs, outputs and outcomes. This widely accepted assumption is particularly relevant for crisis situations in which the combination of various types of increasing crisis-induced stress can easily result in a dynamic chain of uncontrollable escalations and entrapment. It is therefore hardly surprising that the stream of studies on foreign policy crises which started in the early 60s of the past century produced a wealth of policy prescriptions in order to prevent many of the traps that tend to undermine the quality of C3I cycles and decision making in almost every situation in which policy makers, commanders and their organizations are confronted with serious dangers, time pressures and uncertainty, as well as increasing risks of uncontrollable escalation.

Strangely enough, publications of systematic meta-evaluations with regard to the content and the quality of (specific parts of) the prescriptions that have been offered thus far, have almost been non-existent up to the present moment. Insofar as books, review articles, and conference papers have discussed the state of progress on these aspects of crisis research, it was usually in quite general terms.

This article represents a first attempt to fill this gap. It presents several tentative findings of a research project at the Royal Military Academy that was started two years ago. The article opens with a brief introduction of the main features of the research project. The next section discusses the framework that has been applied hitherto in order to evaluate the quality of policy prescriptions. It will emphasize the importance of logical consistency between the conceptual framework that has guided empirical studies on crisis decision making, the clarity and quality of its key concepts, case selection, main empirical findings and prescriptions. Other criteria that will be examined are, amongst others, (un-)ambiguity of the prescriptions, practical usefulness, range of applicability, etc. (section 3). This set of criteria is applied to a number of (sometimes widely quoted) prescriptions with regard to (a) decision making structures; (b) communication/information aspects; (c) cognitive-psychological dimensions of decision making. The article continues with an evaluation of the quality of prescriptions (section 4) and concludes with some observations on improving it (section 5).

1.1 When the quality of intelligence cycles and information-processing becomes critical

Serious failures in intelligence cycles and decision making during potentially stressful events are anything but unique. To a certain degree, they can be regarded as a fact of life, almost inevitable and unavoidable, no matter how gladly politicians, the military, researchers, and members of the press would like to close their eyes to them. Military history contains numerous examples of crisis situations and disasters in which the sometimes overwhelming pressures on military commanders and policy makers resulted in tragic mistakes in information processing and decision making. For example, the onset of WWI in 1914 reveals an impressive chain of poor communications, tragic intelligence failures, and fatal miscalculations and decisions in the centres of command of each of the key players. Whether it concerns the decision makers and planners in Berlin, St.Petersburg, Paris, London, or Vienna, they all became entrapped in an escalatory game which no one could control any more (Holsti, 1965, 1972, 1975; Farrar, 1972; North, 1967). Each of the command centres was confronted with what Von Clausewitz once characterized as 'friction' and 'the fog of war'- situations with a dynamic, almost uncontrollable conflict spiral, combining an overload of information (including noise, rumours, after-the-fact information, deception, etc.) with a sometimes dramatic underload of intelligence and diplomatic messages about the latest state of events. A recently published, more than 500-page-thick, report of a Dutch Parliamentary Commission that describes and evaluates Dutch political-military decision making on peacekeeping operations during the past decade, sums up many - more or less comparable shortcomings in the quality of intelligence cycles, interdepartmental communication and decision making (Tweede Kamer [Second Chamber] 2000). Shortcomings such as these unmistakably played a role in one of the most tragic and traumatic policy fiascos for the Netherlands, namely the fall of the Srebrenica-enclave in July 1995. It accumulated in one of the greatest post-War genocides in Europe. Similar 'classic' illustrations of what may go wrong when cognition is boiling hot, can be found in crises such as the Barbarossa offensive in 1941, the Chinese intervention in the Korean War, the Bay of Pigs crisis in 1961, the Yom Kippur crisis in 1973, the Rwanda genocide in 1999 or the Russian wars in Chechnya in 1994 and 1996.

These historical experiences illustrate that the quality of political and military decision making, and more in particular its effectiveness, outputs and outcomes may be closely related to the quality of information scanning, processing, and communication. The more shortcomings there are in the collection, processing, dissemination, and utilization of crucial data, the more likely it is that policy makers, as well as military commanders on all levels in the chain of command, will be confronted with tragic miscalculations and painful surprises (De Rivera, 1968; Jervis, 1976; Herek, Janis, & Huth, 1987; Janis, 1989; Betts, 1977, 1978, 1980a, 1980b, 1982; Kam, 1988; Wirtz, 1991; Heuer, 1999). This commonly accepted pattern tends to be particularly relevant in situations in which first-line soldiers and officers, as well as high commanders and politicians are almost 'forced' to take more radical, consequential decisions under risky, dynamic, stressful, and often highly uncertain circumstances (Janis, 1993; Janis & Mann, 1977; Brecher & Geist, 1980; Brecher, 1993; Brecher & Wilkenfeld, 1993, 1997; Hermann, 1972; Holsti, 1972; Holsti & George, 1975; George, 1980, 1991). And they are decisions in which every minor mistake could easily put the well-being and lives of many subordinates, non-combatants, and the decision maker himself at stake.

1.2 The Cuban missile crisis 1962: the trigger for research on crisis decision making

For several reasons, the Cuban missile crisis in October 1962, during which any mistake in the information processing and decision making of political leaders, such as US president John Kennedy and Soviet leader Nikita Krushchev, could have triggered the start of an uncontrollable nuclear and conventional escalation, marked the beginning of scientific research on information-processing during crises. It prompted scientists, historians, sociologists and social psychologists into setting up systematic research, focused on the way policy makers and their organizations cope with a wide variety of crises (Metselaar, 1997a). One of the main motivations behind this still ongoing research was certainly scientific curiosity and the ambition to build up a body of knowledge about human behaviour under severe collective stress. At the same time, however, it can be concluded that practical orientation, in the form of a strong drive to improve the quality of decision making during crises and to prevent poor

decisions and erratic judgements, formed another dominant incentive for crisis research (Hermann, 1972; Metselaar, 1997a; 't Hart, 1986, 1987). Most (if not all) pioneers in crisis research (e.g. Hermann, Brecher, Holsti, George, Lebow, De Rivera, Janis; Wohlstetter; Lazarus) were strongly driven by questions like: How and under which conditions do policy makers react to signals of impending danger? What patterns and regular traps can be observed in crisis situations themselves and in the decision making and crisis management activities of policy makers, military commanders and their Command, Control, Communication, & Intelligence systems (C3I)? How and to what extent can policy makers, commanders, and their advisors become more aware of possible 'misfits' and 'failures' that regularly occur under crisis pressure? And, last but not least: How can decision makers in key positions, as well as their information supporting systems, be prevented from becoming so overwhelmed by the situational pressures and distress that they make bad decisions with far-reaching negative consequences? How can the risk of normally intelligent leaders becoming entrapped in an almost unavoidable spiral of uncontrollable (nuclear) conflict escalation be reduced? (Axelrod, 1970; Bell, 1971; Betts, 1978; 1980a, 1980b; Brecher, 1977, 1979a, 1979b; Frei, 1978a, 1978b, 1982; Hermann, 1969a, 1969b, 1972; Kintner & Schwarz, 1966; Parker, 1977).

1.3 A blind spot in crisis research

Four decades after the start of crisis research, at the beginning of a new millennium, we can conclude that the study of decision making in crises has become a very productive, diversified field of interdisciplinary research, dominated by aggregate comparative studies (e.g., Gilbert & Lauren, 1980; Brecher & Wilkenfeld, 1988, 1989; Brecher, 1997), as well as many in-depth single and multiple case studies (e.g. Brecher & Geist, 1980; Dawisha, 1984; Holsti, 1972). This research tended to be focused on a wide variety of events: i.e. domestic and local crises, various sorts of international and foreign policy crises, natural disasters and so-called manmade conflict crises, etc. (cf. Rosenthal, 1984; Rosenthal et al., 1986, 1989).

Strangely enough, however, systematic attempts to collect, categorize and evaluate the content and the quality of all the prescriptions that have been produced thus far, have been minimal. Insofar as crisis studies, disaster studies and review articles have discussed the state of progress in crisis research, the examinations on the scientific and practical value of the prescriptions tended to be rather fragmented, brief, superficial, unsystematic, and formulated in quite general terms (see: Tanter, 1975, 1976; Gilbert & Lauren, 1980; Holsti & George, 1975; Holsti, 1975, 1980; Milburn in: Hermann (ed.), 1972; George, 1972; Robinson, 1970; Roberts, 1989; Levite, 1987; Kam, 1988). Given the fact that producing useful policy prescriptions has been one of the major incentives for the start of crisis studies, this omission is remarkable, to say the least. At the same time, however, it can be concluded that, in particular during the past 15 years, there has been a rapid rise of so-called 'How to do it' handbooks that involve many aspects of crisis decision making as well (e.g. Ten Berge, 1988; Lagadec, 1993; Heath, 1995). These studies tend to provide a wealth of heuristics and descriptions which may be quite relevant and usable for policy makers. Unfortunately, they seldom define the precise conditions in which the provided prescriptions will be more or less valuable, nor do they warn decision makers of situations in which handling in line with the prescriptions may be (or may become) absolutely counter-productive.

In sum, there are various reasons why it is necessary to begin more serious attempts to evaluate the state of the art regarding the scientific and practical value of prescriptions for decision making in crisis situations. First, because it may help to create a more balanced insight into current research on crisis decision making in general, and the quality of the prescriptions that have been offered in particular. Second, it may offer guidelines and ideas for research agendas for the near future (Where are the gaps? What are we doing well, and What should we do better?). Third, it may help policy makers, advisors, and scientists to

answer the fundamental question to what extent the prescriptions that have been largely based on past events, will still be relevant for crises that can be expected in the new millennium. Trends such as the rapid increase of mass media effects (CNN!), the widespread application of modern information technologies and its implications for communication, organization structures and cultures, as well as the increasing quest for information dominance and realtime battlefield awareness, are important elements in this (Pfaltzgraff & Schultz, 1997; Bosch, 1997; Metselaar, 1999a, 1999b). Fourth, it may stimulate mutual learning about methods and experiences within the usually largely separated sub-fields, focused on different dimensions of crisis decision making (i.e. research on [political-military] foreign policy conflict-crises and international crises, research on early warnings and early warning responses, research on surprise attacks and on natural and man-made disasters). Last but not least, it may generate better prescriptions for policy makers, analysts and their organizations and (as far as possible) prevent the danger that they are applying prescriptions that are outdated, not suitable or only usable for a limited time, given the specific conditions and situation at hand.

1.4 Research questions

This article can be regarded as a first attempt to take up the challenge. It is based on a research project that I started two years ago at the Royal Netherlands Military Academy with the help of two research assistants. The research project is guided by the following research question:

To what extent have the scientific studies that have been conducted during the past four decades on 'decision making in crisis situations' resulted in policy prescriptions; how are these prescriptions formulated and what is the quality and applicability of these prescriptions, when evaluated from a scientific and practical point of view?

This central research question is divided into the following set of sub-questions:

- 1. What criteria can be developed in order to evaluate the scientific and practical quality of policy prescriptions that have been produced in crisis research?
- 2. What types and areas of research can be distinguished in crisis research and which prescriptions have been formulated with regard to which potential traps in crisis decision making?
- 3. What is the quality of these prescriptions, when evaluated from a scientific point of view?
- 4. What is the quality of these prescriptions, when evaluated from a practical point of view? More in particular, are they applicable to peace-keeping or full-scale war operations, and if so, when, where, how?
- 5. How can the scientific and practical quality of prescriptions be improved in the new millennium?

1.5 Methods and limitations

The research that has been conducted so far, is mainly based on content analysis of the prescriptions that could be found in approximately 270 publications (articles and books) in the area of 'international conflict crisis' (i.e. conflict-crisis studies), military surprise attacks, disaster responses, and early warning responses. Research directed at the fourth and the fifth question has not begun yet. The answers to these two questions will be based on a combination of surveys with semi-structured interviews among policy makers, military commanders and key advisors in the field. This part of the research is scheduled for 2001.

Given the fact that this article reflects 'work in progress' and for reasons of space, the reader should be aware of the following self-imposed limitations:

- Since the meta-evaluation of the prescriptions will be in progress until the end of 2001, the findings that are formulated in this article should be regarded as tentative.
- This analysis will *not* pay attention to prescriptions that have been formulated with regard to crisis *management*. I will only focus on decision making processes that may (but not necessarily have to) lead to crisis management. Nevertheless, it should be kept in mind that there tends to be a close relationship between crisis decision making and crisis management (cf. Herek, Janis, & Huth, 1987; Janis, 1989; Milburn, 1969, 1972; Hermann, 1972; Holsti, 1972; Parker, 1977; George & Smoke, 1974; George, 1980, 1997; 't Hart, 1987). In other words, despite this self-imposed limitation, it is wise to regard weaknesses and traps in crisis management as a continuous and crucial part (or link) in the chain.
- Since it is impossible to mention *all* the prescriptions that have been formulated during the past four decades in this article, I have decided to mention only the ones that have been mentioned in more than one publication in order to give the reader some idea about their content, wording, domain, degree of ambiguity, etc.
- The evaluation review in this article will be focused on only two of the four sub-fields of research on crisis decision making (prescriptions in conflict crises, and prescriptions in surprise attacks). That implies that this article will *not* pay attention to the ever-increasing number of prescriptions (in particular in disaster studies) with regard to one dimension of decision making in crises that tends to become more crucial than ever before: i.e., the transaction between the media and public opinion and decision making (cf. Lagadec, 1993; Crisis Research Team, 1997).
 - I will only briefly discuss the empirical studies on which the prescriptions are based. I will not go into detail either with regard to the patterns and traps in decision making and information processing the prescriptions (more or less) refer to.

2. Evaluation criteria

Evaluations – including the meta-evaluation that will be presented in this article - are almost by definition arbitrary. They may be largely 'coloured' by subjective preferences, knowledge and knowledge gaps, time, culture, and space (cf. Bovens & 't Hart, 1987). However, they may be *even more* arbitrary and random if it remains unclear on which set of criteria they are based. As long as there is no explicitly formulated frame of reference, what are we talking about and how can we learn to improve the quality of the prescriptions? Although this point of departure seems to be common sense at first sight, it was obviously completely overlooked in the few state of the art reviews in crisis research that have been published thus far. Even Gilbert and Lauren (1980) who published a pioneering provocative review article in *Journal of Conflict Resolution*, twenty years ago, failed to formulate even one criterion on which their judgements were based. So, one of the first challenges for this research project was to develop a set of relevant criteria, based on a combination of criteria that can be derived from many standard books on social scientific methodology, policy evaluations, as well as publications about obstacles in the practical utilization of scientific knowledge.

- Criterion 1: Valence of the prescriptions
- Criterion 2: Degree of clarity, instead of ambiguity, of the prescriptions
- Criterion 3: Specification of contingencies- and problem dependency of the prescription(s)
- Criterion 4: *Explicit mentioning of advantages and disadvantages of the application of the prescriptions*

| Criterion 5: | Quality of the empirical studies on which the prescriptions are based |
|--------------|--|
| | Construct validity: To what extent are the constructs of theoretical interest |
| | explicitly operationalized in a manner that decreases intersubjective differences |
| | as much as possible? |
| | Internal validity: To what extent does the research design permit us to reach |
| | causal conclusions about the effect of the independent variable on the depen- |
| | dent variable? |
| | <i>External validity</i> : To what extent can we generalize from the research sample and setting to populations and settings specified in the research hypotheses? |
| Criterion 6. | Strength and consistency of the linkage between the formulated prescriptions |
| | and the (self-imposed) research limitations, and patterns and traps that have |
| | been found in the research on which the prescriptions seem to be based |
| Criterion 7: | Practical value of the prescriptions (i.e. possibilities for policy makers to |
| | translate them into the practice of decision making) |

3. Six dimensions of crisis decision making

Most studies in the four sub-fields tend to distinguish the following, closely related, dimensions of crisis decision making (e.g. Brecher, 1980, 1997; Rosenthal, 1984; Rosenthal et al., 1989; 't Hart, 1986, 1987; Lagadec, 1987; Kam, 1988):

- 1. the communication dimension
- 2. the perception process
- 3. the group dynamics process
- 4. the organizational dimension
- 5. the media (and public opinion) dimension;
- 6. the choice process.

Each of these dimensions of decision making can have a deep impact on the quality of intelligence cycles and information processing. However, given the limited space of this article, this review will mainly focus on the first two dimensions.

3.1 Regularly observed patterns and traps in intelligence cycles during crisis decision making

Empirical research in all four sub-fields reveals a wide variety of traps that can be regularly observed when policy makers, military commanders and their organizations are coping with (and anticipating on) the subsequent phases of crisis situations. Some of the most common ones that can be observed in almost every studied surprise attack is the so-called false alarm/desensitisation/or cry wolf syndrome. Other types of regular traps in informationprocessing are: more active, but more random and simplified information search, intelligenceto-please syndromes; structural and incidental misperceptions and miscalculations with regard to the enemy's intentions and capabilities, versus one's own intentions and capabilities, in particular in dynamic situations; lack of time; pathological secrecy; information overload and noise (Pearl Harbor and the overload of high-qualified signal intelligence), as well as underload; cognitive rigidity, misperceptions and wrong anticipations (partly) as a consequence of successful deceptions by the enemy; and cognitive indifference, superficiality, hyper-vigilance, as well as avoidance and denial; over-reliance on face-to-face communications with trusted - and liked - sources (e.g. Milburn, 1972; Wohlstetter, 1962; Whaley, 1975; Handel, 1989; Wirtz, 1991; Kam, 1988; Levite, 1987; Metselaar, 1997a, 1997b, 1999a, 2001; Heuer, 1999).

Unlike studies on surprise attacks, studies on *conflict crises* tend to pay more attention to *all* phases of crises (in other words, not only the pre-crisis or anticipation and warning phase, but



Figure 1: A simplified summary of regular traps in information processing during crises

also the escalation phase, as well as the de-escalation and post-crisis phase) and the impact of crisis-induced stress. They focus in particular on the so-called confrontation/escalation phase, the period in which decision makers often experience increasing peaks of distress. Furthermore, in general the data collection and analysis of conflict crisis researchers tend to be more dominated by a top-down perspective, whereby they focus in particular on the behaviour of policy makers in the top the organizations (e.g. Presidents, Prime Ministers, Ministers of Defence and Foreign Affairs, etc.)² As we shall see in the next section of this article, their prescriptions tend to focus mainly on improving the information-processing and decision making quality of the key decision makers and their senior advisors.

The general assumption is that there tends to be a curve-linear (or inverted U-like) relationship between the level of distress a policy-maker or a commander experiences during an operation and the quality of his information-processing, communication, and decision making. Up to a certain level, stress helps decision makers to function well. That is, too little or no stress tends to result in a relatively low quality of information processing and decision making. Increases from low to moderate levels of stress tend to make policy makers and intelligence analysts more alert to the existence of challenges or problems that require attention, decisions and action, and the need to increase vigilance and preparedness to cope with them. However, if the stress that a decision maker or a commander experiences becomes too high (and/or continues for too long) the quality of his performances tends to decline significantly and he and his colleagues may easily fall victim to several well-studied traps. Some of the traps that are described in almost every empirical study on conflict crises are: micro-management (over-concentration on small operational and tactical details, while largely neglecting more strategic information), the tendency of policy makers to fill in blind gaps in their knowledge and intelligence with historical analogies and stereotypes and – partly as a consequence of this – to downplay contradicting intelligence; cognitive rigidity, premature closure (groupthink), failures to recognize cultural differences between oneself and the enemy, etc. (Brecher, 1974, 1979b; Brecher & Geist, 1980; Brecher & Wilkenfeld, 1982, 1997; DeRivera, 1968; Holsti & George, 1975; George, 1974, 1980; Janis, 1982; Vertzberger, 1989; 't Hart, 1989; Roberts, 1989; Heuer, 1999).

Overall, the number of traps that have been described, and that according to most authors, may – at least potentially - undermine the quality of decision making and information-processing in most – if not all – current and future crises is quite impressive. In fact, so much so, that one may wonder how it is possible that the costs and negative consequences of coping with crises are not much greater than they already are (cf. Bovens & 't Hart, 1997).

3.2 A summary of available prescriptions

What types of prescriptions have been produced during the past four decades of empirical research, and what is their content? This section will briefly describe several prescriptions that have been produced in two of the four sub-fields, notably research on surprise attacks and research on conflict crises. As stated above, I will mainly focus on those dimensions of decision making that tend to be the most directly related to information-processing and organizational communication.

Sub-field 1: Research on surprise attacks

In comparison with their colleagues in the area of conflict crises, researchers on surprise attacks and intelligence failures tend to be somewhat more productive in the formulation of policy prescriptions. The following prescriptions appear to be the most relevant ones:

Prescriptions with regard to the perception process

- Attempt to raise the awareness of policy makers and analysts of the problems inherent in the warning *evaluation* process and introduce review procedures, dissent channels, periodic reappraisal, and post mortem analyses, etc. (cf. Lauder, 1985; Shmuel, 1985; Kam, 1988).
- 'In the event that receivers engage in substantial protective behavior, attempts should be made to perceive the danger as a highly cynical one' (Breznitz, 1984: 222).
- 'Training for the search of the uniqueness of each threat can reduce false alarm effects' (Breznitz, 1984: 226).
- Incorporate quantitative methods into the evaluation of incoming warnings (cf. Heuer, 1981a; Singer & Wallace, 1979; Hopkins, 1980; Jodice, 1982; Levite, 1987: 168).

Prescriptions in order to prevent malfunctions in the communication process

- Improve the dissemination stage of the warning communication process through the application of modern computer technologies and other advances in the area of secure real-time communications in order to improve the speed, scope and reliability of information transmissions (cf. Belden, 1977; Gravely, 1982; Levite, 1987; Metselaar, 1999).
- 'The warning system should attempt to delay issuing the threat as long as possible. [...] The longer the time interval between the request for protective behavior and its onset, the lower the probability that individuals will engage in it. Thus, protective behavior ought to be limited [...] in terms of 'last chances' when it can still be effective. However, such a deadline must not be too close, otherwise it could lead to panic behavior' (Breznitz, 1984: 221, 223).
- 'By identifying a particular segment of the warning system as responsible for the false alarm and by indicating that this segment is being corrected or replaced, the lost credibility can be partially restored' (Breznitz, 1984: 223).
- 'Individuals should be given full information about the false alarm effects and the parameters that influence its magnitude' (Breznitz, 1984: 226).

- 'Ensure a pluralistic intelligence system and parallel analysis and assessment also with the same data' (Kam, 1988: 225-226; George, 1982).
- 'Strengthen cooperation between senior analysts and policy makers' (cf. Kam, 1988; Dror, 1980: 17; Knorr, 1979: 87).

Overall, it will be obvious that both categories of prescriptions are aimed at making policy makers and analysts better aware of various potential traps in the information processing (i.e., perception process) and to improve their insight into factors that may enhance the chances of decision making actually being undermined by these traps. Furthermore, the prescriptions offer several techniques that may help to improve the quality of perception and communication and to reduce (a) gaps between analysts and policy makers; (b) chances on information overload; (c) cry wolf syndromes, (d) dependency on too few sources, (e) failing communication channels, and (g) premature closure and group think tendencies.

Sub-field 2: Conflict crisis research

In comparison with early warning research and disaster research, the number of studies in decision making during conflict crises providing prescriptions, is remarkably low. For instance, Michael Brecher and his associates from the International Crisis Behavior (ICB) Project have produced several high-quality case studies since 1980. Still, they do not offer any policy prescription. The prescriptions that ICB provides are only directed at improving the quality of future studies on crisis decision making.³ Another conclusion that can be drawn is that by far the biggest part of the prescriptions that have been formulated thus far, were provided in the period 1972-1975. The bulk of the prescriptions were produced during the first wave of publications in the area of conflict crises. In particular Milburn (1972) presented a lot of still dominant prescriptions. Alexander George, Irving Janis (1977, 1989) and Jonathan Roberts (1989) are among the few exceptions in the field of conflict crisis to formulate some prescriptions after 1975.

Prescriptions in order to prevent malfunctions in the communication process

- 'Avoid channel overload by reducing the communication traffic concerned with noncrisis issues and by increasing the number of channels used' (Milburn, 1972: 273).
- 'Make all communications in a crisis explicit, consistent, and transmit them through redundant channels to reduce the chance of being misunderstood. Remember that perceiving him correctly is not the same as ensuring that he perceives your moves correctly' (Milburn, 1972: 275).
- 'Do not rely on any single method or channel of information, nor upon a single point of observation (Milburn, 1972: 272).
- 'Use several techniques for evaluating the situation and conduct checks on the fidelity of information sources' (Milburn, 1972: 272).
- 'To the extent feasible, keep audiences restricted during a crisis until audience support is needed or until public announcement is desirable to add to the credibility of a commitment' (Milburn, 1972: 273).
- Set up a log book in order to write down quickly the procedures undertaken, steps already decided upon, and elements of information received and do so throughout all parts of the entire organization or network that is involved. If this is not done well enough or not done at all within a few hours, no one will be able to know what is going on, how procedures have been implemented, who said and did what, when, where, how. Writing a log book will (a) force those who are involved to try to see clearly through the mental fog and to put some mental distance between themselves and what they are doing and the course of events; it may (b) force the writers to look more objectively (as

far as possible) about events; it may (c) help to share information and to provide for a smooth transfer from one team to another in a crisis that drags on (Fink, 1986: 146; Parry, 1990; Lagadec, 1993: 202-204;). This may significantly reduce chances of bad coordination.

Prescriptions with regard to the perception process

- Perform according to the kind of crisis that is faced (Milburn, 1972: 272).
- A decision maker's understanding of a crisis increases as his awareness of prior and related events is increased. Consider, therefore, a wide and detailed range of contextual factors (Milburn, 1972: 272).
- 'Study available resources in terms of how readily available they are and what substitutes exist. Check rapidly with allies and others to survey what potential resources they might contribute' (Milburn, 1972: 272).
- 'Be sceptical of 'solutions' transferred from other situations exclusively for the reason that they 'worked' in earlier cases. Be careful of 'facts' in the present situation that seem to suggest that the previous situation is exactly like the present one. If there are no basic similarities, screen out that reference' (Milburn, 1972: 274; cf. Neustadt & May, 1986; Kam, 1988; Vertzberger, 1989; Heuer, 1999).
- 'Attempt to look beyond the crisis. Anticipate future relations and long-term consequences. Avoid contradictions of time perspective and over-emphasis on those things likely to occur in the immediate future' (Milburn, 1972: 274; cf. Holsti, 1972; Hermann et al., 1972; Holsti & George, 1975).
- 'Do not treat the crisis as an isolated incident, never forget to consider the aftermath of the crisis and the way this may determine the method you use' (Lagadec, 1993: 289).
- 'Use simulation and imagination to explore possible costs and dangerous side effects. It is essential that value not be restricted to one kind of benefit or cost. For example, to restrict ourselves to economic, technical, or material costs and benefits may irrationally exclude important human values we also treasure. Quite apart from knowing the costsbenefits of alternative potential 'solutions' to the crisis, we may also want to consider costs and benefits associated with the crisis itself. The costs of the existence of a crisis may include those associated with the creation of the lines of command and communication. They could also include the creation of intense feelings of bitterness among opponents, which could prove exceedingly difficult to eradicate (Milburn, 1972: 273-274).
- Apply the following five special procedures (Janis & Mann, 1977; Janis, 1983):
 - awareness of rationalizations procedure in order to counteract rationalizations, cognitive bolstering and denial and avoidance (Janis & Reed, 1974);
 - emotional role playing;
 - balance-sheet procedures in order to examine the pros and cons of available alternatives;
 - outcome psychodrama to discover neglected consequences;
 - stress inoculation to prepare decision makers to cope with post-decisional consequences.

In addition, Janis advises to apply seven rules that have been extracted from brainstorming techniques: (a) Do not evaluate at the beginning; (b) Generate as many alternatives as possible; it is always possible to cut down the choices to a smaller, manageable set that contains the most promising alternatives in a later stage; (c) deliberately try to think up a few original, far-out alternatives to include on the balance-sheet, frequently such alternatives turn out to be more practical in a later stage than they initially seemed to be; (d) use the

alternatives that have already been generated as springboards for new alternatives; parts of old alternatives can be combined, broken apart, or shifted around to avoid their flaws; (e) consult other people about consequences of the alternatives or produce other alternatives; (f) use contemplation as a source of ideas; (g) avoid dichotomies;. although many alternatives fall into two dichotomous classes, there are always different ways to choose and implement them and different ways of not committing and implementing them, for example, by relating them to specified conditions, graduality and timing, etc. (Janis, 1983: 169-170; Wheeler & Janis, 1980: 43-48).

4. Evaluating the quality of the prescriptions

What tentative conclusions can be drawn about the quality of the prescriptions that have been evaluated so far in both sub-fields? I will now discuss 'their performance' on information processing and communication in both sub-fields.

Criterion 1: Valence of the prescriptions

In comparison with most disaster studies, prescriptions that are provided in research on conflict-crises and surprise attacks tend to be significantly more 'hidden' and fragmented all over the texts of the articles and the books. Specific chapters or sections referring to prescriptions are the exception rather than the rule. Given what we know nowadays about the gap between scientists and policy makers, military commanders and intelligence analysts, omissions like these probably significantly reduce the chances of appropriate utilization of scientific knowledge and insights, in general, and the chance of policy makers, commanders, or intelligence analysts utilizing these prescriptions, in particular. Perhaps, the regular contacts during conferences, courses and working groups between the researchers and military commanders, policy analysts and senior and junior advisors may somewhat compensate for this omission, because they may indirectly encourage mutual understanding in each other's cultures and worlds of action, and because they may increase the chances of dissemination of knowledge, however slowly. Still, this does not preclude that there are some missed opportunities here.

Criterion 2: Degree of clarity, instead of ambiguity, of the prescriptions.

Most prescriptions are formulated in rather general terms. This may be a logical consequence of the ambition of the researchers to generalize and to offer prescriptions for a wide variety of circumstances. Instead of developing prescriptions that contain a more subtle balance somewhere 'in the middle' between relevance for very specific situations and moments, most researchers apparently seem to formulate prescriptions that cover a much wider range of situations. The implication is that many of them can indeed be criticized for containing 'oracle of Delphi-like' formulations. Whether this has actually led to serious misunderstandings and bad coordination cannot be proven, given the present stage of this meta-evaluation. However, at least in theory, this seems to be quite likely.

Furthermore, especially if the prescriptions are studied in complete isolation from the empirical studies they are derived from, many of them look so general that they can easily be regarded as complete understatements. It is therefore hardly surprising that several reviewers in both sub-fields have qualified some of the prescriptions as mainly 'open doors'. Schroeder (1972: 539), for example, once commented that most of the prescriptions in conflict-research that had been provided at that time (in other words, the majority of prescriptions produced in conflict crisis research during the past four decades!) '[...] are about as useful as general advice to hospital emergency personnel - keep calm, have equipment ready, make no premature diagnoses' (Gilbert & Lauren, 1980: 538-539). A clear example of these types of

understatement is, for instance, Milburn's (1972: 260) advice to avoid making decisions while fatigued. On the other hand, it will be obvious that there are several prescriptions that do not deserve to fall into the 'open door' category. Breznitz's prescriptions to reduce the false alarm trap, for instance, go much deeper than this.

The risk that policy makers, commanders and staff members might stereotype most (if not all) of these prescriptions as open doors and common sense may have serious implications. It may easily convince them that, somehow, they readily and fully understand how to manage crisis situations, without grasping the essence of what the author actually meant, or without the lessons that could be deduced if the underlying empirical research had been studied more deeply and critically (cf. Gilbert & Lauren, 1980: 657). Many scientific insights and prescriptions may lead to responses like 'that's just common sense for us,' 'we knew and have done just that all along.' Yet, the same persons who react like this, may easily neglect or forget all the prescriptions they once called 'open doors' and 'common sense' and become entangled in many avoidable traps, when they are actually confronted with the sometimes dazzling dynamics of crisis situations. At the same time, however, at least to some extent, stereotyping may have certain - unintended - positive and paradoxical side-effects as well. The tendency may help to create some false sense of control over the crisis situation and in many cases this has proven to be more productive than situations in which actors are well aware of many of the traps they have become entangled in, but feel relatively helpless and distressed because they realize that there are hardly any or no alternatives to improve the situation.

Criterion 3: Specification of contingencies- and problem dependency of the prescription(s). Studies in which the prescriptions are explicitly related to specific features of the crisis situation and antecedent conditions as well as specific features of the decision making process and the organization that is involved are rather scarce. At best there are some promising attempts to accomplish at least part of this (for instance, Janis & Mann, 1977)

Criterion 4: Explicit mentioning of advantages and disadvantages of the application of the prescriptions.

Whereas conflict crisis studies in general tend to focus exclusively on the advantages of the prescriptions they provide, surprise attack research seems to be much more balanced, realistic and specific in its presentations. The fact that the prescriptions of researchers on surprise attacks seem to be more dominated by a holistic and contingency-prone perspective may play a significant role in the more realistic-pessimistic, 'it all depends'-like tone of their argumentation. For example, several authors in the field of surprise attacks have warned that most prescriptions proposed to obviate intelligence dysfunctions are in fact two-edged swords: in reducing one vulnerability, they often increase another (cf. Betts, 1978: 73; Kam, 1988: 225-226). One of the underlying causes of this different approach may be that surprise attack researchers regularly pay much more attention than their conflict-crisis oriented colleagues to self-critical, but constructive, evaluations of the practical value of their own prescriptions (e.g. Betts, 1978: 83; Kam, 1988; Levite, 1987). They seem to have developed a 'sadder and wiser' attitude towards their possibilities to reduce serious mistakes in the socalled intelligence and preparations cycle. As a consequence, they seem to be somewhat pessimistic about the possibilities to prevent unpreparedness and surprise. They do not seem to have any illusion that unpreparedness in case of an enemy attack or a disaster will ever be completely eliminated. As George and Smoke once claimed, such ambitions can be regarded as highly unrealistic:

Procedural and other efforts to improve recognition and utilization of warning can hope to meet with some success, but it would be dangerous to assume that the fundamental difficulties [...] can be fully [...] eliminated (George & Smoke, 1974: 576).

Jervis is another authority on misperceptions and cognitive rigidity in conflict-crisis to strongly discourage any optimism by pointing at the complexity and ambiguity of the ongoing stream of incoming signals and its complex interactions with the cognitions and emotions of the decision makers. 'There is no way to eliminate misperception. The world is too complex and the available information too ambiguous for that' (Jervis, 1977: 184). Richard Betts, an expert in surprise attacks, is obviously even more sceptical about the effects of prescriptions. He suggests that the implementation of a prescription can be counter-productive from a more integrated and macro-point of view, even if it appears to be successful at first sight. He claimed, for instance, that, 'Curing some pathologies with organizational reforms often creates new pathologies or resurrects old ones' (Betts, 1978: 63).

The use of prescriptions such as those mentioned above brings along the risk of becoming no more than an intellectual exercise that does not really affect persistent beliefs. As Knorr put it, 'The danger is that, if these things are done, they will be done routinely and without keen alertness to the likely obsolescence of all preconceptions' (Knorr, 1979: 85). Depending on the conditions, the stage in the decision making process, or the style and character of a decision maker, decision units or the type of organizations, most - if not all - prescriptions will have advantages as well as disadvantages. In sum, the best thing surprise attack researchers seem to long for is to somewhat reduce many of the biases and mistakes that may lead to serious shortcomings in preparedness.

Criterion 5: Quality of the empirical studies on which the prescriptions are based

Construct validity

In general, it can be concluded that ambiguous concepts are rarely clearly defined and seldom, if ever, operationalized in the same sections or chapters in which the prescriptions are presented. This omission is often somewhat compensated for by the fact that some of the key concepts (such as 'crisis', 'escalation', 'danger', 'warning', 'time pressure', or 'surprise' and 'unprepreparedness') are regularly defined (but seldom operationalized) in earlier parts of the publications, or - in the worst case - in earlier publications of the author himself or publications of others he explicitly refers to (cf. Levite, 1987; Metselaar, 2001). So policy makers, commanders, or staff members who want know more precisely what an author means with his or her prescription, have to invest more of their scarce time in looking elsewhere.⁴ For example, studies on surprise attacks, early warnings, disasters, as well as handbooks and procedures and doctrines on C3I, crisis decision making, or crisis management, regularly refer to 'unpreparedness' and various types of 'warning situations'. Yet, explicit, detailed, and cogent definitions of (un)preparedness are hard to come by in most of these publications. What situations - in time and space - should we have in mind when we want to acquire an insight into a defender's state of (un)preparedness? What dimensions, tasks, and responsibilities does preparedness encompass? What are the most crucial features of warning situations? What types of data or signals can be labelled 'warnings'? Partly as a consequence of these conceptual (and operational) shortcomings, the way in which (un)preparedness as well as warnings are often labelled, applied, discussed and evaluated, is often arbitrary. Consequently, given its specific position in both (ex-ante) procedures and (often post-hoc) research, it is hardly surprising that unpreparedness is frequently used as a value-loaded, onedimensional, black-and-white container term. Moreover, unpreparedness, readiness, preparations, under-reactions, decision making, outcomes and even labels like policy fiascos are frequently intertwined in a fuzzy way,⁵ in which gross simplifications, stereotypes, hindsight bias and even wishful thinking can easily continue to play a dominant role.⁶ *Internal validity*

To what extent do the research designs permit the researchers to reach causal conclusions about the effect of the independent variable on the dependent variable? This question is difficult to answer, i.e. it should be made more explicit than it is now when exactly it is permitted (or not) to reach such conclusions. Furthermore, it is probably better – for various reasons – to evaluate a criterion like this, with an inter-coder procedure. Nevertheless, if only for the sake of triggering discussion, I would like to put forward at least some tentative impressions about this scientific quality criterion.

A first tentative conclusion that can be drawn is that the sometimes rather loose definitions and poor (or even completely neglected) operationalizations of key concepts and expected effects in many of the case-studies in both sub-fields have at least an undermining effect on the internal validity. Another omission in a lot of case studies in both sub-fields is that many alternative causes are not, or hardly, taken into account. For example, Janis' studies on the effects of groupthink on information-processing mainly concentrate on all the factors that are directly related to the groupthink syndrome. However, some research in order to compare the validity of the groupthink-cause with the potential validity of other causes - on, for example, Admiral Kimmel's failure to take warning signals that the Japanese would attack Pearl Harbor more seriously - is almost completely forgotten.

External validity

The issue of generalizations in social sciences is still developing. Especially during the last 15 years many significant steps forward seem to have been taken. In order to generalize and enhance the external validity of research findings (and derived policy prescriptions!!) case designs need to be developed and formulated more carefully. Criteria for case selection need to become more explicit and logically deduced from the research questions, the theory, and the set of hypotheses, etc. In general, both sub-fields unmistakably gain from this developing insight. At the same time, however, there is a lot that needs to be improved on this point as well. It may certainly have the possible side-effect that prescriptions become more specific and justified.

Criterion 6: Strength and consistency of the linkage between the formulated prescriptions and the patterns and traps that have been discovered in the research on which the prescriptions seem to be based.

In both sub-fields there is a more or less logical linkage between the theoretical framework, the findings, and the prescriptions that have been formulated. So, in general these findings are positive. Still, as always, there are some things that can certainly be improved. For instance, George and Smoke (1974: 589) have observed that

It is the nature of any theory that it must simplify some aspects of the reality it seeks to comprehend. But if policy use is to be made of a theory, those elements of the real-life phenomenon that were left out or oversimplified in the formulation of the theory must be identified, and their implications for the theory's content and its use must be noted.

George and Smoke's remark is certainly relevant for the work of both sub-fields. The implications of the explicit or implicit simplifications or selections made by an author, are seldom if ever discussed. Nevertheless, they may have far-reaching consequences for the external validity and value of the prescriptions that have been derived. For instance, at least a part of a deduced prescription may be based on deductions and theory, instead of empirical research.

Criterion 7: Practical value of the prescriptions (i.e. possibilities for policy makers to translate them into the practice of decision making)

To what extent do policy makers and other practitioners regard the formulated prescriptions as understandable, useful and easy or difficult to translate into practice? To what extent have the formulated prescriptions actually been utilized in order to reduce the chances of traps and serious failures in decision making during crises? At this stage of the research project it is rather difficult to conclude anything regarding this criterion. Of course, some insight into the political world of decision makers sometimes appears to be sufficient to conclude that, for example, some of the prescriptions that are provided by Irving Janis (like the use of psychodrama or emotional role playing) are unlikely to be applied by policy makers and their advisors. The same can be said of Milburn's prescription (1972: 270) that 'psychopharmacological aids can be useful to improve the quality of performance' of decision making (cf. Roberts, 1989; Janis & Mann, 1977). By far the most influential prescription seems to be George's well-argued recommendation concerning the benefits of using a devil's advocate and multiple advocacy in information processing and decision making in a small group context (George, 1982, 1985; Janis, 1982, 1989; 't Hart, Stern, & Sundelius, 1997). There are various examples in which policy makers deliberately attempted to structure parts of the information-processing and decision making process in crisis situations in line with these prescriptions.

5. Challenges for the near future

So, given the prescriptions and analyses that have been discussed, what can be done better in the future? How can we improve the scientific and the practical quality of prescriptions? So far, I have formulated the following tentative recommendations.

Formulate basic moral and cultural values that may guide the author's conceptions and analysis of crisis decision making as explicitly as possible. Milburn (1972: 271) has commented that prescriptions about crisis decision making and crisis management tend to be based to a large degree upon value premises and cultural values of the researchers who offered the advice: 'Hypotheses concerning crisis management are not like conventional scientific statements; rather, they are imperatives - recipes for action. They are prescriptive and often hortatory as well. Although they are based, in part, on descriptions of real world events - what happens in a crisis - they are also based on value premises: for example, the belief that crises are largely bad and those which are mismanaged worse.' Milburn is probably right. An author's basic moral and cultural values often have a significant impact on his way of data collection, data reconstruction, and, more in particular, evaluations and the prescriptions that will be offered. Consequently, it will be useful to link prescriptions more explicitly to the author's conceptions with regard to the essence and functions of crises themselves – insofar as the author is capable and willing to make his values explicit. For instance, it can be valuable if an author is explicit about the way he looks at crises in general, and the crisis he has studied in particular. Does he regard crises as 'a potential disaster for all parties'; or does he regard them as 'competitions of risk-taking and opportunities to win'; or 'a mix of potential disaster and opportunities to win' (cf. Gilbert & Lauren, 1982; Williams, 1980; 't Hart, 1986, 1987).

Furthermore, both for scientific and practical reasons, it is necessary that both sub-fields pay more attention to the developments of definition and operationalizations and the motivations behind them.

- Continue with various means to make policy makers, military commanders and advisors as much aware as possible of the more or less regular patterns and traps of crises and decision making in crises;
- Try to study to what extent political leaders, military commanders and advisors have been actually aware of regular patterns and traps in decision making in crisis situations and prescriptions that have been formulated (cf. Haney, 1997; 't Hart, 1987; George, 1972, 1980). Insofar as they are aware of them, try to illuminate how and to what extent they have become so; to what extent this knowledge was actually utilized in concrete crisis-like situations and to what effect. Insofar as they are not aware of them, try to study how this can be explained and how these gaps can be bridged in the future. This important research area is still relatively unexplored. It will be obvious that this is a serious omission because it can be a crucial form of feedback and double loop learning. Link sets of prescriptions to a widely accepted taxonomy of crises.

As Gilbert and Lauren (1980: 660) stated twenty years ago, the first step toward curing the ills of research and theory lies in proper diagnosis. Their idea to start this process with the development of a taxonomy of crises still seems to be sound. It requires identifying the symptoms and subjecting the theory to more rigorous testing against reality in order to make it and its prescriptions more sophisticated, differentiated, and capable of addressing the practical needs of policy makers. Hermann's famous 'three-dimensional crisis box' of key elements of crisis, as well as Lebow's typology of crises, and the distinction between cynical and naive dangers (cf. Breznitz, 1984) may become quite relevant dimensions in such a taxonomy. On the other hand, experiences in early warning research indicate that the complexity of such a methodological challenge should not be underestimated.

- Link sets of prescriptions as much as possible to phases in the crisis and crisis management process.
- Be explicit about strengths, weaknesses (including internal inconsistencies), opportunities and threats with regarts to each prescription, and try to make decision makers and analysts aware of them.
- Study the usability and effectiveness of prescriptions that have been applied over the past years (select so-called 'failure' as well as 'success' cases) and apply SWOT analyses to them.
- Try to rehearse at least once a year in as realistic a setting as possible with the key decision makers and their advisors and teams.
- Try to get and provide a more 'holistic system-like perspective' of the vulnerabilities that characterize a 'crisis decision making system' and the impact that the application of prescriptions may have (cf. Perrow, 1984).

Ariel Levite (1987: 171-172) has made quite a valuable remark regarding the utility of remedies to the collection, communications and responses to potential warnings, while drawing on an analogy to the characteristics of a chain:

The strength of a chain is equivalent to the strength of its weakest link. When significant weakness exists in all or most of the links, improvements in only some of them, as drastic as they may be, will not result in any significant difference in the strength of the chain as a whole. Improvements are required across the board.

In other words, Levite supposes that to make a real difference, potential weaknesses and traps in every stage and dimension of the information processing and communication process, as well as the decision making process need to be addressed and that the prescriptions ought to be considered complementary and utility interdependent. In general, Levite's remark is sound. Of course, the question which links in the chain will turn out to be the weakest in a crisis will depend very much on the magnitude of the danger that the crisis involves, the domain of the danger, etc (Perrow, 1984).

In general, the art of preventing poor intelligence cycles and information processing during crisis decision making is still full of complex challenges and old as well as new obstacles. In various respects, 'the art of reducing the risks on such failures by learning and formulating better, more precise prescriptions' can - and always will be - a rather frustrating one. Thus, it remains to be seen whether, and to what extent better prescriptions will really reduce the chance of unacceptable and unwanted horizontal and vertical crisis escalations during the new millennium. We should never forget (nor become fatalistic about it!) that decision making process is not the same as outcome (cf. Janis, 1989; Janis, Herek, Wheeler & Huth, 1987; Snyder & Diesing, 1977). In a world that is becoming as interdependent, complex and tightly linked as ours, many other factors will affect processes, outputs and outcomes (cf. Perrow, 1984). Probably, the art and task of providing well-balanced, usable prescriptions will become more difficult and ambitious than ever before. Consequently, no matter how difficult it sometimes may be, the quality of research prescriptions has to be improved in both sub-fields in order to increase the chances that policy makers, military commanders, and their staffs will be appropriately prepared for future dangers, crises and disasters. More regular, critical but constructive self-evaluation is one absolute necessity to accomplish this ambitious mission.

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² The perspective of researchers in surprise attacks seems to be more dominated by a bottom-up approach, with a key role for the intelligence agencies and military commanders in the field.

³ Perhaps Brecher c.s. decided already from the start of the International Crisis Behaviour project in 1978/1980 not to invest time and energy in the formulation of policy prescriptions. In the future I hope to find out whether this was actually the case and if so, why they decided to do so.

⁴ Of course, I am taking for granted here that the authors are consistent and unambiguous in the way they have applied and referred to these concepts (which is not always automatically the case!).

⁵ See, for instance, Janis, 1962; Janis & Mann, 1977; Lagadec, 1993; Holsti, 1972. Positive exceptions to this rule are, for instance, the studies of Kam (1988) and Levite (1987).

⁶ Bovens & 't Hart, 1997 have analyzed many of these types of traps that may seriously undermine the quality of evaluations and prescriptions in their trail-blazing book on understanding policy fiascos.