Decision Making During International Crises

IS QUALITY OF PROCESS RELATED TO OUTCOME?

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This study investigated the hypothesis that high-quality decision-making procedures during crises are associated with better crisis outcomes than are defective decision-making procedures. Presidential decision making during 19 international crises since World War II was examined for seven symptoms of defective decision making proposed by Janis and Mann (1977). Crisis outcomes were rated by outside experts in terms of their effect on U.S. vital interests and on international conflict. Results 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 characterized by a large number of symptoms. Alternative explanations are considered and the implications of these results for improving decision makers' procedures are discussed.

It is generally recognized by experts on decision making that a "rational-actor" model is inadequate both as a descriptive and a normative theory for improving the quality of policymaking. As Simon (1957, 1976) explained, an objectively rational approach to decision making is never fully possible because such an approach requires

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complete knowledge and anticipation of the consequences that will follow from every conceivable choice. Because we can neither predict the future nor know every alternative course of action in most cases, human beings cannot fully meet the requirements of a normative rational model. Instead, we must be satisfied with working to the best of our limited abilities within the confines of available organizational resources.

Rejecting a "rational-actor" model, however, does not necessarily preclude the possibility that the most effective policymakers engage in careful search for relevant information, critical appraisal of viable alternatives, and careful contingency planning, exercising caution to avoid mistakes in making important policy decisions. Janis (forthcoming; Janis and Mann, 1977) refers to such an approach as *vigilant problem-solving*. He has identified seven criteria for vigilance, which consist of sufficiently carrying out the various steps of information search, appraisal, and planning to avoid the following symptoms of "defective decision making" in executive groups:

   (1) *Gross omissions in surveying alternatives.* The group fails to consider a number of viable alternative policies, either concentrating its deliberations entirely on the course of action preferred from the outset or confining its discussions to only one alternative. If any of the additional viable alternatives are mentioned at all, they are immediately excluded or dropped without discussion.

   (2) *Gross omissions in surveying objectives.* The group never explicitly discusses objectives or gives them such brief or cursory consideration that the decision makers fail to take into account a number of the major goals or values implicated by the choice.

   (3) *Failure to examine major costs and risks of the preferred choice.* The group fails to consider the negative consequences of the preferred alternative or examines them so incompletely that its members overlook a number of important negative consequences even though information about those consequences is available.

   (4) *Poor information search.* The group fails to obtain available information necessary for critically evaluating the pros and cons of the preferred course of action and other alternatives. If the group engages in any information search at all, it does so in such a perfunctory and incomplete manner that it fails to obtain a number of important pieces of information that would have been available if requested from experts or other appropriate persons inside or outside their organization.

(5) *Selective bias in processing information at hand.* The group shows a definite tendency to accept new information from experts, the mass media, and outside critics only when it supports the preferred alternative. As a result, the members generally ignore or refute a number of important pieces of nonsupporting information to which they are exposed.

(6) *Failure to reconsider originally rejected alternatives.* The group fails to reexamine the consequences of a number of previously considered alternatives, or reexamines rejected alternatives in a biased manner by discounting favorable information and giving disproportionate weight to information about their negative consequences.

(7) *Failure to work out detailed implementation, monitoring, and contingency plans.* The group ignores possible problems in implementation and does not develop any monitoring or contingency plans; or the group discusses implementation, monitoring, and contingency plans in such a vague or incomplete manner that a number of important difficulties or contingencies that are likely to materialize are overlooked.

Some administrative scientists have argued that such criteria are meaningless because they are rarely applicable to real policy decisions. Starbuck (1983, 1985), for example, asserts that top-level managers seldom engage in "reflective" (i.e., vigilant) problem solving. He argues further that a vigilant problem-solving approach would not be effective even if it were used (see also Lindblom, 1980). One of Starbuck's arguments is that attempts to use reflective problem solving will fail badly because policymakers rarely have enough "information and understanding" to find satisfactory solutions to the problems confronting their organizations and "attempts to follow unidirectional problem-solving sequences tend to be self-defeating, because such sequences make very weak provisions for correcting ignorance" (1985: 347). Furthermore, he says that such attempts encourage policymakers to justify their actions exclusively in accordance with "rational logic," which promotes rigid rationalizations. After using a reflective problem-solving approach, then, policymakers are less sensitive to negative results that otherwise should have "the power to instigate changes" (p. 346). Having developed exceptionally strong justifications for their policy decisions, decision makers will dismiss signs that their policies are not successful by believing that "they would have produced good results if accidents had not happened or enemies had not acted malevolently" and by concluding that "we should strengthen them with more effort and more money and give them enough time to yield good results" (p. 346).

Such a challenge to traditional views of the role of vigilant problem-solving in effective policy making raises two important questions. First,

are the behaviors required by a vigilant problem-solving approach, as described by Janis and Mann (1977), in the repertoire of most policy makers? Do they ever avoid manifesting most or all of the symptoms of defective decision making? Second, does a vigilant approach to problem solving result in decisions with more favorable outcomes, i.e., that better attain policy makers' goals?

Some indirect evidence is available for an affirmative response to the first question. Several studies have explored the descriptive validity of expected-utility theory, a model which postulates that policymakers examine the probable consequences of each viable alternative under consideration and choose the one best expected to meet their main objectives. (See, for example, the work of Bueno de Mesquita, 1981, 1985, on the decisions of states to initiate the use of force and the escalation of international conflicts to war.) Although such studies provide indirect evidence that decision makers use at least some components of vigilant problem solving, they can be interpreted in alternative ways. Direct tests, therefore, are necessary. The present report describes such a direct test.

The seven symptoms of defective decision making are used in this study to evaluate major crisis decisions made by U.S. presidents since the end of World War II. The study was designed to determine whether or not there is a significant relationship between the decision-making process and the crisis outcome. Our general hypothesis is: For consequential decisions that implicate vital interests of an organization or nation, use of a problem-solving approach with judicious information search and analysis (within whatever constraints are imposed by limited organizational resources) will generally result in fewer miscalculations and therefore better outcomes than any other approach. In other words, the more steps of vigilant problem solving that are adequately carried out, the lower the probability of undesirable outcomes from the standpoint of the organization or nation. Applied to U.S. policy decisions made during international crises, this hypothesis suggests that those crisis decisions that are arrived at by a *high-quality* process (characterized by a relative absence of the seven symptoms) should also have the most *favorable* outcomes for U.S. vital interests without increasing international conflict or leading to military confrontations or escalations that risk nuclear war.

METHOD

The study involved four major steps. First, on the basis of ratings by outside experts, a sample of 19 major crises since World War II was selected. Second, bibliographic sources describing the decision-making process in each crisis were collected and their adequacy was rated by the experts. Third, the source materials judged to be of high quality were used to score the decision-making procedures during each crisis in terms of the seven symptoms. Independent ratings of the crisis outcome were obtained from outside experts who remained unaware of the decision-making process scores and the hypotheses under investigation. Each of these steps will be described in detail.

SAMPLE SELECTION

A master list of international disputes since World War II was compiled from the Correlates of War project data set on militarized international disputes 1816-1975, made available through the Intra-University Consortium for Political and Social Research at the University of Michigan. All militarized disputes since World War II were selected that involved the United States or its client states and either the USSR, the People's Republic of China (PRC), or their client states. The list was supplemented by information from Butterworth (1976). International disputes occurring during the Carter or Reagan administrations were excluded because of the limited availability of published scholarly analyses.

The final list of 76 disputes that occurred between 1945 and 1975 was then presented to two outside experts in political science.[1] They were asked to select the six major crises within each presidential administration and to rank their severity and importance, which were defined "in terms of the overall security of the United States, with special reference to the threat of war with the Soviet Union or China." The four highest-ranked crises for each administration were selected for the sample. When the two experts' rankings disagreed, a third expert's ratings were

used to resolve the disagreements. All three experts agreed upon the final sample (see Table 1), which included crises from the Truman, Eisenhower, Kennedy, Johnson, and Nixon administrations. Although international disputes during the Ford presidency (e.g., the Mayaguez incident) were included on the original list, the experts rated all of them as too minor to be included in a sample of major U.S. foreign policy crises; consequently, the Ford administration was not represented in the sample. Only three crises are listed for the Kennedy administration because insufficient data were available from published sources to permit the ratings of U.S. decision making for either the fourth-ranked crisis (the 1962 Taiwan crisis) or the fifth-ranked crisis (the 1962 Sino-Indian War). The final sample thus consisted of 19 crises. Information about the general substantive content of the policy decision(s) made in each crisis is presented in Table 1.

DATA SOURCES FOR DECISION PROCESS RATINGS

A preliminary list of bibliographic sources for each crisis was compiled from Burns's (1983) guide to the literature in American foreign policy. Additional sources were added by the authors and the outside experts in international relations. Because participants in the crises were likely to have presented biased accounts, memoirs and autobiographies were not included. Instead, analysis of the decision-making process was based on scholarly accounts by political scientists and historians (who cited and critically analyzed primary sources in describing crisis events).

The bibliography was submitted to the same three experts who had initially ranked the severity and importance of the crises. They were asked to rate the scholarship of each bibliographic source with which they were familiar as high in quality, adequate, or low in quality. If they were unfamiliar with a specific book or article but were familiar with the author's work in general, they were asked to rate the author's overall scholarship as high quality, adequate, or low quality.

Each of the qualified sources was examined by the third author (PH) to determine whether it included information about the crisis decision-making process. To avoid bias, he remained uninformed of the research hypotheses until after he had completed his content analysis (to be described in the next section). Sources rated high in quality or written by high-rated scholars were used as much as possible. When those works did not provide sufficient material for coding purposes, sources rated

TABLE 1

Sample of Crises with Bibliographic Sources
Used for Process Ratings

Truman Administration

(1) *Greek Civil War (1947):* U.S. decision to assume British role in providing military and economic aid to the Greek government in its struggle with communist rebels (Kuniholm, 1980; Oneal, 1982; Yergin, 1977).

(2) *Berlin Blockade (1948-1949):* U.S. decision to remain in Berlin by airlifting supplies, despite Soviet efforts to blockade the city (Davison, 1958; Shlaim, 1983; Smith, 1963).

(3) *North Korea invasion of South Korea (1950):* U.S. decision to commit its armed forces to the defense of South Korea (Bernstein, 1977a, 1977b; Donovan, 1982; George, 1956, 1980; Gosnell, 1980; Paige, 1968).

(4) *U.S. Crossing of 38th Parallel (1950):* U.S. decision to invade North Korea in order to defeat the North Korean army and unify Korea (Donovan, 1982; George and Smoke, 1974; McClellan, 1968; Tsou, 1963).

Eisenhower Administration

(5) *Fall of Dienbienphu (1954):* U.S. decision not to provide direct military support for the French in Vietnam (Gelb and Betts, 1979; George and Smoke, 1974; Gerson, 1967; Gurtov, 1967; Kalicki, 1975; Parmet, 1972).

(6) *Taiwan Straits I (1954-1955):* U.S. decision to oppose a threatened attack by the PRC on the offshore islands of Quemoy and Matsu (Ambrose, 1984; Donovan, 1956; George and Smoke, 1974; Gerson, 1967; Greenstein, 1982; Kalicki, 1975; Tsou, 1959a, 1959b).

(7) *Suez War (1956):* U.S. decision not to support a military solution to the dispute with Egypt over the nationalization of Suez Canal and to seek instead a diplomatic settlement; concurrent with USSR intervention in Hungary (Gerson, 1967; Guhin, 1972; Love, 1969; Neustadt, 1970; Parmet, 1972; Thomas, 1967).

(8) *Taiwan Straits II (1958):* U.S. decision to oppose a threatened attack by the PRC on the offshore islands of Quemoy and Matsu (George and Smoke, 1974; Kalicki, 1975; Tsou, 1959a, 1959b).

Kennedy Administration

(9) *Laos (1961):* U.S. decision to agree to the convening of an international conference on the neutralization of Laos, but only after an effective cease-fire had been established on the ground in Laos (Fall, 1969; Goldstein, 1973; Hall, 1971).

(10) *Berlin Wall (1961):* U.S. decision to oppose any attempt by the USSR to force the West out of West Berlin, but not to oppose construction of a wall dividing East and West Berlin (George and Smoke, 1974; Slusser, 1973, 1978); Smith, 1963).

(11) *Soviet Missiles in Cuba (1962):* U.S. decision to compel the USSR to remove ballistic missiles placed in Cuba (Allison, 1971; Berstein, 1980; George, 1971; Holsti, 1972; Lebow, 1983; Nathan, 1975).

TABLE 1   Continued

Johnson Administration

(12) *Gulf of Tonkin (1964):* U.S. decision to retaliate with air strikes against military targets along the North Vietnamese coastline in response to attacks against U.S. naval forces (Austin, 1971; Galloway, 1970; Goulden, 1969; Windchy, 1971).

(13) *Vietnam air war (1964-1965):* U.S. decision to begin Rolling Thunder operation in an attempt to coerce North Vietnam into halting its support for Viet Cong forces in South Vietnam (Gelb and Betts, 1979; Graff, 1970; Halberstam, 1972; Sheehan, 1971).

(14) *Vietnam ground war (1965):* U.S. decision to commit ground forces to the defense of South Vietnam (Gelb and Betts, 1979; Graff, 1970; Halberstam, 1972; Sheehan, 1971).

(15) *Arab-Israeli War (1967):* U.S. decision not to send a naval force to the Straits of Tiran to ensure the right of free passage following its closure by Egypt (Brecher, 1979; Quandt, 1977).

Nixon Administration

(16) *Cambodian Invasion (1970):* U.S. decision to attack North Vietnamese military bases and sanctuaries in Cambodia (Evans and Novak, 1971; Holsti, 1972; Porter, 1975; Schlesinger, 1973).

(17) *Jordanian Civil War (1970):* U.S. decision to oppose Syrian intervention in Jordan in conflict between Jordanian government and Palestinian guerrilla forces (Dowty, 1978, 1984; Quandt, 1977, 1978).

(18) *Indo-Pakistani War (1971):* U.S. decision to attempt to deter Indian offensive operations against West Pakistan (Hall, 1978).

(19) *Yom Kippur War (1973):* U.S. 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 worldwide alert in an attempt to deter possible Soviet intervention in support of Egypt (Dowty, 1984; Quandt, 1977).

"adequate" were also consulted. No bibliographic sources judged by the raters to be low in quality were used. The coding of decision making, therefore, was based on a sample of accounts and analyses by leading social science scholars, mainly political scientists and historians, who have studied the major international crises involving the U.S. Government since World War II, and whose accounts of these crises are generally regarded as being among the very best. The sources are listed in Table 1.

RATINGS OF DECISION MAKING

The seven criteria for effective decision making detailed by Janis and Mann (1977) were used in a content analysis of the bibliographic sources.

Operational definitions developed for each of the seven symptoms of defective decision making (listed earlier in this article) were used to rate the decision-making process. For each symptom, the crisis decision-making process was rated in one of five subcategories; these subcategories subsequently were collapsed into two main categories: relative absence or clear manifestation of the symptom.[2]

Each of the 19 crises was rated for the presence or absence of each symptom by the third author (PH), who was not informed of the research hypotheses. A reliability check on three of the crises with the first author (GMH) indicated complete agreement on all 21 of their ratings.

2. For each symptom, three of the five subcategories described manifestations of the symptom with varying degrees of severity:

(i) The group failed completely to do anything at all with respect to given problem-solving activity.

(ii) The group engaged in a little of the problem-solving activity but the bulk of the necessary work was not done: Three or more major avoidable errors or omissions were made.

(iii) The group carried out the problem-solving activity in such an incomplete way that it made two major avoidable errors or omissions.

The two remaining subcategories described relative absence of the symptom:

(iv) The group carried out the bulk of the work required by the given problem-solving activity but made a single discernible mistake or omission.

(v) The group carried out the work required by the given problem-solving activity so carefully and completely so as to avoid making a single discernible mistake or omission.

These five subcategories were collapsed into two: clear manifestation of the symptom (i, ii, iii) or its relative absence (iv, v). Thus, the criterion for coding a symptom as present was commission of two or more major avoidable errors. For example, presence of the second symptom was operationalized as failure "to take into account two or more of the major goals or values implicated by the choice." If the sources examined indicated that the decision-making group, while surveying a fairly wide range of the objectives or values implicated by the choice, had omitted only one or none of the relevant objectives or values, the group was rated as not manifesting the second symptom; the symptom was coded as "absent." In most cases, when a group was rated as manifesting this symptom, there were several major goals or values (more than the minimum number of two) that the group failed to consider at all. A similar pattern was observed for the other symptoms.

We did not require a perfect performance for coding absence of a symptom; our definition allowed for a single error or omission if the group by-and-large appeared to have carried out the essential tasks required for that particular problem-solving criterion. This is one of several reasons why we cannot expect extremely high (nearly perfect) correlations between outcomes and number of symptoms of defective decision making, as we defined them (see also the discussion below).

TABLE 2
Symptoms of Defective Decision Making
(ordered according to total)

#	Crisis	1	2	3	Criterion 4	5	6	7	Total Symptoms
05	Indochina	0	0	0	0	0	0	0	0
08	Quemoy-Matsu II	0	0	0	NC	NC	0	0	0
09	Laos	0	0	0	0	0	0	NC	0
01	Greek Civil War	0	0	0	0	NC	1	0	1
06	Quemoy-Matsu I	0	0	0	0	NC	1	0	1
10	Berlin Wall	0	0	0	0	0	1	0	1
11	Cuban Missile Crisis	0	0	0	0	0	1	0	1
19	Yom Kippur War	0	0	0	0	0	0	1	1
03	Korean War I	1	0	0	0	0	1	0	2
07	Suez	0	0	0	0	0	1	1	2
17	Jordan Civil War	0	0	0	1	0	1	0	2
02	Berlin Blockade	0	0	1	0	0	1	1	3
11	Tonkin Gulf	1	1	1	0	0	1	0	4
14	Vietnam Ground Force	1	0	0	0	1	1	1	4
13	Vietnam Bombing	1	0	1	0	1	1	1	5
15	Arab-Israeli War	0	1	1	0	1	1	1	5
16	Cambodian Invasion	1	0	0	1	1	1	1	5
04	Korean War II	1	1	1	0	1	1	1	6
18	Indo-Pakistani War	1	1	1	1	1	1	1	7

NOTE: 0 indicates symptom not present; 1 indicates symptom present; NC = not coded due to insufficient information.

Each crisis was assigned a composite score for defective decision making, consisting of the total number of symptoms present for the crisis. In order to assess the interrelationship among symptoms, the correlations between scores for each individual symptom criterion and the composite symptom score were computed. The coefficients ranged from .41 (poor information search) to .75 (failure to specify alternatives); the median correlation coefficient was .71. Internal consistency for the composite index, measured by coefficient *alpha* (which is equivalent to the Kuder-Richardson-20 coefficient, since the data are dichotomous), was .81 (Hull and Nie, 1981). Ratings on the seven symptoms for each crisis are presented in Table 2.

RATING OF CRISIS OUTCOME

Ratings for the outcome of each crisis were obtained from two outside experts who have conducted extensive research on international

crises. In order to control for the possible influence of personal political ideology, we deliberately chose experts from opposite ends of the conservative-liberal continuum in their personal views about the cold war. As in earlier stages of the research, the experts were not aware of the research hypotheses. Neither was informed of the process ratings for each crisis. The experts provided ratings on the outcome variables for the effectiveness of crisis management by U.S. policymakers for each crisis. First, they rated the crisis outcome's effect on U.S. vital interests: whether they were advanced, hindered, or unaffected during the days and weeks following the crisis. Second, the experts rated the level of international conflict during the days and weeks following the end of the crisis: whether there was an immediate increase, decrease, or no change in tension, stability, hostility, or the likelihood of war between the United States and the Soviet Union or China.[3] The two experts' ratings were combined to yield a score of –1 if both agreed that the crisis outcome was negative, +1 if both agreed that it was not negative, and 0 if they disagreed. The ratings are presented in Table 3.

RESULTS

RATINGS OF THE DECISION-MAKING PROCESS

The number of symptoms of defective decision making for each of the 19 crises is shown in the final column of Table 2. Considerable variability is apparent in the quality of the decision-making process, ranging from no symptoms (Dienbienphu, 1954; Taiwan Straits II, 1958; Laos, 1961) to seven symptoms (Indo-Pakistani War, 1971). The median number of symptoms per crisis was 2, with a mean of 2.63 ($s = 2.19$). In all, 8 of the crises (42%) were characterized by relatively

3. We also obtained the same two types of ratings for the long-term outcomes of the crisis, that is, the consequences in the months and years after the crisis ended. But while the two experts showed fairly high agreement on their ratings of immediate outcomes, they showed a considerable amount of disagreement on the longer-term outcomes. They agreed on only 5 of the 19 crises (26%) in their ratings of the decision's long-term effects on international conflict, and 11 of 19 (58%) in their rating of the decision's long-term effects on U.S. vital interests. When making their ratings of long-term outcomes, both experts showed considerable hesitation and vacillation. Both also expressed relatively low confidence in those judgments, in contrast to the relatively high confidence they expressed about their ratings of immediate outcomes. Because of these low rates of agreement, the ratings of long-term effects of the decisions were considered unreliable and were omitted from the analysis.

TABLE 3

Outcome Ratings for Crises

#	Crisis	International Conflict			U.S. Interests		
		C	L	COMB	C	L	COMB
05	Indochina	+	+	1	+	+	1
08	Quemoy-Matsu II	+	+	1	+	+	1
09	Laos	0	+	1	−	+	0
01	Greek Civil War	−	−	−1	+	+	1
06	Quemoy-Matsu I	0	+	1	+	+	1
10	Berlin Wall	+	−	0	0	+	1
11	Cuban Missile Crisis	+	+	1	+	+	1
19	Yom Kippur War	+	+	1	+	+	1
03	Korean War I	−	−	−1	−	−	−1
07	Suez	+	+	1	−	−	−1
17	Jordan Civil War	0	+	1	0	+	1
02	Berlin Blockade	−	−	−1	+	+	1
11	Tonkin Gulf	−	−	−1	+	−	0
14	Vietnam Ground Force	−	−	−1	−	−	−1
13	Vietnam Bombing	0	−	0	−	−	−1
15	Arab-Israeli War	−	−	−1	+	−	0
16	Cambodian Invasion	0	−	0	−	−	−1
04	Korean War II	+	−	0	+	+	1
18	Indo-Pakistani War	0	−	0	0	−	−1

NOTE: Shown for each crisis are the ratings by the conservative (C) and liberal (L) judges (+ = positive, − = negative, 0 = mixed/no change), and the combined (COMB) rating (−1 = agreed, negative; 1 = agreed, not negative; 0 = disagreed).

high-quality decision making (displaying only one symptom or no symptoms of defective decision making); 4 crises (21%) were of medium quality (two or three symptoms); 7 crises (37%) were of low quality (four or more symptoms). The most commonly observed symptom was failure to reevaluate alternatives, which was found in 15 of the 19 cases. It was found in four of the five cases that manifested only a single symptom. For the fifth case, the Yom Kippur war, the single symptom was failure to develop implementation and contingency plans; this was the second most frequent symptom, occurring in nine of the cases.

Examination of Table 2 reveals two important findings. First, contrary to the assertions of Lindblom (1980) and Starbuck (1983, 1985), policymakers appear to be capable of using analytic problem-solving procedures to make decisions; eight of the crises (42%) were characterized by decision making that adequately met at least six of the

seven criteria described by Janis and Mann (1977). Second, individuals who display a capability for analytic decision making do not always use it. For example, the decision of the top-level policy makers in the Truman Administration in 1947 to send military and economic aid to the anticommunist government during the Greek Civil War was of high quality, but their later decision in 1950 to ignore warnings from the People's Republic of China and invade North Korea failed to meet most of the seven criteria. Similarly, the policymakers in the Nixon Administration displayed all seven symptoms in the Indo-Pakistani war crisis, while they displayed few symptoms in two other crises (the Yom Kippur War and the Jordanian Civil War). Policymakers in the Eisenhower and Kennedy administrations displayed the fewest symptoms, but they did not always engage in analytic problem solving. For example, their handling of two relatively minor crises not included in our sample—the U-2 incident (Eisenhower) and the Bay of Pigs invasion (Kennedy)— have been characterized elsewhere as defective (see Janis, 1982; Donovan, 1956).

RATINGS OF DECISION OUTCOME

As expected, the conservative and liberal experts who rated outcomes were not in complete agreement on whether the crisis decisions led to favorable or unfavorable outcomes (see Table 3). In general, the conservative expert was inclined to see more of the outcomes as favorable or neutral, while the liberal saw more of them as negative. Nevertheless, they were in agreement for a majority of the outcome ratings. When positive and neutral outcome ratings were combined and compared to negative ratings (i.e., a comparison of "negative outcome" versus "nonnegative outcome"), they agreed on 14 of the 19 crises (74%) for U.S. interests, and 14 of the 19 (74%) for international conflict.

Comparison of outcomes across administrations reveals that, as with process, the Eisenhower and Kennedy administrations scored highest, while the Johnson Administration scored lowest. Within the two administrations characterized by considerable variability in crisis outcomes (Truman and Nixon), a larger number of symptoms tended to be associated with negative outcomes. This pattern is consistent with the hypothesis that the quality of the decision-making process is related to crisis outcome. We turn now to a direct test of that hypothesis.

RELATIONSHIPS BETWEEN PROCESS AND OUTCOME

The correlations between the process and outcome scores, graphically displayed in Figure 1, were sizable and in the hypothesized directions. Higher symptom scores were related to more unfavorable immediate outcomes for U.S. vital interests ($r = .64, p = .002$), and to more unfavorable immediate outcomes for international conflict ($r = .62, p = .002$).

Examination of the correlations between outcomes and individual symptoms reveals a suggestive pattern. For U.S. vital interests, these correlations ranged from .11 (for the fourth symptom, poor information search) to .71 (for the fifth symptom, failure to use new information), with a median of .34. For international conflict, they ranged from –.12 (again, for the fourth symptom) to .62 (for the third symptom, failure to consider consequences), with a median correlation of .48. The most infrequent symptom was that of poor information search, manifested in only three cases. Failure to use new information, in contrast, was manifested in six (one-third) of the crises, all of which also had three or more additional symptoms. Significant correlations were obtained between failure to use new information and adverse outcomes in terms of U.S. interests ($r = .72$, p $< .001$), and international conflict ($r = .48, p <$ .05), but not between information search and outcomes ($r = .11$ and –.12, respectively). These data suggest that collecting relevant information for every international crisis is part of the standard operating procedures of the U.S. Government (a similar conclusion was reached by Dowty, 1984). Consequently, there is little variance for this symptom and minimal correlation with outcome. The failure to use available information, in contrast, is not uncommon; this symptom shares a greater amount of variance with the outcome variables than does any other symptom. Thus, effective utilization of information appears to be more of a problem for decision-making groups than does simple extensiveness of the information search. A good example is the U.S. decision to cross the 38th Parallel and invade North Korea in 1950. Despite U.S. intelligence reports of the build-up of Chinese forces in Manchuria and the warnings issued by the Chinese leaders, Truman and his advisers decided to send U.S. forces across the parallel. The consequences were disastrous for the U.S. and U.N. forces in North Korea. In his study of international crises, Lebow (1981) also found that the receptivity of policymakers to new information was often crucial if initial misperceptions and errors in judgment were to be corrected and war avoided.
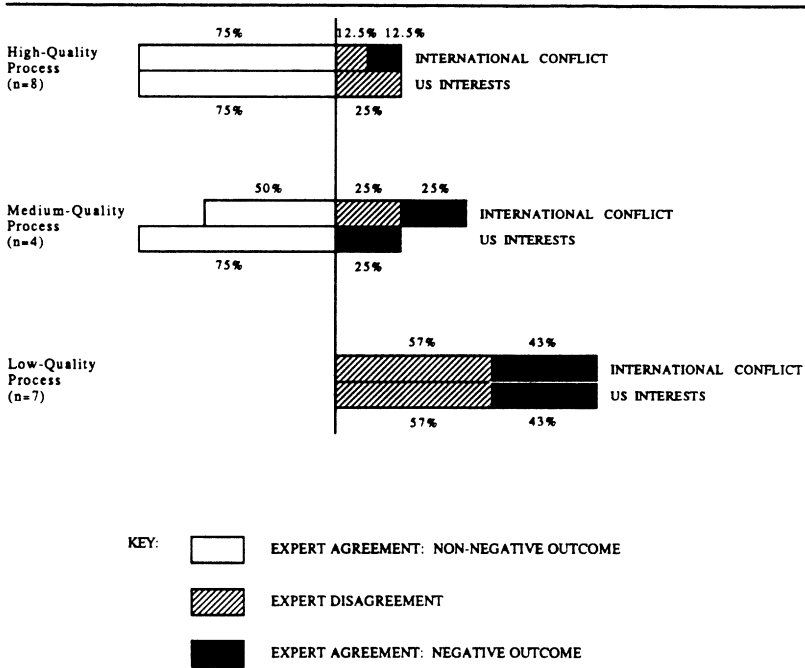
Figure 1: Relationship between Decision-Making Quality and Crisis Outcome

While the correlations between process and outcome support the hypothesis that high-quality decision making leads to favorable outcomes, they do not prove this causal relationship. One type of alternative explanation is that the significant correlations result from the influence of a third variable. It is possible, for example, that more serious crises are usually associated with more defective decision making and with less favorable outcomes (because more serious crises are more stressful and, by definition, involve more difficult decisions and higher stakes than do less serious crises). In order to check on this possible third factor, we obtained ratings from two additional experts on seriousness of the crises and difficulty of the decision making. We asked one expert to rate the likelihood that each crisis might have led to military conflict or to major escalation of conflict already occurring; he used a 7-point scale, with 1 representing extremely low likelihood and 7 representing extremely high likelihood. Another outside expert provided an assessment of the difficulty associated with resolving each crisis, that is, the difficulty of arriving at a resolution of the conflict while

protecting the nation from potential risks and costs. He used a 3-point scale, with 1 representing the least difficulty and 3 representing the greatest difficulty.

To test the extent to which the correlations between process and outcome were affected by these variables, we constructed separate regression equations for each of the two outcome variables (U.S. vital interests and international conflict). On the first step of each equation, we entered the ratings for seriousness and difficulty; on the second step, we entered the symptoms score. Because they were each based on different rating scales, standardized forms of the three independent variables were used. The results were similar for both equations: The seriousness and difficulty scores did not account for a statistically significant proportion of the variance ($R^2 = .01$ and $.03$ for U.S. interests and international conflict, respectively). When the symptoms score was added to the equation, however, it significantly increased the proportion of variance explained. For U.S. interests, R^2 increased by $.46$ when the symptoms score was added—this change was statistically significant: $F(3,15) = 13.32, p < .01$. For international conflicts, R^2 increased by $.35$ ($F = 8.63, p < .01$). In other words, even when we controlled statistically for the effects of seriousness and difficulty of the crises, the number of symptoms displayed explained 46% of the variance in outcome for U.S. interests, and 35% for international conflict. This type of third factor, therefore, does not appear to explain the high correlation between process and outcome.

DISCUSSION

The results are consistent with the expectation that policymakers use analytic decision-making procedures at least some of the time. Further, when policymakers use such procedures, they tend to make decisions that better meet their goals. Contrary to Starbuck's (1983, 1985) assertions, quality of the decision-making process *is* related to the decision's outcome.

The data described here do not support a third-factor explanation of the observed correlations in terms of seriousness and difficulty posed by the crisis. Nevertheless, additional alternative explanations for the results must be considered. The most obvious such alternative is that the correlations between process and outcome are spurious, the result of

faulty methodology. Perhaps, it might be argued, the assessments of decision-making process were not completely independent of outcome ratings. Several procedures were followed to prevent such con-tamination, however. Outside experts who were unaware of the study's hypotheses were enlisted to select the sample of crises, to select the bibliographic sources, and to rate the crisis outcomes. Despite these safeguards, it might be argued that contamination still occurred in subtle ways. For example, the principal rater for the independent (process) variables (PH) may have been unconsciously influenced by his prior knowledge of some of the crisis outcomes. This is unlikely, however, since he was not aware of the hypotheses of the research and their relationship with the Janis and Mann (1977) theory when he made his ratings. Further, interanalyst reliability checks on the process ratings reveal complete agreement between his ratings and the ratings made independently by the first author (GMH), who was himself unfamiliar with many of the crisis outcomes when he rated their process. Hence, it does not seem likely that the process ratings were biased to any signifi-cant degree by the rater's personal judgments about outcomes.

Contamination might also have been introduced unconsciously by the outside experts; their knowledge of how the crisis decisions were reached might conceivably have influenced their outcome ratings. This seems a fairly remote possibility, however, especially since the experts were sufficiently occupied with discussing outcomes during the rating interviews that they had little chance to think about process; they said nothing at all about the decision-making process for any of the 19 crises.

A third possible source of contamination is the bibliographic materials themselves. We avoided crisis participants' memoirs and autobiographies because they might contain self-serving justifications and distortions; we relied entirely on the best available scholarly sources. But perhaps even these scholars' knowledge of crisis outcomes unconsciously influenced their accounts of the decision-making process. Our principal safeguard here is our reliance on the standards of sound scholarship: we assume that highly competent writers who meet those standards are less likely than others to distort facts to fit their expectations. We also relied on multiple scholarly sources whenever possible, thereby protecting the results from undue influence by any single biased source.

Although we have already ruled out seriousness of the crisis and difficulty of decision making as hidden third variables responsible for the results, there are additional factors that might be responsible for the

observed correlations. For example, the quality of both decision-making process and outcomes might be determined primarily by the competence of the individual crisis managers. This explanation would suggest that some presidents have selected advisers and implementers of higher caliber than have others, with the consequence that both decision-making procedures and crisis outcomes are superior, with no causal link between process and outcome. While this is a plausible explanation, it rests strongly on the assumption that individuals are consistent in their approaches to crisis decision making. Variability within administrations is evident in Table 2, especially in the Truman and Nixon presidencies. Even in the Kennedy Administration, which received generally high marks for the crises in our sample, drastically different outcomes and procedures emerged from the same advisers in different situations (see Janis, 1982, for a discussion of the poorly handled Bay of Pigs fiasco contrasted with the well-decided Cuban Missile Crisis).

Because our data are correlational, we cannot conclude that the quality of decision-making processes, as indicated by the number of symptoms of defective decision making, plays a causal role in producing the decision outcomes. It is a plausible interpretation, however, not contradicted or disconfirmed by the results.

The findings of the present study thus bear out the surmises of those social scientists who have concluded that poor-quality procedures used in arriving at a decision give rise to avoidable errors that increase the likelihood of obtaining an unsatisfactory outcome. Stein and Tanter (1980), for example, assert an equivalent proposition in terms of favorable outcomes in their analysis of policy decisions made during international crises. "Other things being equal," they state, "'good' procedures are more likely to produce 'good' outcomes" (p. 8). Their account of "good" procedures includes the key components of vigilant problem solving: The decision makers identify their options, estimate the likely consequences of the options, consider the trade-offs as they examine expected costs and benefits prior to making their selection of "that option which promises the greatest gain or the smallest loss"(p. 8). Stein and Tanter add, however, that an imperfect positive correlation is to be expected between quality of procedures and outcome: "Those who recommend systematic procedures recognize, of course, that they cannot assure good outcomes in each case" (p. 8).

Why might analytic decision-making procedures lead to better outcomes? To answer this question requires articulating the various

determinants of outcomes. It seems likely that when a national government faces international crises, the outcomes result from a combination of the leaders' decision making and implementation, external variables including the decisions made by adversaries, and chance factors. If the nation's leaders use a nonvigilant approach, they tend to ignore important warnings, facts, and contingencies; a frequent result is avoidable losses and failure to achieve their objectives. A vigilant approach obviously does not guarantee success, since uncontrollable external and chance factors still influence outcomes. The generalization that fewer *avoidable* errors are to be expected from a vigilant problem-solving approach than from any of the other approaches does not overlook the well-known reasons why the best-laid plans can go awry. For example, Betts (1978) has argued that failures in intelligence estimation are inevitable due to the inherent ambiguity of the available information. Some *unavoidable* errors are bound to occur as a result of "unresolvable ignorance" as well as of unforeseeable accidents and other chance occurrences commonly referred to as "bad luck." Such errors are always to be expected, and their probability of occurrence will not be affected in any way by the type of decision-making approach used. The absolute level of unavoidable errors depends upon the culture's level of ignorance concerning the consequences of alternative courses of action and other factors, some of which are not yet well understood. But, as general knowledge about consequences increases, some hitherto unavoidable errors will become avoidable.

Because of chronic limitations on the human mind in dealing with the complexities of organizational policy issues, some avoidable as well as unavoidable errors in decision making are to be expected no matter how carefully the policymakers carry out all the steps of vigilant problem solving and no matter how creatively and intelligently they make use of heuristics in combination with critical thinking. But vigilant problem solving, which requires the fullest use of available information and judgmental resources, increases the likelihood that the course of action chosen will anticipate the consequences as well as possible and that contingency plans will be ready for counteracting or minimizing setbacks and threats of serious losses when they occur.

Obviously, a vigilant problem-solving approach is not an all-or-nothing affair. Sometimes the decision maker conscientiously carries out some steps, but deals with the tasks required by other steps in a superficial manner or not at all. In such instances, the decision maker's pro-

cedures are likely to be of intermediate quality, not as good as when all of the steps are taken, but not as poor as when no steps are taken at all. Our results suggest that the decisions of intermediate quality will tend to have outcomes that are correspondingly intermediate between good and poor.

There are undoubtedly certain types of decisions for which the failure to use a vigilant problem-solving approach is not related to poor outcomes. For example, James March (1981) describes a variety of pseudodecisions that are made for ceremonial purposes, as social rituals that reinforce "the myth of organizational choice" (p. 233) or fulfill "role-expectations, duties, or earlier commitments" (March and Olsen, 1976: 11). The policymakers may act as though they were making a genuine policy decision and talk about various objectives, such as increasing organizational efficiency, eliminating hazards, or improving relationships with adversaries. But they actually do nothing to implement the decision "after having devoted much time, energy, and enthusiasm to making it" (March and Olsen, 1976: 10). The apparent quality of the decision-making process in such instances would obviously have no effect on the outcome so far as the alleged objectives are concerned.

Other pseudodecisions differ from the purely ceremonial ones in that they may be partially implemented. Included in this category are policy decisions designed for hidden public relations purposes rather than the objectives that are publicly proclaimed. There is no real intention among the dominant policymakers to implement the new policy except in a token manner that will make the organization look good in the eyes of those pressure groups and constituencies that want the policy change. In such instances, the quality of the decision-making process would be expected to affect the hidden objective but not the alleged objectives. There would be the same expectation whenever policymakers are deceitful about the purposes of any policy decision that may be fully implemented—as when a government sends military forces to a client state allegedly to protect its citizens, but actually with the intention of bringing about political or military changes.

Further research is needed to define the limiting parameters of the positive relationship between process and outcome. Studies similar to this one are needed to observe the relationship between process measures and outcome ratings in a variety of decision contexts—for example, for domestic policy decisions by national, state, and local governments, and for major policy decisions by human service organi-

zations, corporations, political parties, and various key committees that influence policies in science, education, medicine, law, or other professions. Such research could also contribute answers to related questions on the determinants of effective policymaking. Under what conditions, for example, are policymakers most likely to adopt a vigilant problem-solving approach when faced with the necessity for a policy decision? If subsequent studies confirm the relationship between decision-making processes and outcome, the results will imply that decisions can be improved by introducing appropriate systematic procedures into the policymaking process. Persons in decision-making roles are likely to benefit from training that focuses on vigilant problem-solving skills and leadership practices that promote vigilance. Such training oriented toward avoiding the seven symptoms of defective decision making might result in more effective crisis management.

Earlier we mentioned that a dominant trend in present-day discussions of management science and political science is that of emphasizing the relative *unmodifiability* of policymaking processes. This view leads to the expectation that little improvement in crisis management can be expected from introducing systematic methods of problem solving or from any other aids to effective decision making. The significant relationships between process and outcome in international crises observed in the present study favor a different view of the policymaking process. Our data support the position that crisis management can be improved by introducing appropriate systematic problem-solving procedures into the policymaking process. Such procedures could make for more effective crisis management, thereby reducing international conflict while furthering the policymakers' national security objectives and other vital interests.

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