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**Tacit Knowledge for Military Leaders:
Battalion Commander Questionnaire**

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Fort Leavenworth Research Unit

U.S. Army Research Institute for the Behavioral and Social Sciences

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FOREWORD

A primary mission of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to enhance military readiness through programmatic research that supports the effective performance of Army leaders. To accomplish this, ARI and the United States Military Academy (USMA) established the Center for Army Leadership and Organizational Research (CLOR) at USMA to conduct research as part of ARI's research program in the areas of organizational leadership and leader development, education and training. This product is part of the ARI exploratory development research program formulated and undertaken by the CLOR.

The project which produced this product was jointly undertaken by researchers at USMA and at Yale University. The overall objective of the project was to test the applicability of a theory of tacit knowledge to military leadership. Previous research had shown that tacit knowledge acquired through practical on-the-job experiences, is related to executive and managerial effectiveness in civilian organizations.

The rigorous methodology used in identifying and assessing tacit leadership knowledge has produced tacit knowledge inventories that apply to platoon, company and battalion levels of command. This product is the Battalion Commanders Tacit Knowledge Questionnaire. Although further testing and standardization would be required to make this a formal assessment instrument, the methods used to derive the questionnaire make it a valuable tool for teaching, group discussion, and self-assessment and training.

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TACIT KNOWLEDGE FOR MILITARY LEADERS: BATTALION COMMANDER
QUESTIONNAIRE

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TACIT KNOWLEDGE IN MILITARY LEADERSHIP: BATTALION COMMANDER QUESTIONNAIRE

Introduction

The Tacit Knowledge in Military Leadership project is a collaborate effort between researchers at Yale University, the U.S. Military Academy, and the U.S. Army Research Institute to discover what successful leaders know about how to lead and to use this insight to recommend ways to develop effective leaders. According to Army doctrine (DA Pam 350-58), leader development is based on three pillars: 1) institutional training (formal schooling), 2) self-development, and 3) operational assignments. All three pillars are viewed as important to leadership development, yet relatively little is known about the role of operational assignments relative to institutional training. While most practitioners tell us that Army leaders learn about leading while doing real work in the motor pool, in the field, and in the barracks, there has been little effort to understand how this actually happens -- how Army leaders develop "as leaders" while on the job. This interest in understanding how leaders learn about leading while on the job led to the work on tacit knowledge by Robert Sternberg. The tacit knowledge work offered a framework for studying leader development through operational assignments.

A large body of research has shown that learning from work experience has an implicit or "behind the scenes" quality and that much of the knowledge acquired in this way is of a hidden or "tacit" nature. Tacit knowledge is defined as work-related knowledge that is action-oriented, practically relevant, and generally acquired on one's own. By action-oriented, we mean that tacit knowledge takes the form of "knowing how" rather than "knowing that." Practical relevance refers to the value of the knowledge in supporting personal goals. And acquired on one's own means that the environment (i.e., other people or media) does not necessarily support the attainment of such knowledge. Knowledge with these properties has been shown to be predictive of success in a variety of professional domains (Sternberg et al., 1995). We expected that these "lessons from experience" would be important to successful military leadership and therefore implemented a long-term project to study the tacit knowledge of military leaders.

The goals of the Tacit Knowledge in Military Leadership project have been: (1) to identify the tacit knowledge of effective military leaders, (2) to construct inventories to measure the possession of tacit knowledge, (3) to validate these measures against indicators of leadership effectiveness, and (4) to recommend ways to apply the products and insights from the tacit knowledge work to leader development. The results of this work can be found in several reports referenced in the current document (Hedlund et al., 1998; Horvath, Forsythe, et al., 1994; Horvath, Williams, et al., 1994; Horvath et al., 1996, 1998). One of the products generated from this work is a set of inventories developed to measure the tacit knowledge of current leaders. Inventories were produced for three levels in the chain-of-command: platoon leaders, company commanders, and battalion commanders. This document presents and describes the Tacit Knowledge for Military Leaders: Battalion Commander Questionnaire. We briefly explain the development of the Battalion Commander Questionnaire (BCQ) and summarize evidence that supports the relevance of tacit knowledge to leadership effectiveness. We also make recommendations as to some potential uses of the inventory in Army leadership development.

Inventory Development

The development of the Tacit Knowledge for Military Leaders: Battalion Commander Questionnaire involved several steps. First, we identified the experience-based knowledge of Army officers by reviewing the military practice literature and interviewing battalion commanders. Second, we compiled the stories and advice obtained from the interviews and judged each story according to how well it fit our definition of tacit knowledge. Third, we asked incumbent officers to rate the quality of simplified versions of these stories. These ratings were used to select the most promising items for use in developing a measure of tacit knowledge. Finally, for those items selected, we expanded the simplified form of the items into a more detailed problem scenario accompanied by a set of possible responses which created a complete tacit knowledge question. We elaborate upon each of these steps below.

Identification of Tacit Knowledge

In the first phase of the inventory development, we conducted a systematic review of Army trade publications to obtain preliminary insight into the experience-based, tacit knowledge of Army leaders (see Horvath, Williams, et al., 1994). This review was followed by a series of interviews with 19 battalion commanders to acquire concrete examples of what these leaders have learned on their jobs (see Horvath, Forsythe, et al., 1994). These interviews produced a body of knowledge in the form of interview transcripts and summaries. During the interviews, we asked officers to "tell a story" about a personal experience from which they learned something important about leadership at the battalion level. Interviewers and interviewees worked together to clarify and capture the important features of these experiences. From the transcripts of these interviews we compiled a set of story summaries which formed the basis for tacit-knowledge inventory questions.

Next, we asked a panel of military experts to reach agreement on whether or not each story summary met our criteria as tacit. These experts were three senior members of the research team (two colonels and one lieutenant colonel) from the Department of Behavioral Sciences and Leadership at the U.S. Military Academy who had 72 years of military experience combined. Knowledge was considered tacit if it was: (1) acquired through personal experience, (2) intimately related to action, (3) not well supported by formal training or doctrine, and (4) pertained to leadership rather than technical performance. Stories that met these criteria were rewritten into a simplified, standard format using a series of "if-then" statements. An example of this format for a story from a battalion commander is shown below in Table 1. After narrowing down the set of stories, we asked members of the expert panel to sort the remaining knowledge items into categories of their own devising. This sorting produced content-based categories of tacit knowledge that provided early insight into developmental challenges at the platoon level. These categories (see Table 2), which we refer to again in a later discussion, were also used to select representative items for inclusion in the tacit knowledge inventory.

Table 1.

Sample Leadership Story and Summarized Tacit Knowledge Item

Leadership story: Handling Negative Feedback

After the first day at the NTC, I went to the head of OC to receive my after action review. The head OC was sitting in the rear of his track with his back to me. When I announced myself, he turned around and told me about the negative things my unit did that day. After I recorded all of the negative observations, I asked him if he had anything else for me because the battalion did some very positive things that day. He told me that, "There was not time at the NTC for positive feedback." I learned that I could not take only the negative news back to the batteries or take my frustrations out on them--I had to suck it up. I think the OC was testing me to see how I reacted to only negative feedback. I wish I had a CSM during the NTC rotation because he is a battalion commander's professional friend. He is one of the most important persons in the world to the battalion commander. A commander can talk about his frustrations to the CSM so that he does not take them out on the soldiers.

Tacit knowledge item: How to manage your frustrations as a commander.

IF you receive only negative feedback about your unit's performance
and

IF the lack of recognition of positive actions causes feelings of frustration
or

IF you need somebody to share your feelings with
and

IF you have a good relationship with your CSM

THEN discuss your frustrations and feelings with him or her

BECAUSE talking through your feelings with the CSM may prevent you from venting your feelings on your soldiers.

Table 2.
Categories of Tacit Knowledge for Battalion Commanders

Category	BCQ questions
Developing subordinates	B1, B11
Protecting the organization	B3, B4 ^a
Motivating subordinates	B4 ^a
Taking care of soldiers	B5, B6
Communicating	B7, B8, B9, B12
Managing self	B10
Dealing with poor performers	B13
No category affiliation	B2

^a Question B4 is composed of tacit knowledge items that represent two categories.

Note: Two additional categories, Establishing trust and Managing organizational change, were not represented by questions in the BCQ.

Item Selection

In the next phase of inventory development, we sought to identify tacit knowledge items that were most promising for inclusion in the actual inventory (see Horvath et al., 1996). We compiled the simplified set of tacit knowledge items obtained from the interviews into a survey (Tacit Knowledge Survey; TKS). The TKS was administered to Army officers attending two U.S. Army Training and Doctrine Command (TRADOC) schools. We asked the officers to rate the “quality” of each tacit-knowledge item. Specifically, we asked officers to make the following judgments about each tacit-knowledge item: (1) how good does the respondent think the advice is, (2) how commonly known does the respondent think the advice is, (3) how often do leaders at the specific level face situations such as the one described, and (4) to what extent does the advice match the respondent’s personal concept of leadership?

Based on the TKS ratings, we then sought to identify items that best discriminated between experienced and novice officers, as well as more and less effective leaders. To do so, officers were designated as experienced or novice battalion commanders based on their enrollment status in TRADOC schools and their previous experience. Students enrolled in the Command and General Staff College were designated as novice battalion commanders and students at the Army War College were designated as experienced battalion commanders because they had previously commanded a battalion. In a separate sample from the U.S. Army Forces Command (FORSCOM), we obtained ratings of leadership effectiveness for each respondent from his or her subordinates and superiors (ratings were not obtained from peers due to their infrequent contact with one another). Tacit knowledge items that received a much higher quality

rating from experienced than novice battalion commanders, and from more effective leaders, were viewed as having the best discriminating potential. That is, they were more likely to represent knowledge that is characteristic of experienced and successful officers. These items were identified as most promising for use in the Battalion Commander Questionnaire.

Inventory Construction

The next phase involved constructing an inventory that could be administered to battalion commanders to assess the relationship between measured tacit knowledge and measured effectiveness. To construct the inventory, we included items that best represented the categories of tacit knowledge derived in the interview study and best discriminated between experienced and novice officers as well as more and less effective leaders. We constructed preliminary tacit knowledge questions using the selected items and the interview summaries from which they were drawn. The selected tacit-knowledge items were expanded into a scenario that posed a leadership problem, along with a set of 5 to 15 possible responses to the scenario (see Appendix A for an example of a tacit-knowledge question). Respondents are typically asked to rate the quality of these response options for addressing the situation presented.

Once a preliminary inventory was constructed, we distributed copies of the inventory to a focus group of officers (lieutenant colonels and colonels) assigned to the faculty of the U.S. Military Academy (but external to the research team) who had served as battalion commanders. We explained to these officers the goals of our project and how we defined tacit knowledge in the context of military leadership. We then asked the members of the focus group to evaluate the "fit" of our inventory questions to the tacit-knowledge construct. We asked members questions such as "Does this question represent the type of problem that leaders learn to solve through experience?" and "Does this question tap knowledge of the sort that we have defined as 'tacit knowledge'?" We also asked focus group members to help "fill gaps" and "fix problems" in the inventories. In particular, we asked them to a) provide additional, plausible response options for any question, b) identify areas of confusion or lack of clarity, c) identify problems of gender, racial, ethnic, or "branch" bias, and d) identify anything that did not "ring true" in the inventory questions. We then revised the inventories based on the judgments and suggestions of the focus group members.

Construct Validation

Throughout the development of the BCQ, we sought to provide support for the validity of our instrument. The goal of establishing validity is to show that an instrument in fact measures what it is intended to measure. For our purposes here, this means that the questions composing the BCQ measure tacit knowledge relevant to battalion commanders and that scores on the inventory relate to a relevant external criterion (i.e., leadership effectiveness). We first discuss the internal structure of the BCQ, including how we ensured the relevance and representativeness of the tacit knowledge items included in the inventory. We then present results from our construct validation study on the BCQ, including evidence of its reliability and the relationship between tacit knowledge and leadership effectiveness.

Internal Structure

In developing the BCQ, we attempted to include tacit knowledge items that were both relevant to the construct of tacit knowledge and representative of the entire domain of tacit knowledge for battalion commanders. The relevance of the items was supported initially by asking officers to talk about their personal experiences rather than leadership doctrine or theory, and later by asking a sample of experts to judge the relevance of each item to the tacit knowledge construct. With construct representativeness, the goal is to include items that are applicable to a broad sample of battalion commanders. We obtained a representative sample of items by asking experts during various stages in the inventory development to identify and remove items that were too technical or narrow in focus, or exhibited racial, ethnic, or gender bias.

Another way to insure the representativeness of the items included in our inventory is to understand the underlying structure of the tacit knowledge construct. In other words, is the tacit knowledge of battalion commanders characterized by different types, or categories, of knowledge? As a preliminary step in the development of the BCQ, we sorted the tacit knowledge items into categories reflecting the main areas of tacit knowledge relevant to battalion commanders. In constructing the inventory, we aimed to select items to represent each of these categories. In Table 2 (shown above) we show the questions included in the BCQ that are associated with each category.

In addition to these categories, we sought to identify broader themes (dimensions) reflected by the tacit-knowledge items we obtained. These themes were considered to represent the developmental challenges faced by battalion commanders and are summarized in Table 3.

Table 3.
Dimensions of Battalion Commander Tacit Knowledge

Dimension	Label	Explanation
1	Communicating a vision	Communicating goals by describing a future end state; including in that message issues of character, moral fortitude, and tough love (doing the right thing for the sake of the subordinate)
2	Establishing a climate for development	Communicating a set of beliefs or attitudes that allows subordinate development; reinforcing the statements by providing a structure of activities that supports such development
3	Managing the leader and the subordinate	Managing oneself while simultaneously "managing by exception" the problems that occur within the organization; considering the actions the leader should take to establish subordinate trust in the culture/climate/vision that has been communicated
4	Providing constancy	Providing stability by reinforcing the desired end state at every opportunity; communicating and maintain a uniform "commander's intent"
5	Using influence tactics	Providing structure that allows subordinates to achieve desired levels of performance; maintaining authority by employing the full range of influence tactics; establishing parameters (in the form of formal controls) that reinforce subordinates' trust in core values

Reliability

The initial BCQ contained 16 tacit knowledge questions, each consisting of a leadership problem and several possible responses. We administered the BCQ to 31 battalion commanders who were instructed to rate each response option separately according to how well it addressed the problem. Battalion commanders' responses were scored based on how far their ratings were,

on average, from a group of designated experts who also completed the questionnaire. (This distance scoring method is described in Hedlund et al., 1998). Using this method, the closer a battalion commander's ratings were to the experts, the greater his or her tacit knowledge for military leadership.

Each question in the inventory is intended to contribute to the measurement of an officer's overall tacit knowledge for military leadership. Ideally, these questions should fit together well as a whole; that is, they should consistently measure the same concept. Tacit-knowledge inventories, however, are unique in that they consist of complex questions that measure rather specific knowledge. Officers may vary in the consistency of their responses depending on their familiarity with the situations presented in these questions. As such, we do not expect to obtain the same level of internal consistency as those found for other measures (e.g., verbal reasoning tests). We consider lower levels of reliability (values for coefficient alpha below .80 on a scale from .00 to 1.00) to be acceptable for our purposes. Using coefficient alpha to measure internal consistency, we obtained an initial reliability for the 16-item BCQ of .59. Given the complexity and the preliminary nature of our instrument, we considered this level acceptable and proceeded to examine the data further to identify potential questions that may have affected the internal consistency of the inventory.

We identified five questions that exhibited a poor "fit" with the inventory. Military members of the research team examined the content of these questions further and concluded that two questions (B1 and B16) appeared to represent knowledge that was fairly well-established and thus did not adequately fit our definition of tacit.¹ We felt that these questions would not differentiate well between those with more and less tacit knowledge, and so decided to remove these questions from the inventory. A third question (B15) was considered to represent a narrow domain of tacit knowledge as it referred to military intelligence. We decided that the tacit knowledge reflected in this question would not be representative of most military leaders' experience and therefore should not be used to assess the possession of tacit knowledge by Army officers in general. This question (B15) was also removed from the inventory. Finally, we concluded that two questions (B4 and B12) were likely misinterpreted because in each case the problem/situation was not clearly defined. We felt that this issue could be addressed by minor revisions to the problem stem and response options. These revisions attempted to more closely match the original leadership story from which the tacit knowledge was elicited. For question B4, we expanded the problem stem to place additional constraints on the situation (e.g., limited time and resources for establishing training priorities) which we felt would make certain response options more preferable than others. This is now question B3 in the revised inventory. For questions B12 we changed the emphasis of the goal presented in the problem stem to "helping him [the company commander] understand" his problem as opposed to "communicating to the company commander that he is hurting himself." This is now question B11 in the revised inventory.

¹ Question numbers refer to the initial version of the inventory used in the construct validity study (see Hedlund et al., 1998).

After removing three questions, the revised Tacit Knowledge for Military Leaders: Battalion Commander Questionnaire presented here contains 13 questions and has a reliability of .66 (see Appendix A). We have renumbered the questions to reflect these changes.

Criterion-Related Validation

In the preceding discussion, we focused on the internal structure of the inventory, describing the steps we took to ensure that the questions appropriately measured the construct of tacit knowledge. Another method of establishing validity is in reference to external criteria. In other words, the BCQ should not only provide an effective measure of tacit knowledge, it should also serve as a valid indicator of leadership performance (criterion-related validity). Our work was predicated on the expectation that leaders who possess greater tacit knowledge are more effective than those with less tacit knowledge. We also proposed that this tacit knowledge would explain leadership performance better than other potentially valid measures like general verbal ability and experience.

In order to assess the criterion-related validity of the BCQ, we administered measures of verbal ability (the Concept Mastery Test; Terman, 1950), experience, and tacit knowledge for civilian management (the Tacit Knowledge Inventory for Managers; Wagner & Sternberg, 1991) along with the BCQ to our sample of 31 battalion commanders from six posts across the U.S. A measure of verbal ability was included because general ability is commonly used as a predictor of performance in many professions. Our aim was to show that tacit knowledge could explain performance better than verbal ability. Experience, as measured by the number of months in current job, was included to show that tacit knowledge is more than just the amount of experience one has; it is what one learns from experience that matters. Tacit knowledge for managers was measured to show that tacit knowledge is domain-specific. That is, we expect that tacit knowledge for leaders should explain leadership performance better than tacit knowledge for managers. Finally, for the criterion of leadership performance, we obtained ratings of each battalion commander's overall, task, and interpersonal effectiveness from his or her company commanders (subordinates) and brigade commander (supervisor). We did not obtain ratings from fellow battalion commanders (peers) because of their limited opportunities to evaluate one another's effectiveness.

The BCQ was scored by comparing battalion commanders' responses to those of designated experts (the distance scoring method is described in Hedlund et al., 1998). We found that battalion commanders who possessed greater tacit knowledge, as indicated by high agreement with the experts' ratings, were rated higher on overall leadership effectiveness by their brigade commanders (with a correlation of .42). Experience and verbal ability showed no significant relationship with perceived effectiveness. However, subordinate company commanders rated battalion commanders who exhibited higher tacit knowledge for managers as more effective on task-related leadership. The limited number of battalion commanders included in our sample precluded us from further exploring these results.

The results of our preliminary study to assess the validity of the BCQ suggest that tacit knowledge has the potential to contribute to our understanding of what it takes to be an effective leader. However, these results are based on data from a very limited sample of battalion

commanders and do not constitute an extensive validation of the BCQ. Although we found a positive relationship between tacit knowledge and overall effectiveness as perceived by brigade commanders, this relationship was not found for interpersonal and task dimensions of leadership. We also did not find significant relationships between tacit knowledge for military leaders and ratings of effectiveness by company commanders. Due to the preliminary nature of these results, we do not recommend that the BCQ be used as a basis for personnel decisions or for any other comparisons between officers. But we do feel that the BCQ has much to offer as a potential leadership development tool. We discuss below some potential applications of the BCQ.

Applications in Leader Development

Our work thus far suggests that tacit knowledge, as measured by the BCQ, plays a role in understanding leadership effectiveness. Specifically, we found that battalion commanders with higher tacit knowledge were perceived as more effective by their superior officers. This finding increases our confidence that, as a product of our work, the BCQ may be useful to leadership development and organizational learning initiatives. In this final section, we elaborate on some of the potential uses of this product, which is included as Appendix A.

Potential Uses

The objective of our work all along has been to identify an important area for leadership development and to offer potential tools to assist in that development. Tacit-knowledge inventories are not intended, or commonly used, as a basis for employment decisions such as selection and promotion. Although our preliminary data indicate that tacit knowledge does exhibit some relationship with leadership effectiveness, it would be inappropriate to use performance on the BCQ to evaluate one's ability or potential ability to be an effective leader. The acquisition of tacit knowledge depends on the ability to learn from experience and the opportunities available to learn. A low tacit knowledge score may represent a lower level of knowledge than the experts, or it may simply indicate that an officer does not agree with the experts' tacit knowledge. We recommend that the BCQ be used as a developmental tool to share the "lessons learned" of others, to stimulate discussions, and to evaluate one's own tacit knowledge relative to the experts. We discuss some potential uses of the inventory and the data we have obtained so far (see also Horvath et al., 1998).

Identification of developmental opportunities.

The tacit-knowledge questions and the categories they represent can provide insight about the key developmental opportunities officers may face. The tacit knowledge we elicited reflected critical situations in which leaders learned something about how to be an effective leader. Officers can refer to the categories and dimensions of tacit knowledge referenced earlier (see Tables 1 and 2) to identify the major areas of leadership development. They can then consult the associated tacit-knowledge questions to learn more about the types of situations that are relevant to those categories. The scenarios may suggest particular situations that leaders should attend to in their own experiences, situations that may offer them important developmental opportunities.

Reading through the tacit knowledge questions may also give battalion commanders insight about their own experiences and what they have learned. For example, after reading about a battalion commander whose orders were communicated inaccurately down the ranks, an officer may reflect back on how he or she has experienced a similar problem. The officer can compare how his or her response relates to the options that accompany the tacit knowledge scenario.

Classroom instruction and discussion.

The BCQ may also serve as a stimulus for classroom instruction and discussion. The tacit knowledge questions represent potentially rich sources of insight into the practical knowledge that guides action. We found that tacit knowledge was embedded in situations and stories that leaders shared about their experiences. As such tacit knowledge is conducive to case-based instruction, which is a powerful and proven way of teaching professionals. Each leadership scenario and its associated response options can be treated as a case to be reviewed and evaluated as part of a class assignment. Instructors may also be interested in acquiring the original leadership stories from the authors to examine the cases in more depth.

The scenarios included in the BCQ could be used to stimulate group discussion. For example, officers could be asked to review a scenario about a brigade commander making last minute changes in the battalion's training schedule and its associated response options. They could then be asked to discuss what they would do about the schedule change, why they would consider certain options to be better than others, and what might be the potential effects of choosing a particular option. The tacit knowledge categories and dimensions, as described above, can help organize the content of the tacit knowledge material and suggest areas of leadership development that deserve emphasis.

To supplement the tacit knowledge questions, instructors can also make use of the expert response data. For our construct validation study, we obtained ratings from designated experts for each question in the BCQ. Fifty-nine students at the Army War College (AWC) served as the expert group for the BCQ. AWC students are lieutenant colonels and colonels who are selected to attend this school based primarily on their demonstrated excellence as battalion commanders. We administered the BCQ to this expert group and used their responses to create an expert profile for the inventory.

These data can be used to generate expert "rules of thumb" regarding which response options the experts viewed as more and less appropriate. Instructors could teach these "rules of thumb" directly or use them to stimulate class discussion. The latter may be a more appropriate use of the expert data since there may be disagreement about which responses are viewed as good or bad according to the experts and instructors.

The expert "rules of thumb" can be most readily seen by examining the percentage of experts who rated each response option in the following categories: bad (a rating of 1, 2, or 3), neither good nor bad (a rating of 4, 5, or 6), and good (a rating of 7, 8, or 9). Graphs showing the pattern of expert responses for each scenario are included as Appendix B. The response options are indicated on the vertical axis and the percentage of experts rating the response option as bad

(shown in black), neither good nor bad (shown in gray), or good (shown in white) is indicated on the horizontal axis. The graphs are interpreted by examining the distribution of experts in each of the three response categories. A high percentage of responses in the bad category (black) shows that most of the experts considered this option to be bad. A high percentage of responses in the good category (white) means this option was considered to be a good one by most of the experts. A fairly equal percentage in all three categories indicates that the experts did not express strong agreement that the response option was bad, neither, or good. In looking at question B1, for example, it is clear that options 2, 6, 8, 9 and 12 were considered bad by the majority of experts, while options 3, 7 and 11 were considered good by most.

For a given scenario, an officer can refer to the graph and readily identify options that were clearly viewed as good or bad by the experts. This expert advice could be taken at face value or evaluated further to determine why the particular option may have been seen by the experts as good or bad. Officers in a leadership development course could be asked to discuss their agreement or disagreement with the experts' ratings. A valuable exercise might also involve examining the options that the experts rated in the middle, or for which the experts did not agree, and to consider why these options were rated as such. Since we do not have data regarding the experts' justification for their responses, a class activity could entail asking officers to develop potential explanations for the experts' responses. This activity would encourage officers to examine the problem more closely and to consider possible contingencies that may result in a particular response appearing more or less appropriate.

Self-assessment.

Many of the uses discussed above can also be applied to self-study. Officers can review the scenarios on their own and evaluate the expert responses. They can also gain feedback about their own tacit knowledge relative to the experts by completing the inventory and scoring their responses. Officers can answer the tacit knowledge questions by following the instructions provided. They can then refer to the scoring procedures described below to score their responses and assess their level of tacit knowledge.

Officers can evaluate their scores on a particular question, in a certain category, or on the inventory as a whole. The scores can be used for diagnostic purposes to assess how much tacit knowledge an officer has acquired compared to expert battalion commanders. An officer may identify certain areas in which he or she needs to seek out additional learning opportunities. Once again, scores on the BCQ should not be interpreted to suggest that some officers have higher ability than others do.

Scoring and Interpretation

The scoring procedure for the BCQ involves comparing one's responses to those of the experts. Once again, these scores are not intended for use in comparing officers in terms of their level of tacit knowledge. In order to allow potential users to score their responses to the inventory, we have developed a simple, user-friendly scoring procedure based on the expert profile we used to score the inventory in our research. (A more precise scoring method is described in Hedlund et al. (1998) that involves computing the actual distance of each response

from the expert mean. The expert data and a method for computing distance scores are available from the authors.)

The scoring procedure presented here is based on the sample of 59 students at the Army War College (as described above) who were designated as expert battalion commanders. Their responses to the BCQ were used to compute an expert profile consisting of a mean and standard deviation. The mean represents how the experts, on average, rated the response option on a scale from bad (1) to good (9). For example, a mean rating of 2.5 indicates that the experts, on average, felt the option was bad. A mean rating of 4.5 indicates that the experts generally considered the option to be neither good nor bad. And an 8.5 would mean the experts generally viewed the option as good. The standard deviation indicates the variability among experts in their responses (i.e., the extent to which the experts agreed that a response was good or bad). A smaller standard deviation indicates that the experts generally agreed in their ratings of a particular response option. A larger standard deviation suggests that the experts varied in their ratings.

Using this information, we can create a confidence interval around the mean. This confidence interval represents the values within which the true expert mean is likely to fall, given that our experts varied in their responses. In other words, this confidence interval takes into account the variability in the experts' responses in determining the true mean rating for the expert group. We have chosen to use a confidence interval that consists of the mean plus or minus one standard deviation. In other words, almost 70% of the expert population will fall within this interval in their ratings. This interval can be used to gauge how expert-like one's responses are. Responses that fall within this interval can be considered in greater agreement with the experts than those that fall outside the interval.

We have developed charts for each question that present the confidence interval around the expert mean so that respondents can evaluate their agreement with the experts. Answer sheets are included as Appendix C and the charts for scoring one's responses are provided as Appendix D. The instructions accompanying the BCQ ask you to rate, on a scale from 1 to 9, how well each response option addresses the leadership situation described. The answer sheet corresponding to the question number (e.g., B1) can be used to record your ratings. The response options for each question are numbered in the order that they appear in the inventory. After answering all the options for a particular question or the entire inventory, you can refer to the scoring charts.

The scoring charts again indicate the question number (e.g., scenario B1) and the response options (in the order presented). For each answer, refer to the corresponding question and response option on the scoring chart. The response options are indicated on the vertical axis and the rating values (1 through 9) are shown on the horizontal axis. The scoring chart shows a 70% (approximate) confidence interval around the expert mean (indicated in white). Scoring your answer involves determining if your rating falls within the expert confidence interval, or the white range, for that response option. If your response is within the interval, record a "1" on the answer sheet. If your response falls outside the interval, record a "0" on the answer sheet. For example, if you rated question B1, response option 1 a "7" your answer falls within the 70% interval of the expert mean. You would receive one point and would be considered in agreement

with the experts. If you rated the same question a "3" your answer falls outside this interval and you would receive a zero.

Once you have scored all your responses for a question, you can add up the points in the second column and record next to total score. To evaluate your tacit knowledge for individual questions, you can divide your total score by the number of response options. To assess your overall tacit knowledge on the BCQ, sum the total score for all 13 questions and divide by 130. This will provide you with a percentage (out of 100%) of the number of questions for which your ratings agree with those of the experts. The higher the percentage, the greater your level of tacit knowledge for military leadership. For example, if your total points are 114, your score would be .88 meaning that you agreed with the experts on 88% of your responses and thus exhibit fairly high tacit knowledge. Using the same procedures, you can also compute scores for subsets of questions such as those associated with the categories indicated in Table 2. These scores should be used only for the purposes of self-assessment, that is, to evaluate one's own level of knowledge compared to the experts.

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APPENDIX A

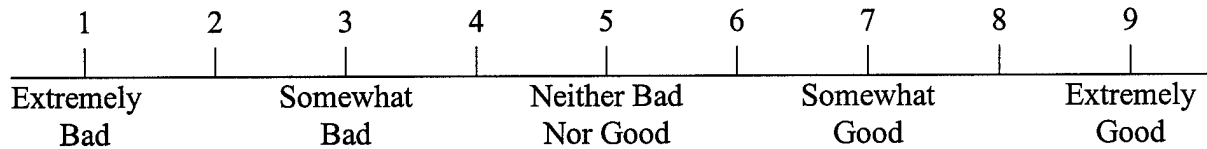
TACIT KNOWLEDGE FOR MILITARY LEADERS:
BATTALION COMMANDER QUESTIONNAIRE

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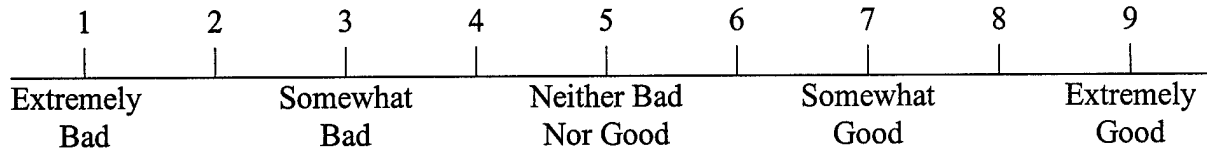
OVERVIEW AND INSTRUCTIONS

This survey was developed as part of the Tacit Knowledge in Military Leadership project to measure the practical, action-oriented knowledge that Army leaders acquire on the job. The project's main objectives were to identify the important lessons of experience that enable officers to be effective leaders and to use that knowledge to enhance leadership development.

This survey consists of descriptions of typical situations encountered by military leaders. After each situation, there are several options for how to handle the situation. For each option listed, you are to rate the quality of the option on the following 1-to-9 scale:



Select the number corresponding to your answer, and write it in the blank preceding the option (or on the answer sheet provided). Remember that some or all of the options listed for a particular question may be good, some or all of the options may be bad, or some or all of the options may be neutral (neither bad nor good). There is no one "right answer," and in fact there may be no "right answers." The options are simply things an officer at this level might do in the situation described. Please rate each individual option for its quality in achieving the goal or solving the problem described in the question. Do not try to "spread out your ratings" just for the sake of doing so. If you think all of the options are good, bad, or whatever, rate them accordingly. **DO NOT BE CONCERNED** if the numbers are all 9s, all 5s, all 1s, one 9 and the rest 1s, or any other mix. Your answers should reflect your opinions about the quality of the options.



B1. You are a new battalion commander, and you want to develop detailed knowledge of the strengths and weaknesses of each of your company commanders. Rate the following strategies for their effectiveness in helping you gain this information:

_____ If you plan to talk to the soldiers, discuss beforehand with each company commander your intention to talk directly to the soldiers and explain your reasons for doing so .

_____ For each company, direct a sensing session of the entire company with the company commander present in order to get a sense of the unit.

_____ Ask the command sergeant major, battalion XO, and operations officer for their assessment.

_____ If you choose to talk to the soldiers, express your desire to each company commander to use the information you will learn to help with their development as leaders.

_____ Ask your company commanders to talk to their own soldiers and ask a specific list of questions, and then report back to you with the information they have learned.

_____ Talk directly (in private) with the soldiers and ask them to comment on the commanders' strengths and weaknesses.

_____ Talk directly (in private) with the soldiers and ask them their opinions about the quality of their training, what they are learning, and other impressions they have.

_____ Ask your company commanders to speak to other commanders' soldiers (not their own soldiers) and report back to you with the information they have learned.

_____ Assign a battalion staff member who does not rate the company commanders to speak with the soldiers and report to you on what he/she learns.

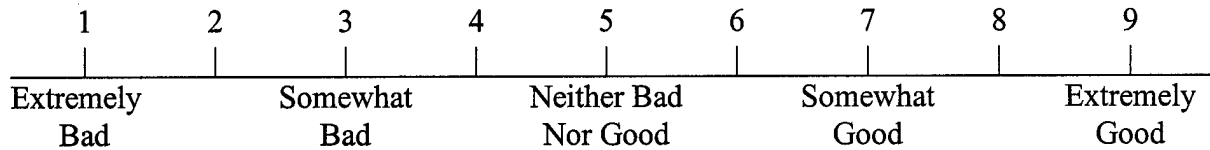
_____ Rely on historical statistical indicators of performance.

_____ Talk directly (in private) with the soldiers and ask them specific questions about their work hours, their job descriptions and responsibilities, and other factual items.

B1, Continued

_____ Speak to the company commanders individually and ask each of them to comment on the strengths and weaknesses of the other company commanders and units.

_____ Ask the brigade commander for his/her assessment.



B2. You are a battalion commander and it is the end of your first battle at a major externally-evaluated training exercise, during which your unit revealed some major shortcomings. During the After Action Review, the Chief Evaluator is highly critical of the battalion and dwells on all the negative things your unit did that day. You carefully record all of the negative observations, but you know full well that the battalion also did some very positive things that day. What should you do?

_____ Leave the After Action Review and return to your units; once there, communicate exactly what the Evaluator said.

_____ If you have a good relationship with your CSM or other similar person, discuss your frustrations and feelings with him or her.

_____ Forget about trying to get any positive feedback: Thank the Evaluator directly for the negative feedback, say you will deal with the problems immediately, and do so without expecting anything more from him.

_____ Be careful not to vent your frustrations with the Evaluator's feedback in front of the soldiers or your junior officers.

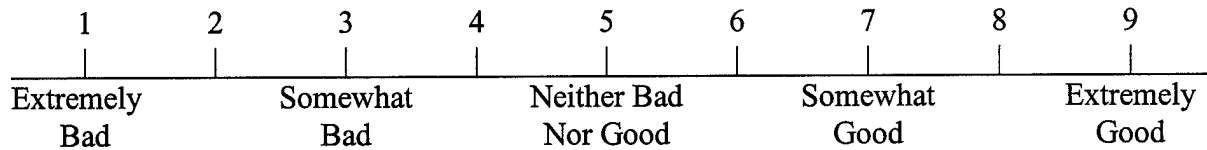
_____ Ask the Chief Evaluator if he has anything else he would like to say.

_____ Mention one or two successes the battalion had, and ask the Evaluator if he would like to comment on these positive events.

_____ Leave the After Action Review and return to your units, but when you report to them make sure to note the successes that occurred that day as well as the failures and shortcomings.

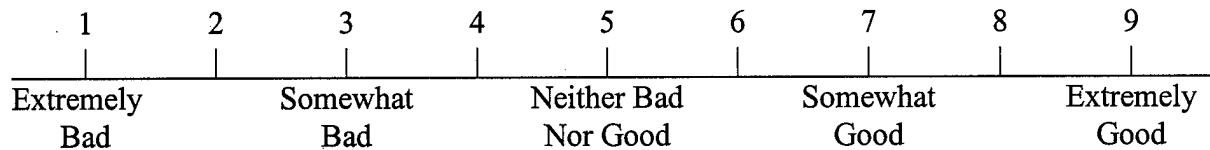
_____ Speak to the Evaluator at another time, and state your desire to receive positive as well as negative feedback so that you know what the units are doing right and wrong.

_____ Share your feelings with a friend or confidante at your own level to help you work through any negative feelings.



B3. You are a new battalion commander and one of your most important and challenging tasks is to establish the training priorities for your unit. While everything looks important and you would like to meet every possible contingency, you also realize that you do not have the time or resources to "do it all." Rate the following strategies for how effective they would be in helping you establish your priorities.

- _____ Study the brigade's training schedule.
- _____ Talk to the brigade S-2, S-3, and CSM to verify your understanding of the brigade commander's training focus.
- _____ Schedule meetings to discuss training with each of your staff members during your first week of command.
- _____ Explain your goals and your plans for the battalion very clearly to your officers and staff.
- _____ Assess the tactical and technical competence of your soldiers individually by giving them formal and informal tests.
- _____ Rely on the assessments made by the previous battalion commander.
- _____ Select three to five upcoming missions (based on the brigade training plan) to focus your soldiers' energy on.
- _____ Before doing anything, make sure you understand the commander's intent two levels up.
- _____ Soon after taking command, visit each staff section's shop and get a full briefing on their operations.
- _____ Talk to the brigade commander to determine his training priorities.



B4. You are a battalion commander. Your brigade commander has made it clear that he does not wish to speak with you about pressing issues that arise in your battalion. Also, he expects perfection from your battalion at all times, and he seems to view your battalion's poor performance at the JRTC as unforgivable--he keeps harping on past failures. The brigade commander does not provide you with feedback on your strengths and how to improve your weaknesses. His communication style is formal, abrupt, and in your opinion, ineffective. He begins every conversation by reminding you that you are only an 0-5. You are frustrated because you never know where you stand, performance wise, in your brigade commander's eyes and you lack a person from whom to receive performance feedback. In general, you find your situation with the brigade commander to be intolerable, and morale in your unit seems dangerously low. What should you do?

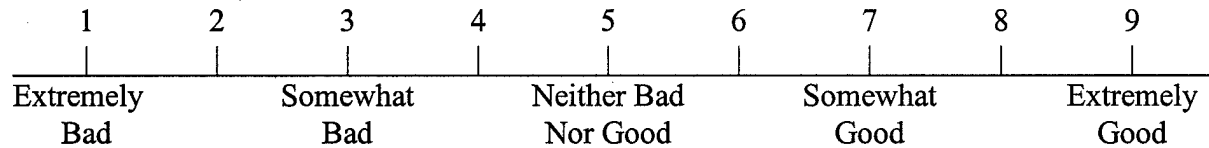
- _____ Speak to the Assistant Division Commander, explain your need for extra feedback, and request feedback on your performance.
- _____ Deal with the brigade commander as best you can, but hold regular sessions with the members of your unit to air concerns and voice problems in the hope of improving morale.
- _____ Remain loyal to the brigade commander so you do not model disloyalty in front of the members of your unit.
- _____ Seek a formal appointment with the brigade commander, state that you and he seem to have a problem, and ask him why.
- _____ If you choose to speak with the Assistant Division Commander and your officers are critical of your decision, then explain your reasons for your actions to them and let them know they are welcome to voice concerns about how you are leading the unit.
- _____ Speak to your family members, the chaplain, or other friends from outside the military in order to deal with your personal frustrations.
- _____ Jump the chain of command and speak to the Assistant Division Commander about the problem with the brigade commander.
- _____ If you speak to the Assistant Division Commander, prepare yourself for the possibility of a disruption of loyalty in your own unit.

B4, Continued

_____ Talk to your fellow battalion commanders about the problem and try to develop a joint solution.

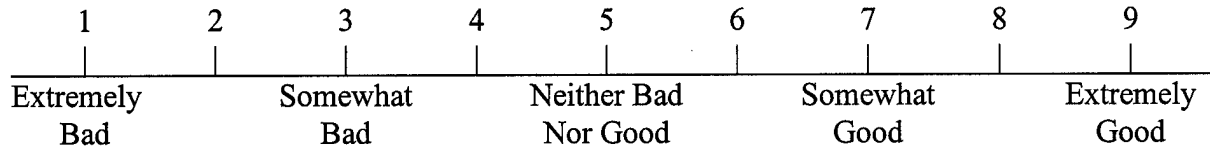
_____ Request advice from one of your brigade commander's superiors whom you already know and trust.

_____ Talk to the brigade XO and the brigade S3 and try to get some information.



B5. You are a battalion commander and your goal is to implement effective training. Rate the following strategies in terms of how good they would be at achieving your goal.

- _____ Provide soldiers and their families with a copy of an extended training schedule (for example, six months out).
- _____ Develop specific rules and procedures that your battalion uses regularly in order to manage training.
- _____ Go to the brigade S-3 and demand that the training schedule not be changed.
- _____ Give soldiers three or four-day holiday weekends whenever possible.
- _____ Take into consideration school vacations and events when planning training.
- _____ Brief families collectively on the extended training schedule once it has been developed-- have a family dinner in the mess hall, for example, and then go over the extended training schedule.
- _____ Be willing to change the training schedule in order to capitalize on unplanned training opportunities.
- _____ Have regular meetings with your brigade commander to keep him/her focused on what your battalion is doing.
- _____ If someone violates the training schedule without authority, and without good cause, recommend the person for appropriate punishment.
- _____ Once inside the specified time limit, do not make changes to the schedule once the schedule has been distributed.
- _____ If you take away a soldier's weekend for a training exercise, make sure he or she gets it back during another training cycle.
- _____ Try to dissuade your superiors from making sudden changes to the training schedule.
- _____ Communicate your training goals and your vision to your subordinates and your superiors.



B6. You are a battalion commander, and there are many unmarried soldiers in your unit. You are concerned about the special needs and problems unmarried soldiers may have, since they do not have a regular family life. Your goal is to ensure high morale for your unmarried soldiers. Rate the quality of the following strategies for achieving your goal.

_____ Take special pains to ensure that single soldiers have some place to be on holidays--by arranging meals or outings for single soldiers, for example.

_____ Discourage single soldiers from taking holiday leaves and encourage them to take on holiday duties so that married soldiers can spend holidays with their families.

_____ Maintain procedures and facilities single soldiers need in order to communicate with family members back home--provide access to telephones, writing supplies, and so on--and encourage the soldiers to keep in touch with their families.

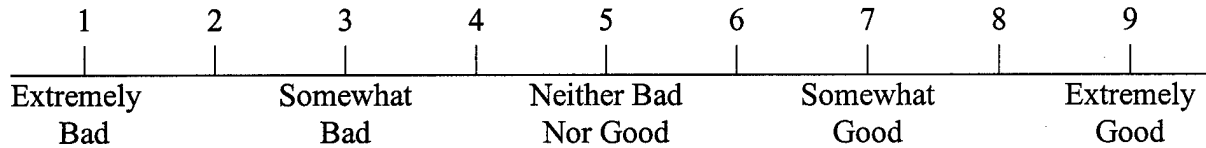
_____ Encourage married soldiers to invite single soldiers to their homes for holidays or other special occasions.

_____ Take measures (for example, obtaining furniture, making game rooms, and allowing soldiers to decorate the way they like) that will make the billets where the single soldiers live feel more like home to them.

_____ Allow soldiers from other units to share in the improvements you make to your soldiers' living quarters.

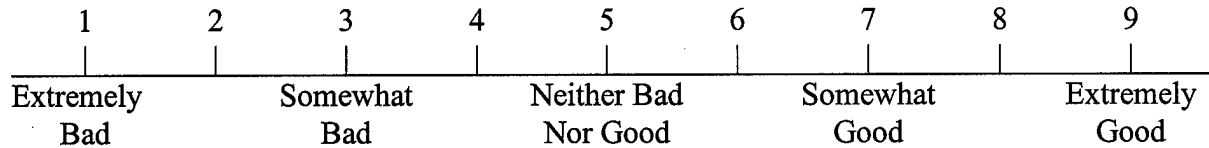
_____ Keep single soldiers busy with training and company sports so they won't get bored.

_____ Spend time with the single soldiers in their dining facility and gym.



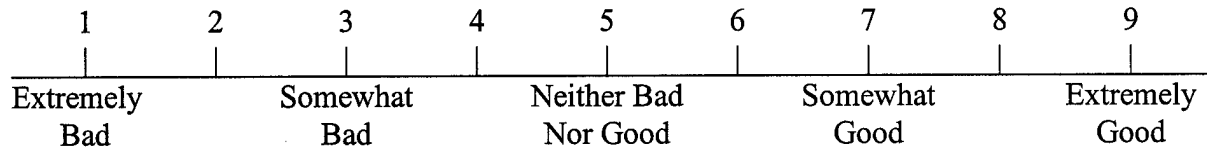
B7. You are a battalion commander, and you want to make sure that your soldiers and junior officers share your vision for the battalion. Rate the effectiveness of the following strategies for communicating your vision to your unit.

- _____ Distribute your command philosophy in writing to all soldiers in your battalion.
- _____ Reinforce your vision in all daily activities and interactions, and do so for the entire term of your command.
- _____ Do not adhere to a single perspective--be willing to change your vision as necessary to reflect changing needs of the unit.
- _____ On a daily basis, visit company areas in the garrison and in the field, and highlight shortcomings and the progress that has been made toward achieving your vision.
- _____ Communicate your vision starting on the first day of your command.
- _____ Reward those who support your vision, and punish those who don't.
- _____ Solicit feedback and ideas from your junior officers regarding your vision--be alert for ways to improve it.



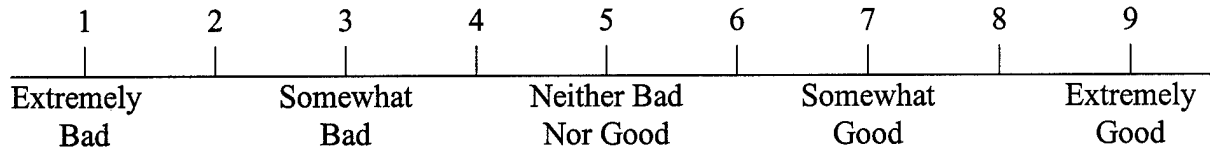
B8. You are an artillery battalion commander. You are in direct support of a brigade whose commander is a light infantryman, while your background is mechanized artillery. On several occasions, the differing perspectives of you and your brigade commander result in communication difficulties. For example, you are used to moving on the battlefield at a very fast pace, whereas your commander is used to moving at a slow pace. In fact, communication problems arise often between the two of you. Your goal is to improve your communication with your brigade commander. What should you do?

- _____ Ask a peer of your brigade commander, such as a divarty commander, for help with the problem.
- _____ Invite the brigade commander over to your house to watch a sporting event or movie and try to establish a friendship with him.
- _____ Speak to the brigade commander, express your feelings about why the two of you sometimes have trouble communicating, and ask for his help with the problem.
- _____ Make an effort to think from the brigade commander's point of view about your unit's activities and performance.
- _____ Speak to the brigade commander, ask him why he believes the two of you sometimes have trouble communicating, and ask for his help with the problem.
- _____ Find an interest or hobby you and your brigade commander share, then use this shared interest to develop analogies to help you communicate with him more effectively: In other words, talk in terms of topics you both understand.
- _____ Make an attempt to interact with the brigade commander as a person outside of the work environment, in a wide variety of settings.
- _____ Speak to your brigade commander's superior about the problem and ask for his advice.



B9. You are a new battalion commander and you are feeling somewhat lonely and frustrated with your job. Your goal is to manage your stress effectively so that it does not interfere with your ability and motivation to perform at your best. Rate the quality of the following strategies for achieving your goal.

- _____ Budget time for inspirational reading.
- _____ Develop a mutual support group with other battalion commanders--talk to them frequently.
- _____ Realize that dealing with stress is important to your promotion, and soldier on.
- _____ Spend more time at the office and work harder--recognize that more satisfaction will come from pushing yourself harder and getting more done.
- _____ Combat stress by engaging in physical exercise or an activity you enjoy.
- _____ Use your spouse or other close friend from outside of the military as a sounding board.
- _____ Use your junior officers to bounce ideas off of.
- _____ Talk over your feelings with the brigade commander.
- _____ Take up a hobby that is unrelated to your job demands.
- _____ Budget time for personal reflection and relaxation.
- _____ Keep a journal or notebook of ideas in order to organize your thoughts and work through things on paper.
- _____ Remind yourself often that all battalion commanders experience such feelings and that your feelings are normal and will resolve themselves in time.
- _____ Take as much leave as you are entitled to, and while on leave, do not think about work or have contact with work personnel.
- _____ Realize that it is your job to tough things out for 24 months.
- _____ Renew your vision and remind yourself of why you wanted to be a battalion commander.



B10. You are a battalion commander, and one of your primary goals is to ensure that your soldiers have predictability in their lives. Thus, you are concerned about planning training way in advance, and you make it a point to do so. For some time, your unit has been scheduled for a pre-planned battalion-level training exercise. At the last minute, there is a brigade command and staff meeting. At the meeting, the brigade staff announces that they are making major changes in your battalion training plan. What should you do?

_____ Ask to have a minute alone with your commander and express your concerns to him privately, allowing him to voice these concerns openly at the meeting if he chooses to do so.

_____ After the meeting, attempt to get a consensus among all the battalion commanders regarding this issue, and communicate this shared viewpoint to the brigade commander.

_____ Be silent, but try to recruit your commander to your position after the meeting is over.

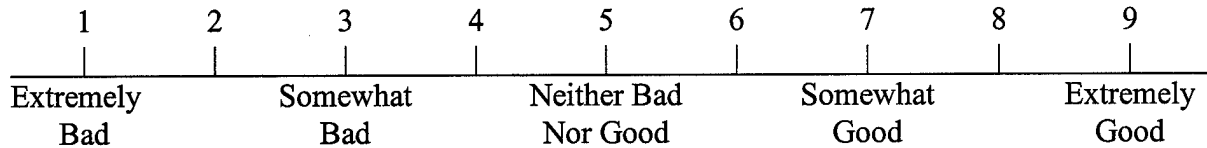
_____ State that soldiers need predictability in their lives, and note that the senior leaders should be setting the correct example.

_____ State that good training exercises require predictability so that leaders of all levels can learn.

_____ Stand up and remind the brigade staff, the brigade commander, and your peers about the brigade's specific doctrinal responsibilities for training.

_____ State that the brigade staff's proposal to change the short-term training schedules is a violation of training doctrine.

_____ Be silent: Do not try to second-guess the brigade staff's decision.



B11. You are a battalion commander. You have one company commander who is particularly intense. He sets extremely high--even unrealistic--standards for himself. While his company has yet to pay the price for this problem, his expectations are so high that he never can meet them, and this situation is hindering his personal health as well as his professional development as an officer. His company is scheduled for a major training exercise next month. Your goal is to help him better understand how he is hurting himself by maintaining unreasonable standards. Rate the quality of the following strategies for achieving your goal.

_____ Talk to all of your company commanders as a group about potential roadblocks to their development, mentioning too-high standards as one potential problem and describing examples to illustrate your point.

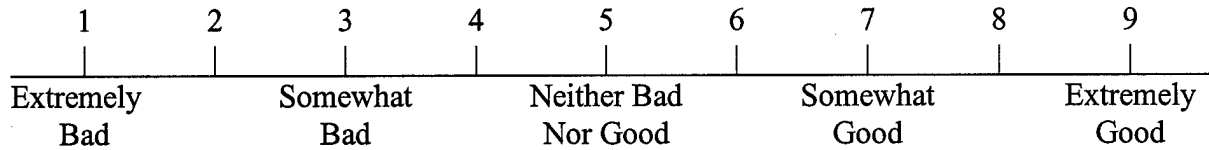
_____ Wait to speak to the company commander until after he goes to the training exercise, using examples based on his experiences there to illustrate your points.

_____ Do nothing: Allow him to learn from his own mistakes that no one can successfully maintain unrealistic standards forever.

_____ Ask another company commander to have a friendly chat with the obsessive company commander about the need to set realistic goals.

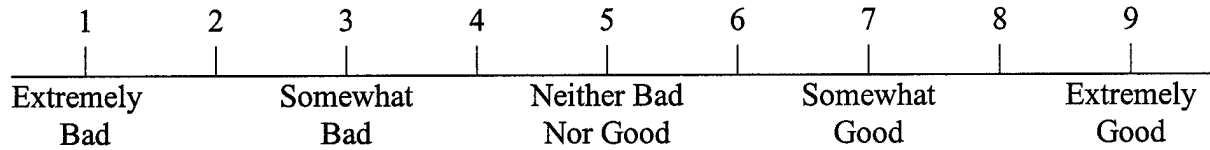
_____ Have a discussion with the company commander about his potential problem before he leaves for the training exercise, using examples you are aware of from your daily interactions with him in your unit.

_____ Warn the company commander before he goes to the training exercise that you believe he has a serious problem that requires his immediate attention and that may ultimately derail his career.



B12. You are a battalion commander, and you notice early in your command that your guidance often becomes distorted when it reaches the lower ranks. For example, one day you comment that you want the line companies at 100% personnel strength for aircraft mechanics before you will start to assign them to headquarters. A few days later, the headquarters maintenance tech asks you why you are going to fill the line units at 150% of authorized mechanics before assigning them to headquarters! Your goal is to ensure that your guidance is communicated accurately to all levels of the organization. Rate the quality of the following strategies for achieving your goal.

- _____ Hold meetings with your platoon leaders to verify what they know.
- _____ When you must communicate important information verbally, try to speak directly to as many officers and soldiers as you can.
- _____ Hold the chain of command responsible for accurately passing information down to lower ranks.
- _____ Work on your relationship with your senior NCOs.
- _____ Conduct periodic discussions with your soldiers to correct misperceptions, clarify your intent, and locate sources of information loss.
- _____ Ask your company commanders to conduct periodic discussions with the soldiers so that the company commanders can verify that the lower levels are receiving accurate information.
- _____ Whenever possible, post and distribute written statements outlining your objectives.
- _____ Encourage your junior officers to be on the lookout for soldiers' statements about your orders that are not completely accurate--and ask the junior officers to correct these misperceptions immediately.
- _____ Develop an NCO professional development program that stresses how to pass down information properly.
- _____ Spend more time leading by walking around the unit and talking to people.
- _____ Look for breaks in the chain of command.
- _____ Use multiple means of communicating the same message.



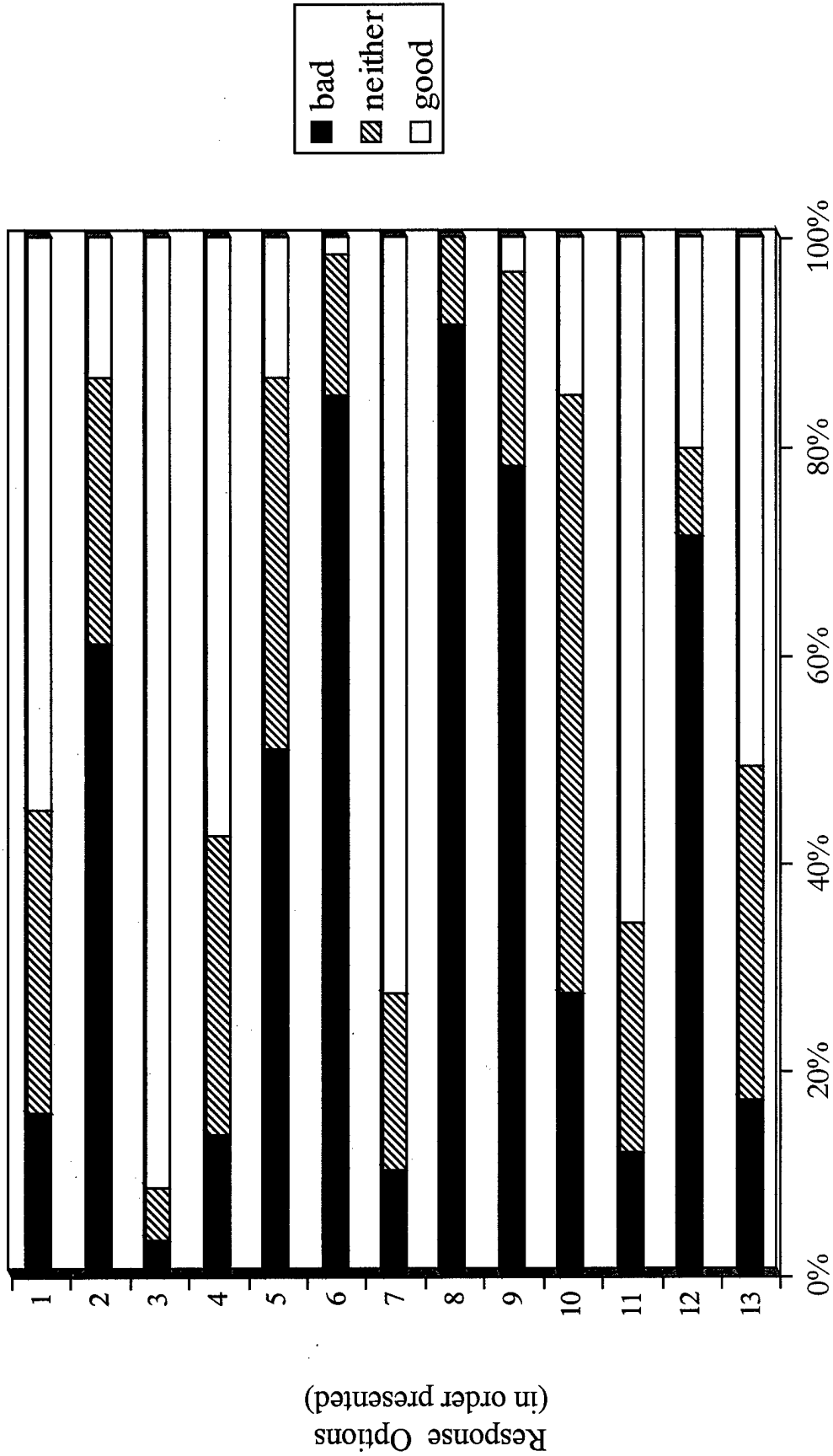
B13. You are a battalion commander. Reluctantly, you gave your S-1 a company command for his professional development, even though you had questions about his abilities. He was a loyal S-1, but not a very good one: He had problems with organization, and his workstyle was a bit "helter-skelter." In conversations with lieutenants you have learned that they are having a hard time with this individual. Also, as you walk around the battalion, you see other indications that confirm your doubts about this person's abilities. In general, you are concerned and you have doubts about this officer's ability to command effectively. What should you do?

- Ask your sergeant major to spend more time coaching the former S-1.
- Ask a competent company commander to mentor the problematic officer.
- Provide the former S-1 specific help with organization such as hints and strategies you and others have found useful.
- Set the former S-1 up with a strong 1SG and company XO.
- Explain to the former S-1 specifically why it is important for him to change his behavior for the soldiers' benefit.
- Help the lieutenants you spoke with to work through their direct superiors to solve problems.
- Communicate regularly with the officer and encourage him to use you as a resource whenever he has problems.
- Come down hard on the former S-1 about his shortcomings and threaten to take disciplinary action if he does not improve.
- Conduct sessions with the former S-1 during which you talk to him about aspects of his behavior you want changed.
- Talk to the S-1's first sergeant to get a better feel for what's going on.

APPENDIX B

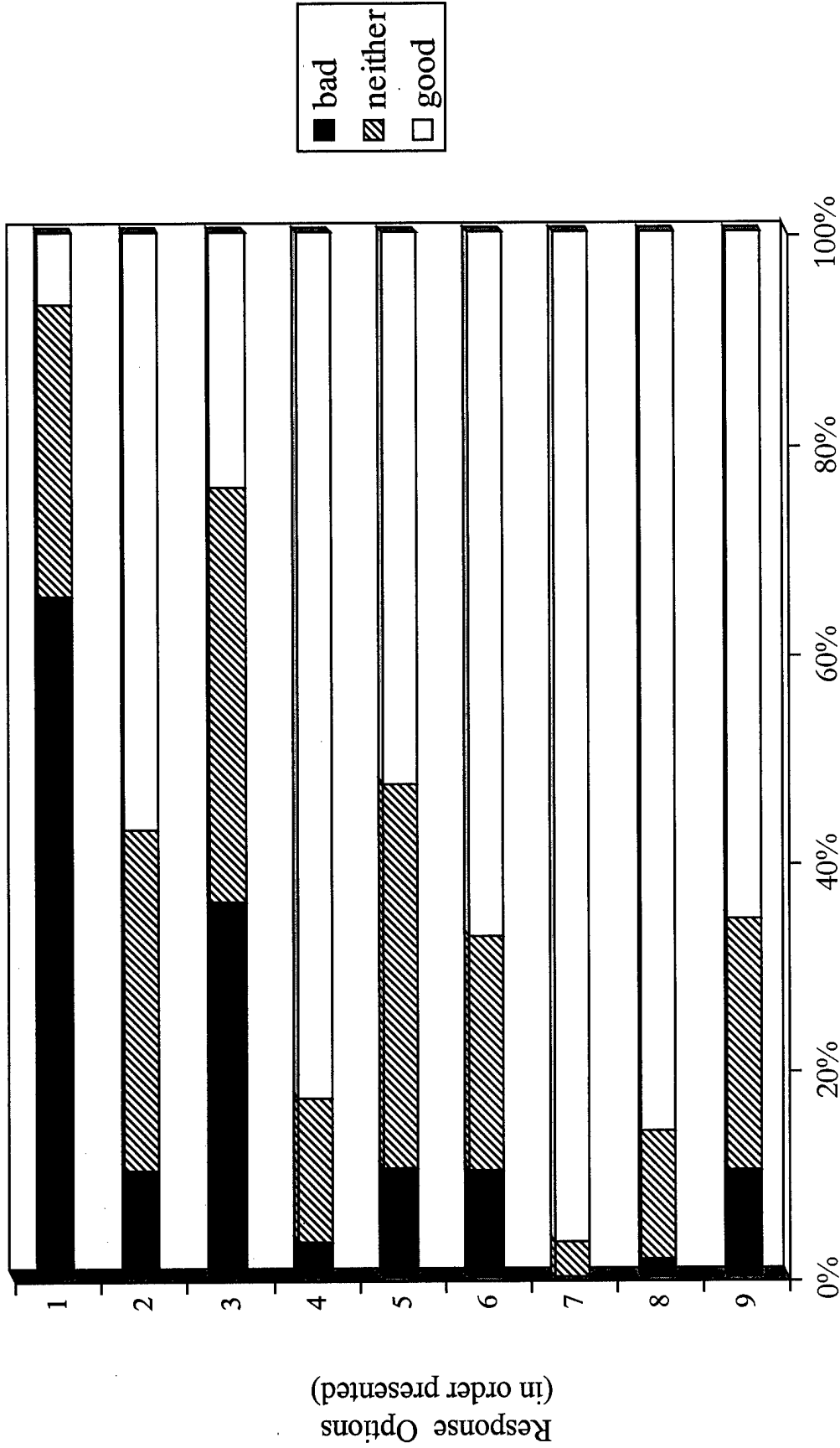
EXPERT RATINGS FOR BATTALION COMMANDER QUESTIONNAIRE

Expert Ratings of Response Options for Scenario B1



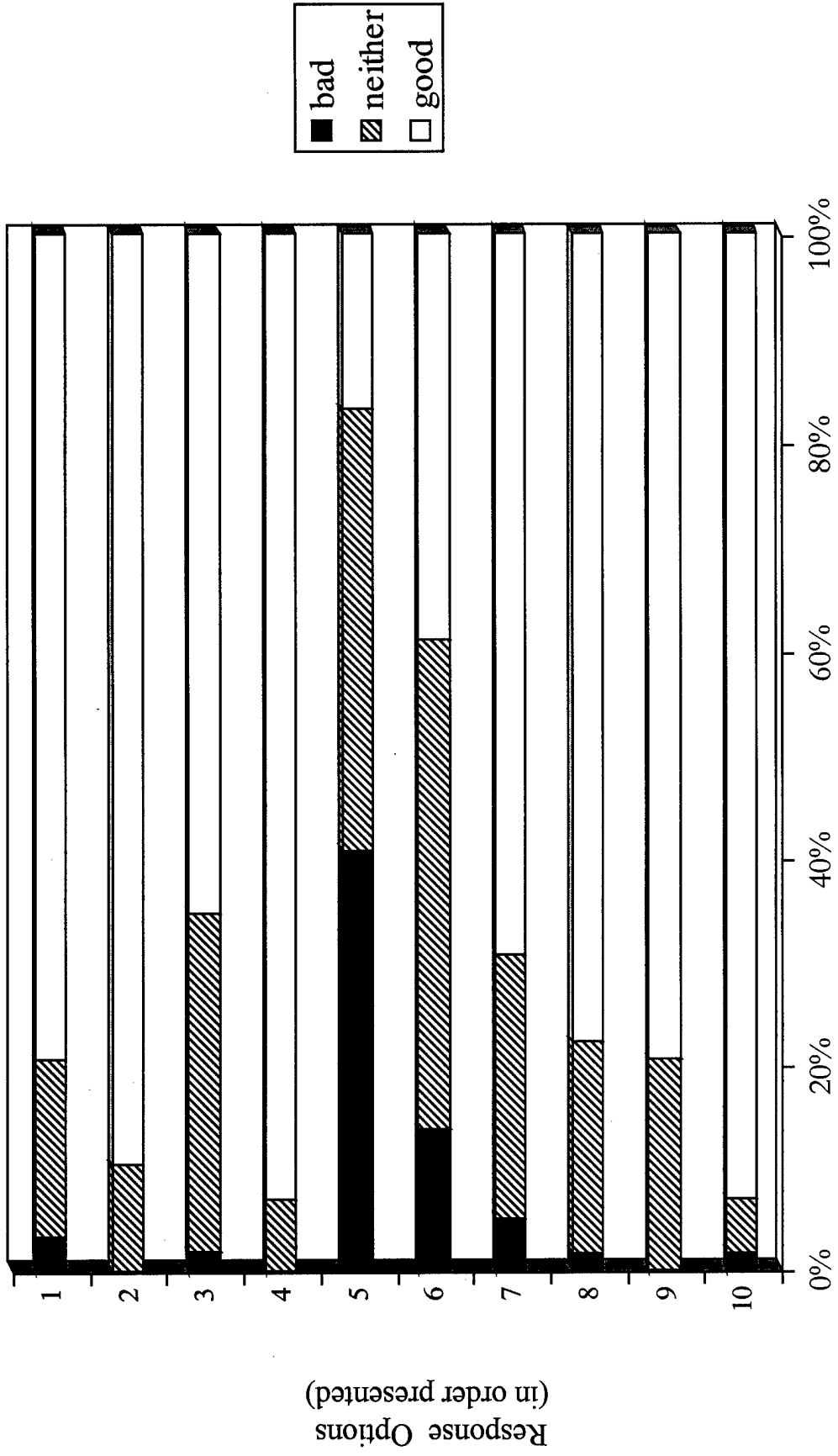
Percentage of Experts Who Rated the Response Option as Bad (1-3), Neither (4-6) or Good (7-9)

Expert Ratings of Response Options for Scenario B2



Percentage of Experts Who Rated the Response Option as Bad (1-3), Neither (4-6) or Good (7-9)

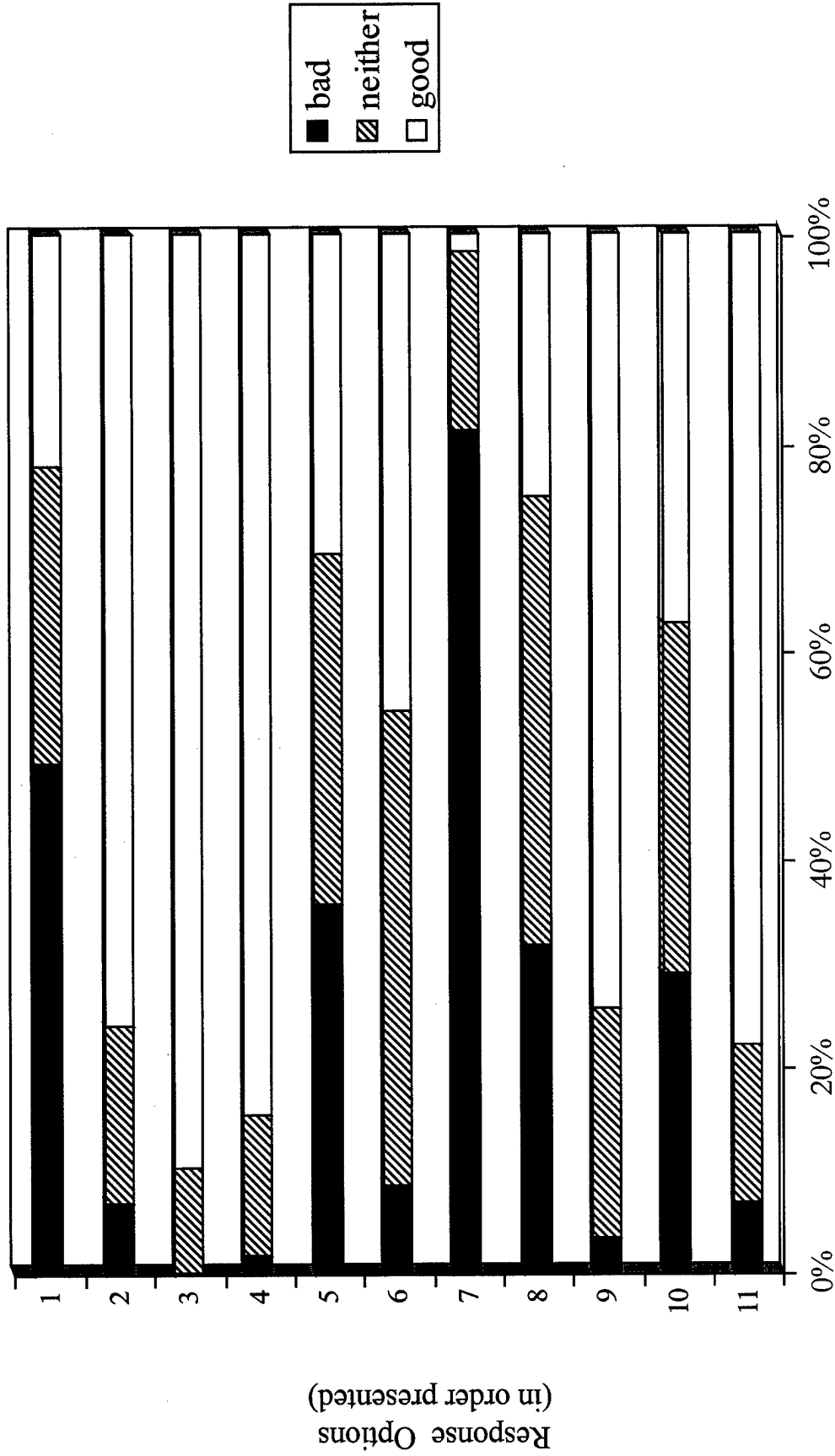
Expert Ratings of Response Options for Scenario B3



Response Options
(in order presented)

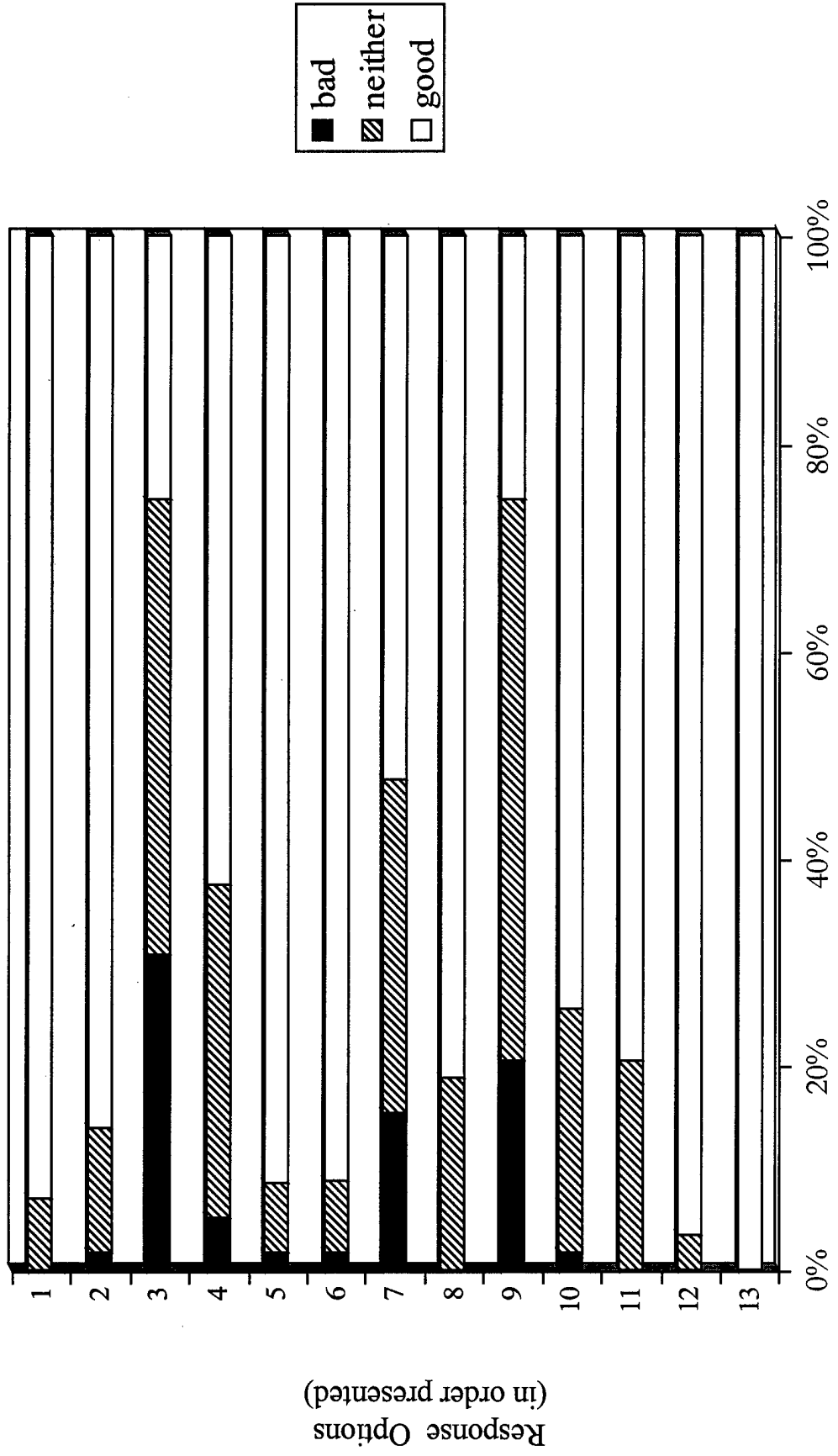
Percentage of Experts Who Rated the Response Option as
Bad (1-3), Neither (4-6) or Good (7-9)

Expert Ratings of Response Options for Scenario B4



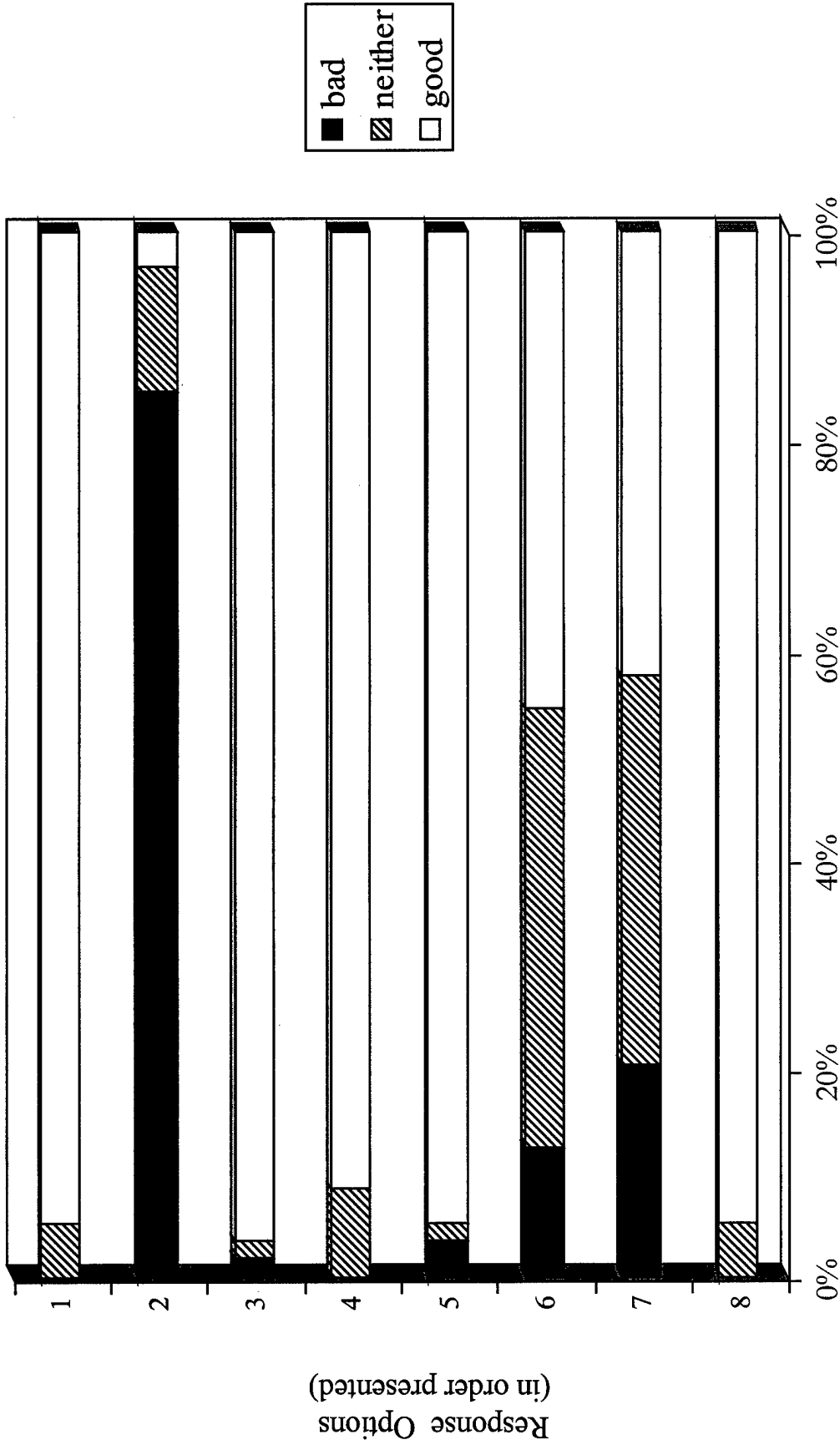
Percentage of Experts Who Rated the Response Option as Bad (1-3), Neither (4-6) or Good (7-9)

Expert Ratings of Response Options for Scenario B5



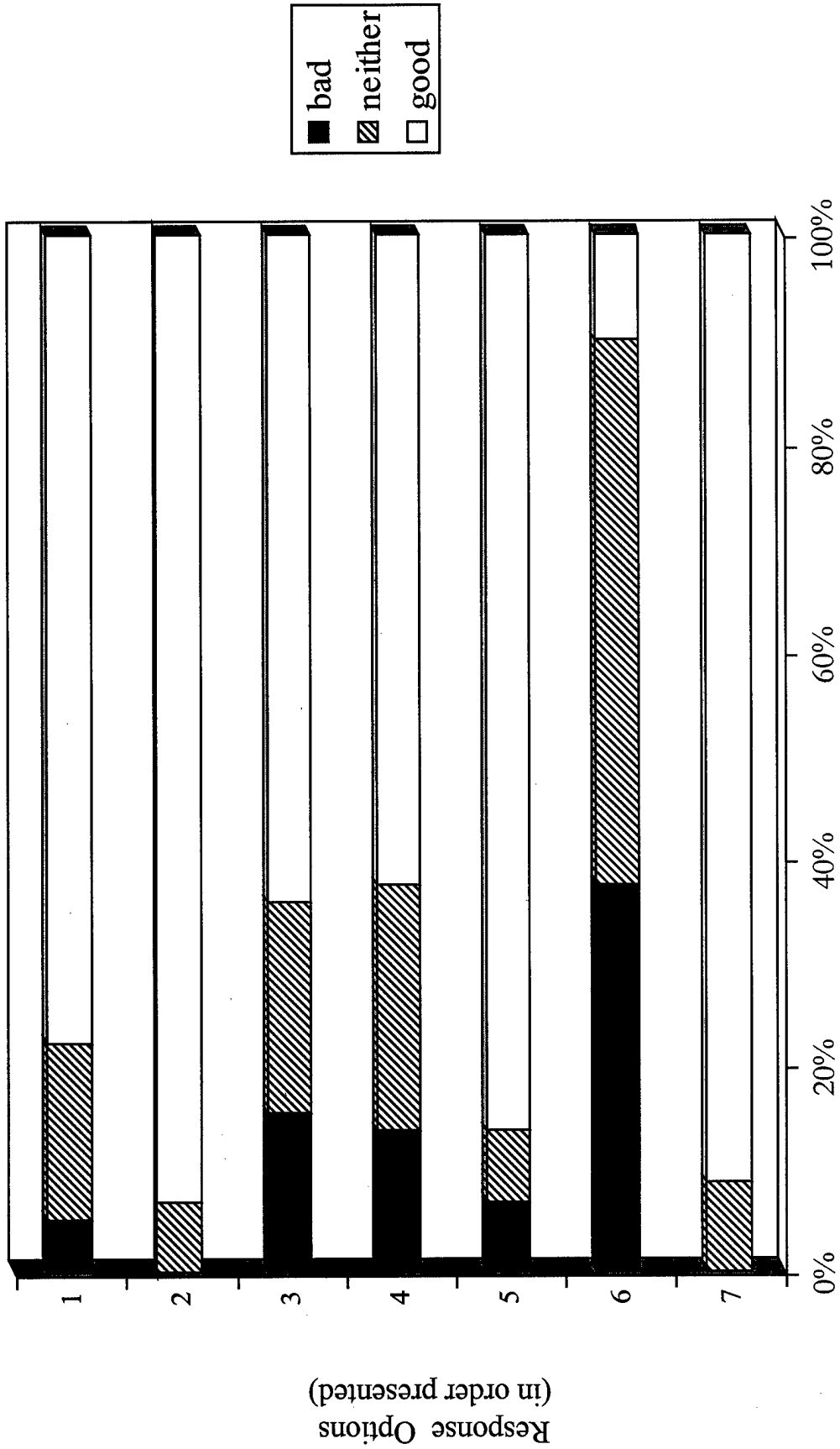
Percentage of Experts Who Rated the Response Option as Bad (1-3), Neither (4-6) or Good (7-9)

Expert Ratings of Response Options for Scenario B6



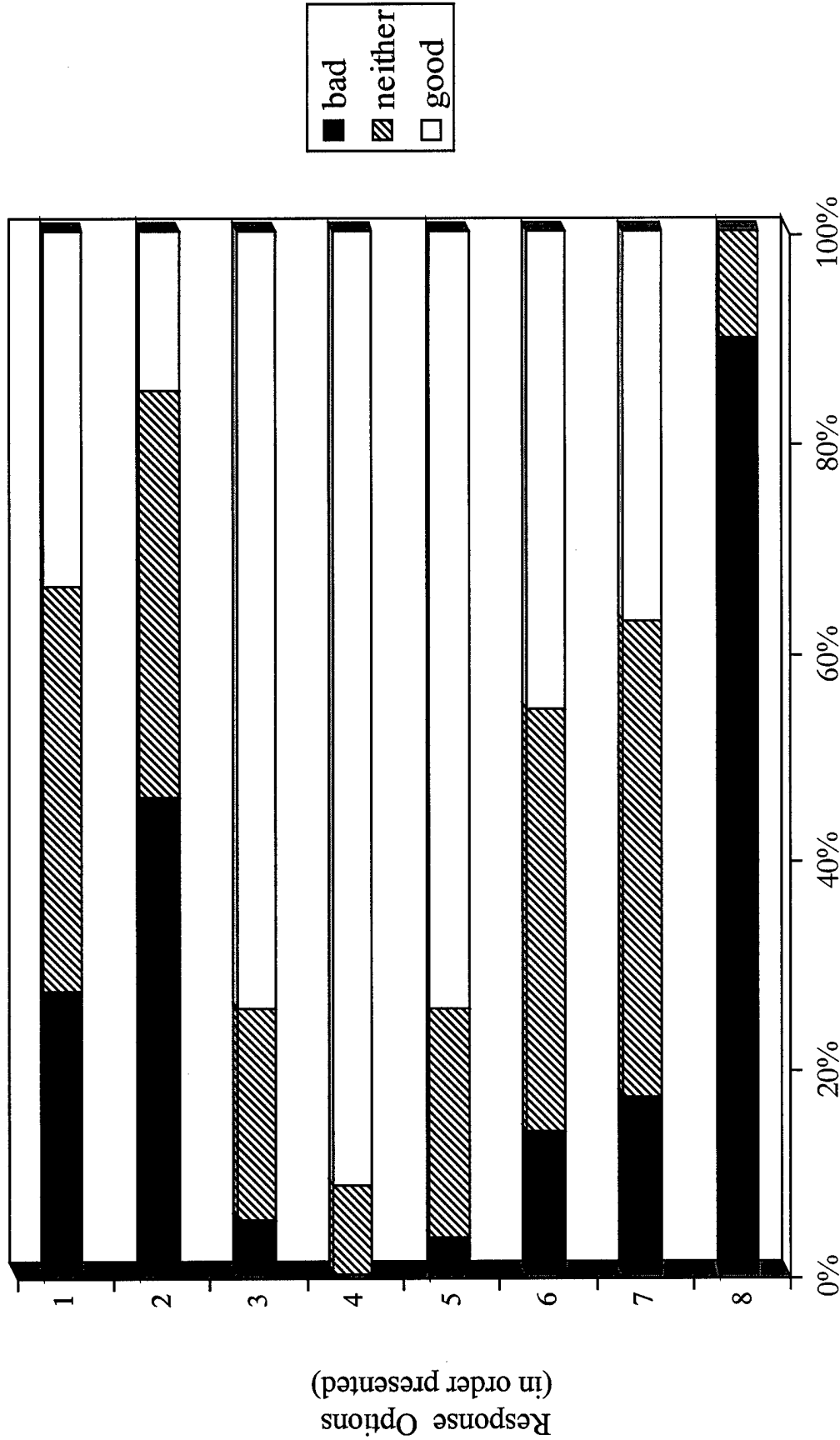
Percentage of Experts Who Rated the Response Option as Bad (1-3), Neither (4-6) or Good (7-9)

Expert Ratings of Response Options for Scenario B7



Percentage of Experts Who Rated the Response Option as Bad (1-3), Neither (4-6) or Good (7-9)

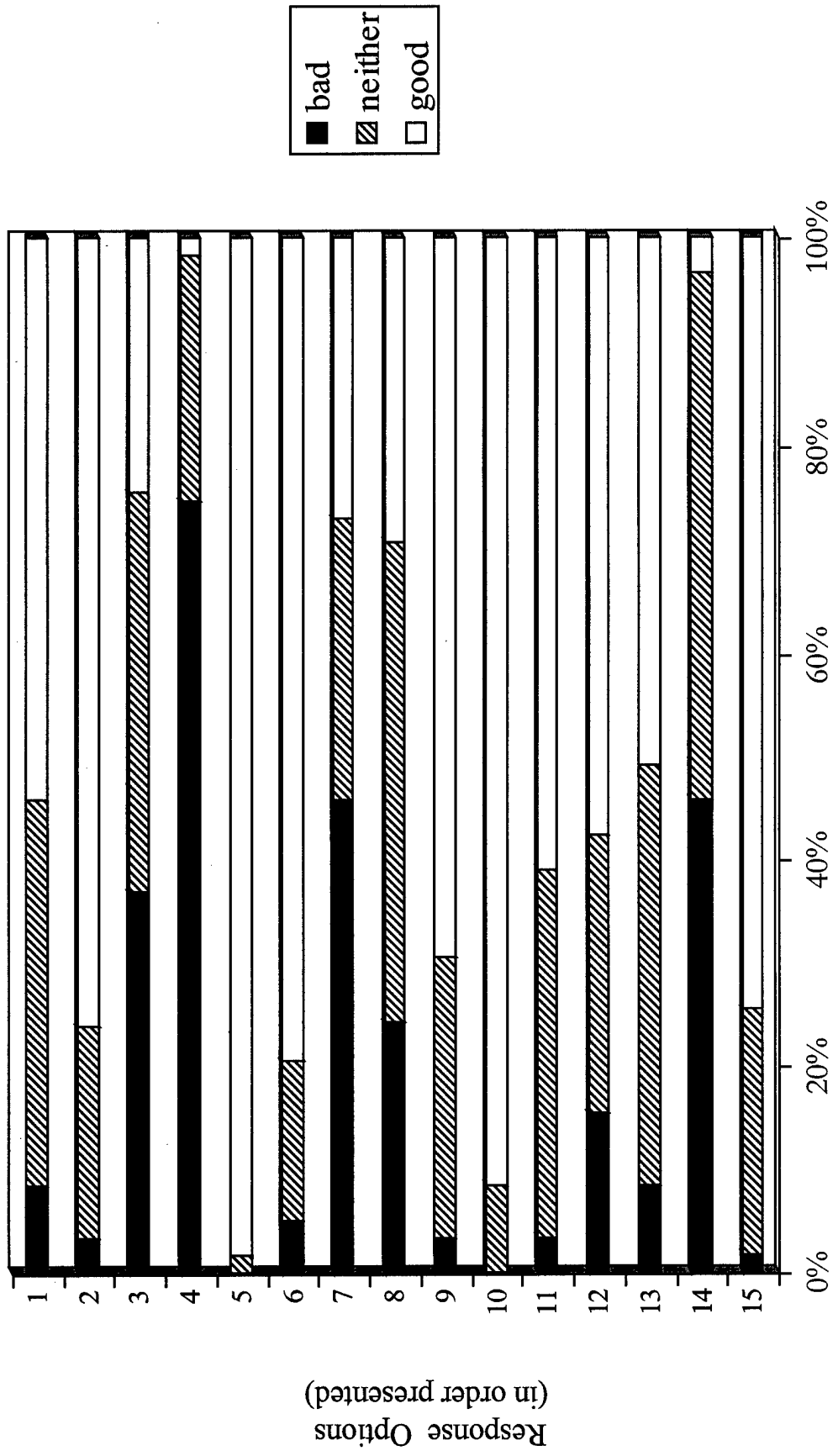
Expert Ratings of Response Options for Scenario B8



Response Options
(in order presented)

Percentage of Experts Who Rated the Response Option as
Bad (1-3), Neither (4-6) or Good (7-9)

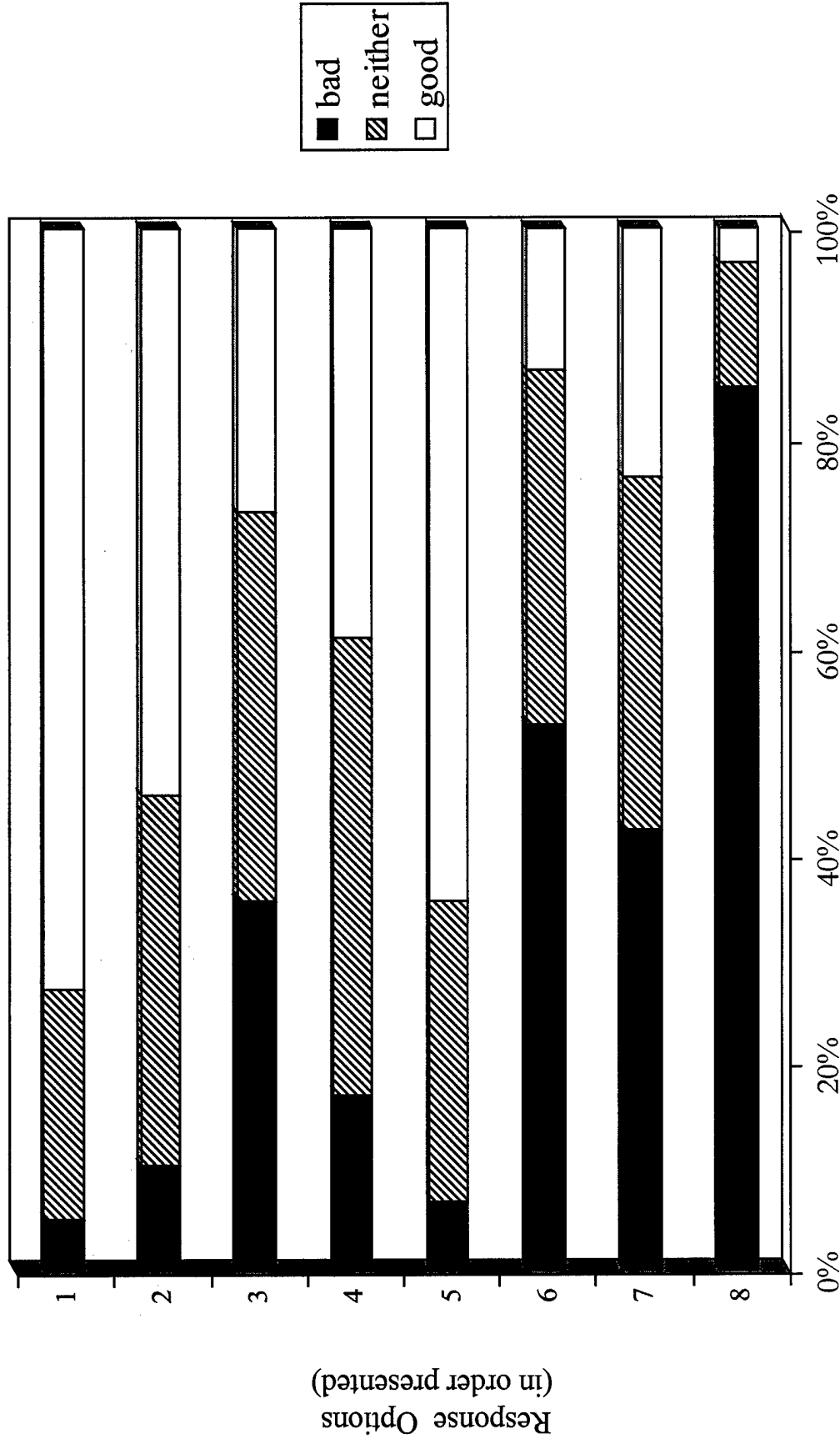
Expert Ratings of Response Options for Scenario B9



Response Options
(in order presented)

Percentage of Experts Who Rated the Response Option as
Bad (1-3), Neither (4-6) or Good (7-9)

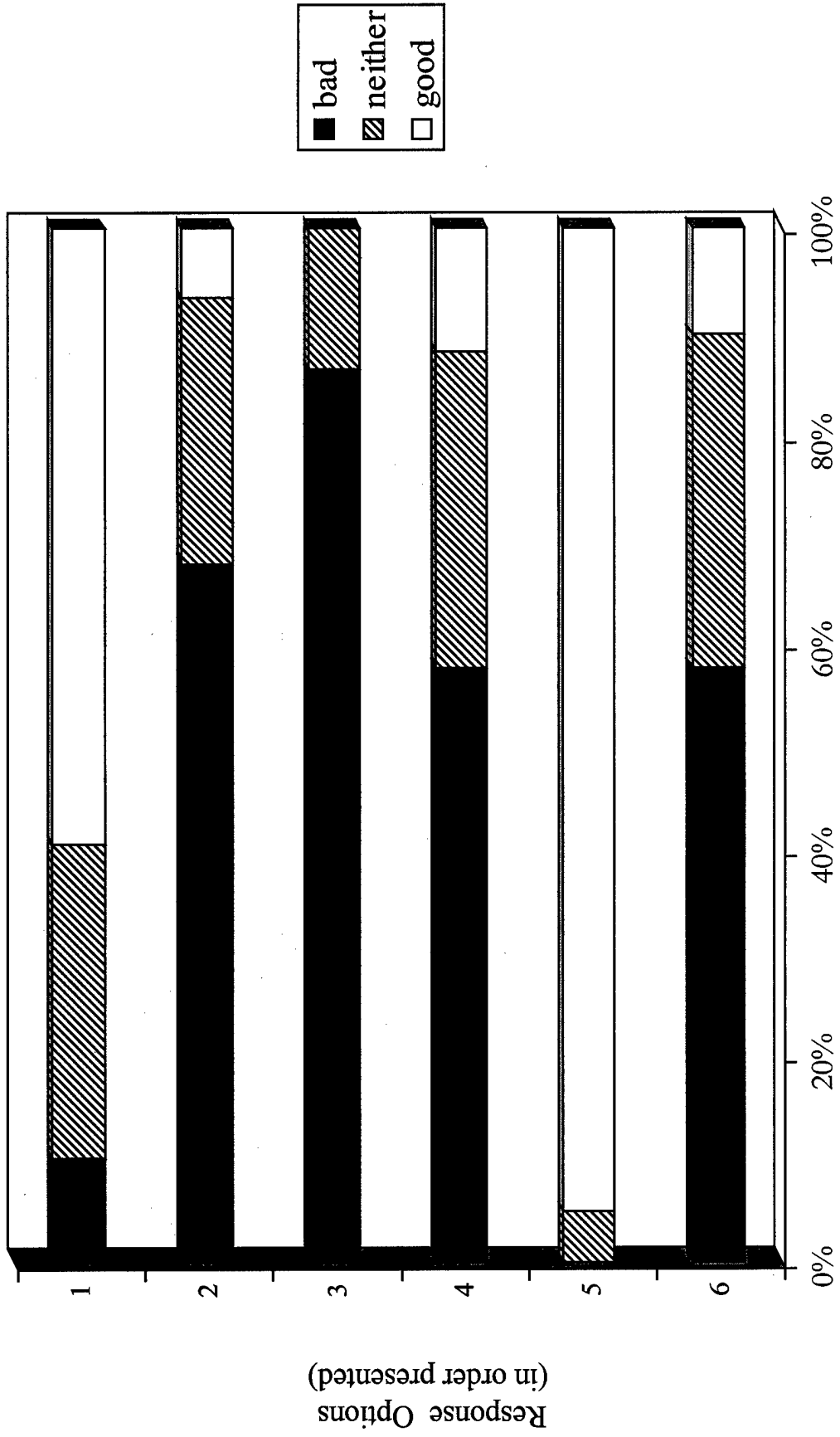
Expert Ratings of Response Options for Scenario B10



Response Options
(in order presented)

Percentage of Experts Who Rated the Response Option as
Bad (1-3), Neither (4-6) or Good (7-9)

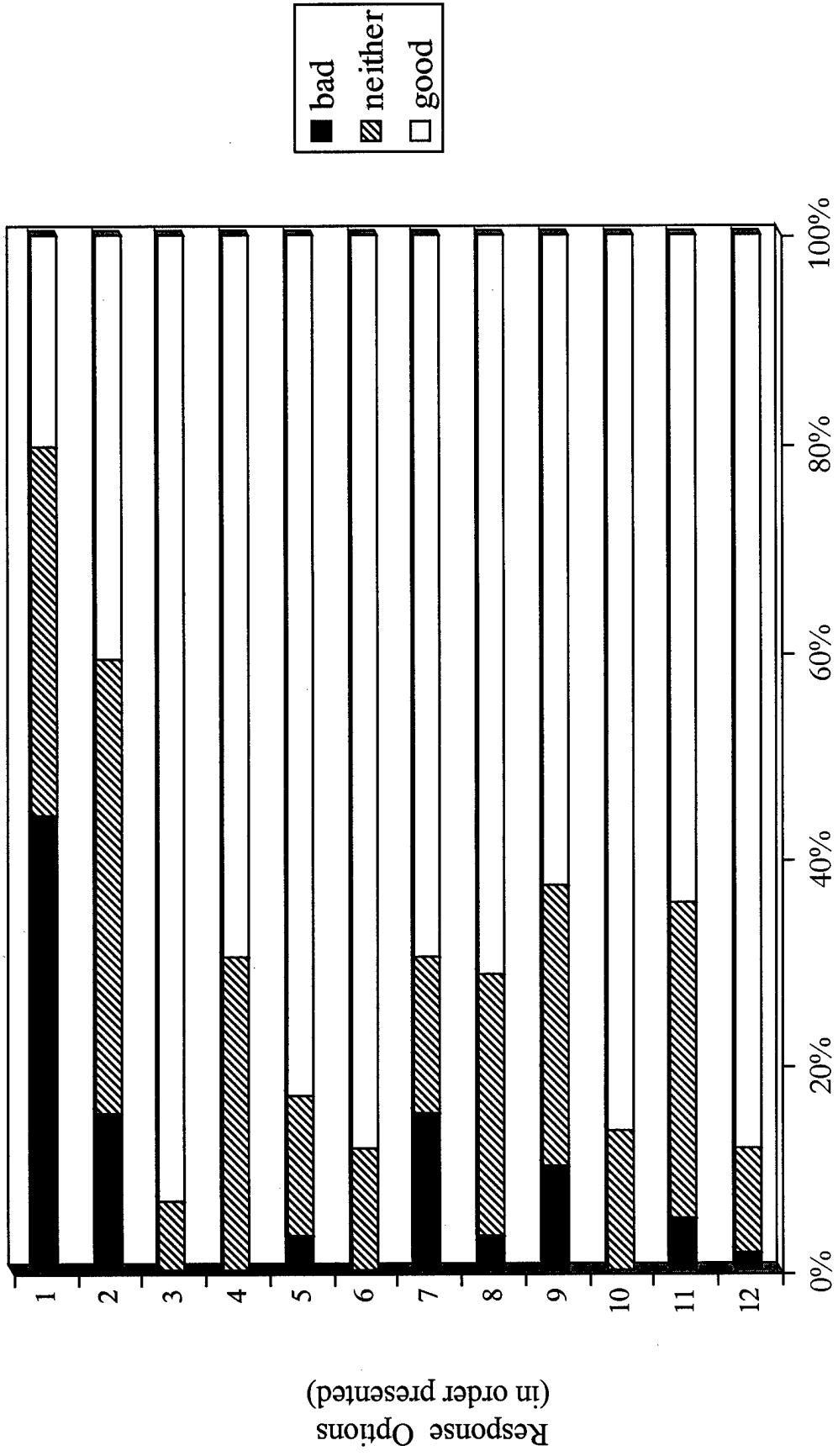
Expert Ratings of Response Options for Scenario B11



Response Options
(in order presented)

Percentage of Experts Who Rated the Response Option as
Bad (1-3), Neither (4-6) or Good (7-9)

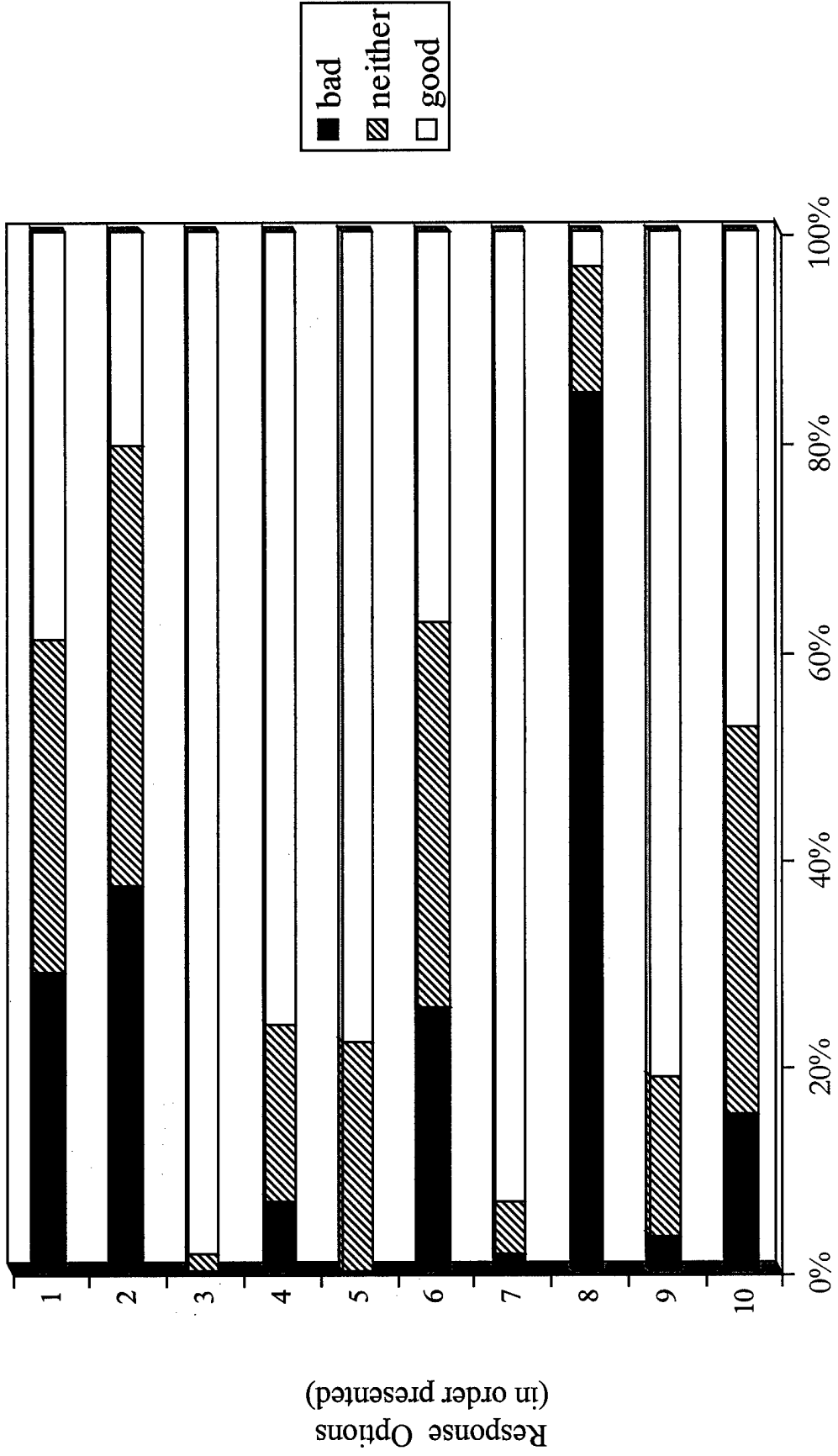
Expert Ratings of Response Options for Scenario B12



Response Options
(in order presented)

Percentage of Experts Who Rated the Response Option as
Bad (1-3), Neither (4-6) or Good (7-9)

Expert Ratings of Response Options for Scenario B13



Percentage of Experts Who Rated the Response Option as Bad (1-3), Neither (4-6) or Good (7-9)

APPENDIX C

ANSWER SHEETS FOR BATTALION COMMANDER QUESTIONNAIRE

Answer Sheet
Scenario B1

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B1. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
11	_____	_____
12	_____	_____
13	_____	_____
Total		_____

Answer Sheet
Scenario B2

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B2. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
Total		_____

Answer Sheet
Scenario B3

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B3. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
Total		_____

Answer Sheet
Scenario B4

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B4. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
11	_____	_____
Total		_____

Answer Sheet
Scenario B5

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B5. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
11	_____	_____
12	_____	_____
13	_____	_____
Total		_____

Answer Sheet
Scenario B6

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B6. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
Total		_____

Answer Sheet
Scenario B7

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B7. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
Total		_____

Answer Sheet
Scenario B8

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B8. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
Total		_____

Answer Sheet
Scenario B9

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B9. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
11	_____	_____
12	_____	_____
13	_____	_____
14	_____	_____
15	_____	_____
Total		_____

Answer Sheet
Scenario B10

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B10. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
Total		_____

Answer Sheet
Scenario B11

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B11. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
Total		_____

Answer Sheet
Scenario B12

For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B12. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
11	_____	_____
12	_____	_____
Total		_____

Answer Sheet
Scenario B13

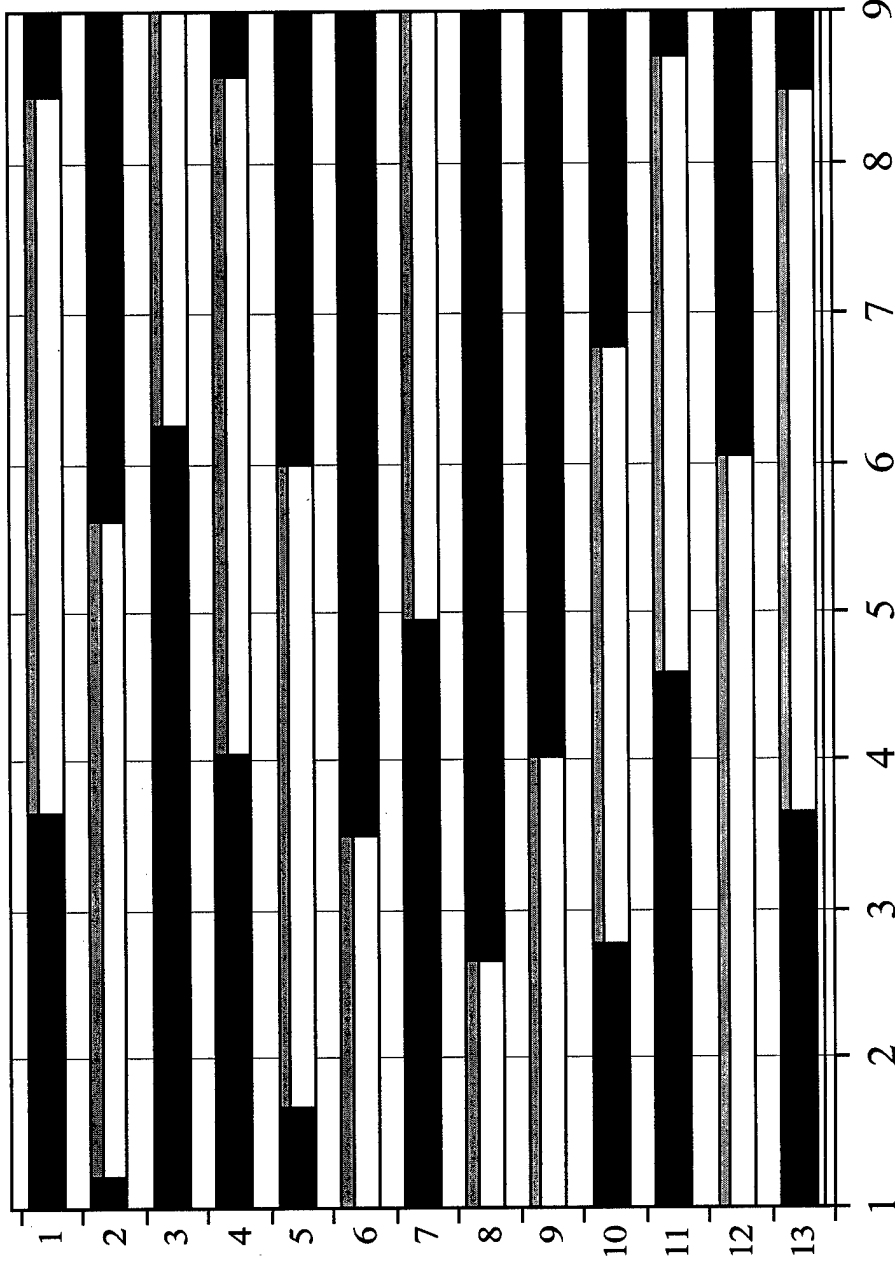
For each response option, record your answer in the first column. Then refer to the scoring chart for scenario B13. If your response falls within the confidence interval (white), record a "1" for your score on that response option. If your response falls outside the confidence interval (black), record a "0" for that response option. After scoring all options for a particular question, add up the points and record in the space provided.

Response	Answer	Score
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
Total		_____

APPENDIX D

SCORING CHARTS FOR BATTALION COMMANDER QUESTIONNAIRE

Expert Confidence Interval for Scoring Scenario B1

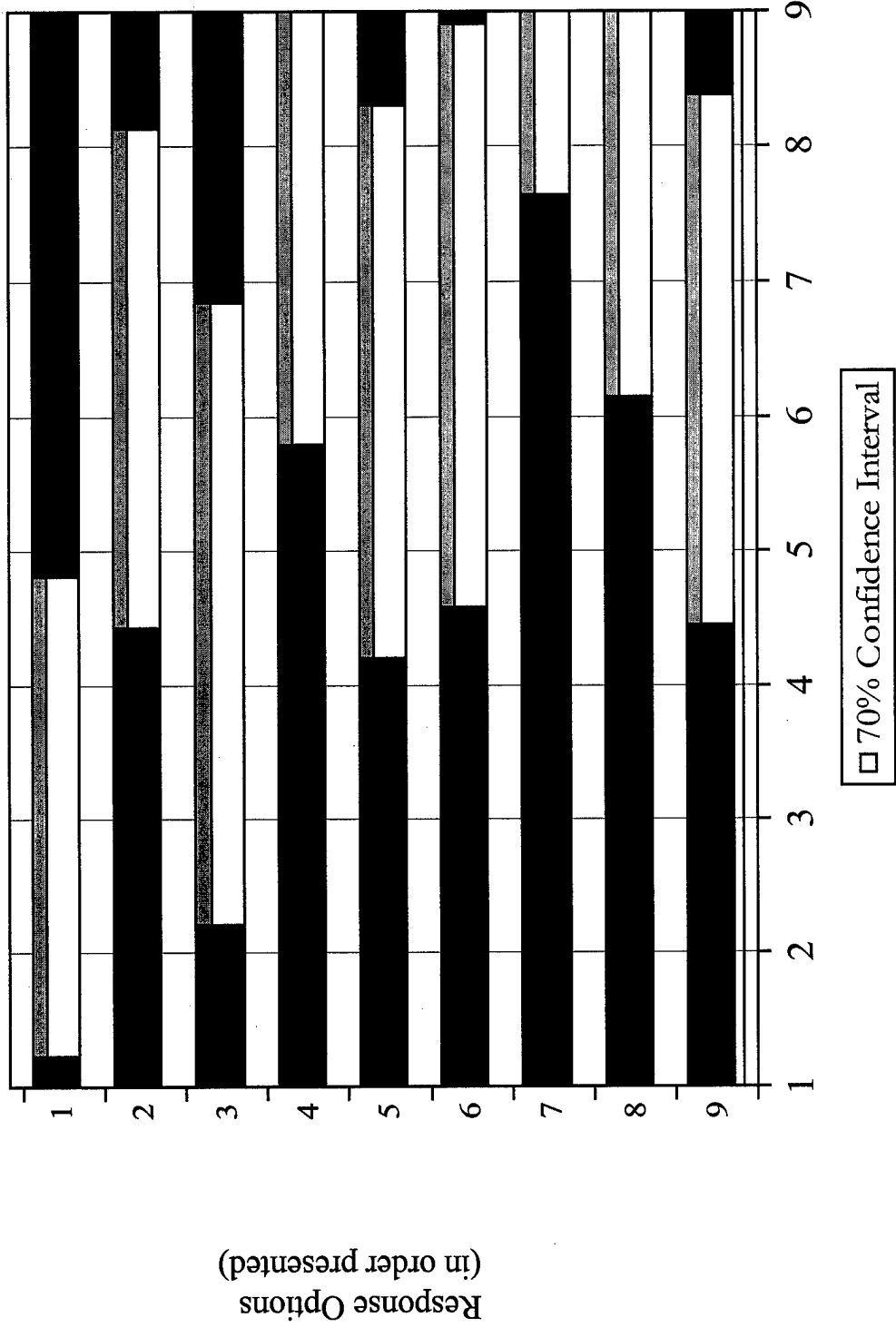


Response Options
(in order presented)

□ 70% Confidence Interval

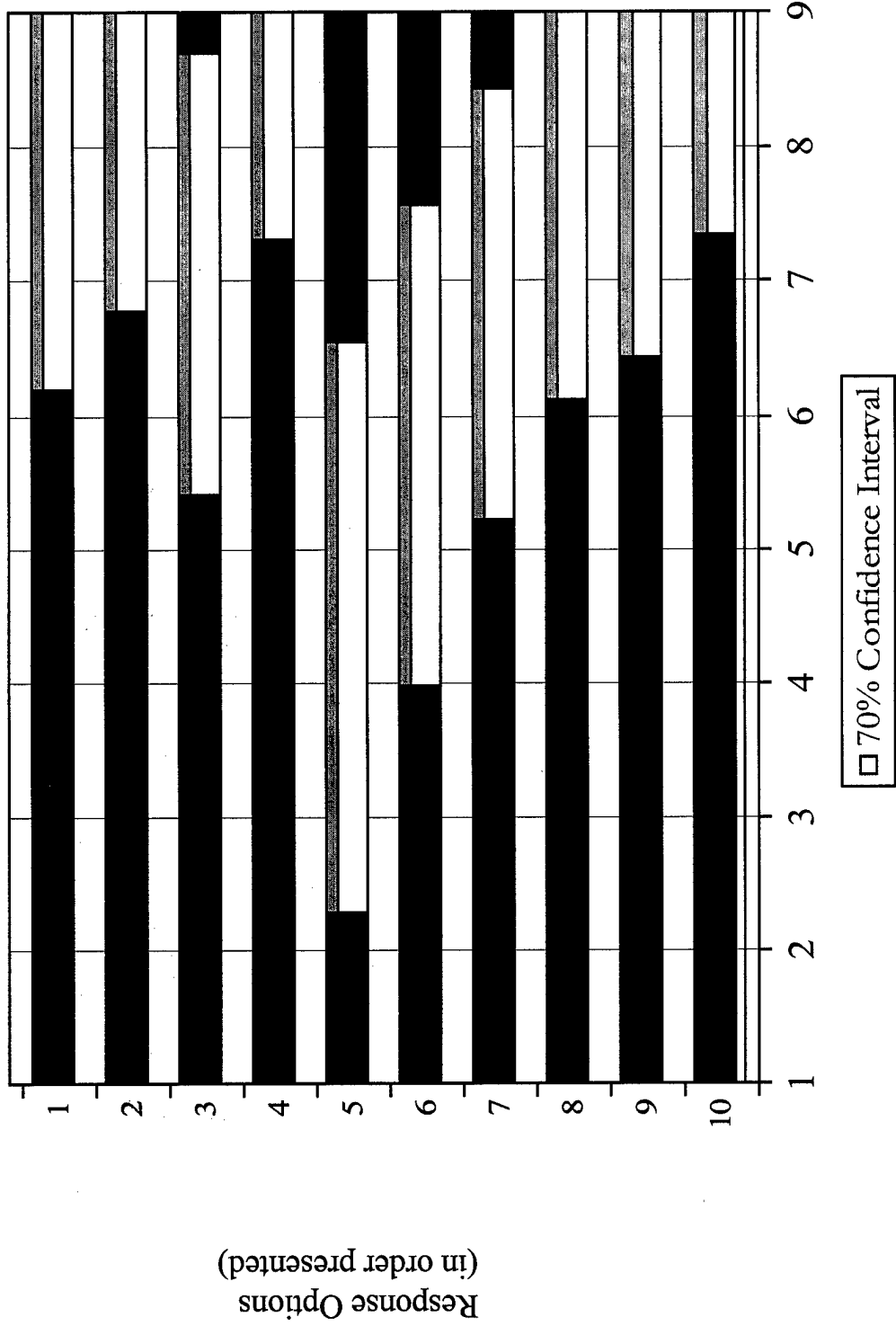
Rating

Expert Confidence Interval for Scoring Scenario B2

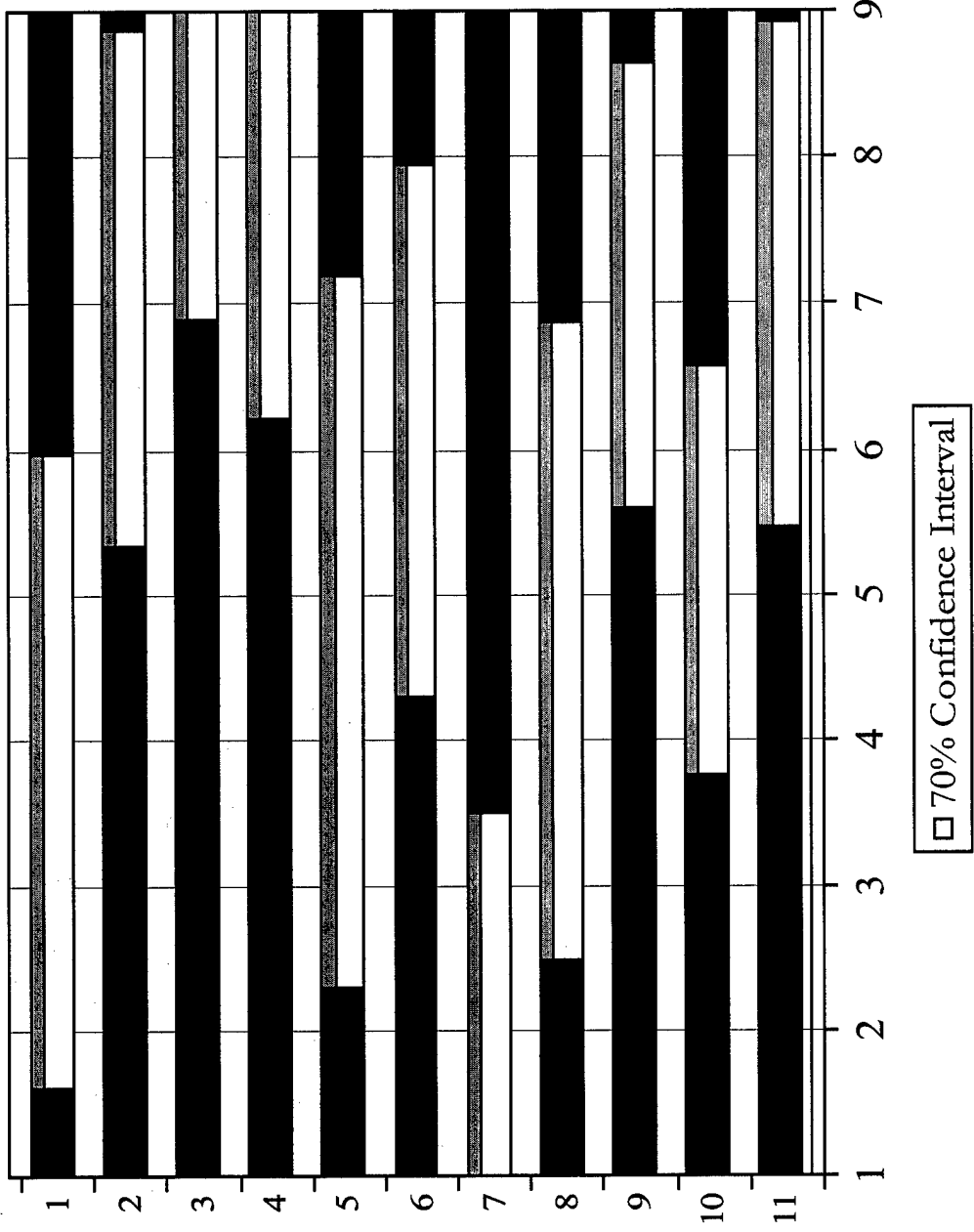


Rating

Expert Confidence Interval for Scoring Scenario B3



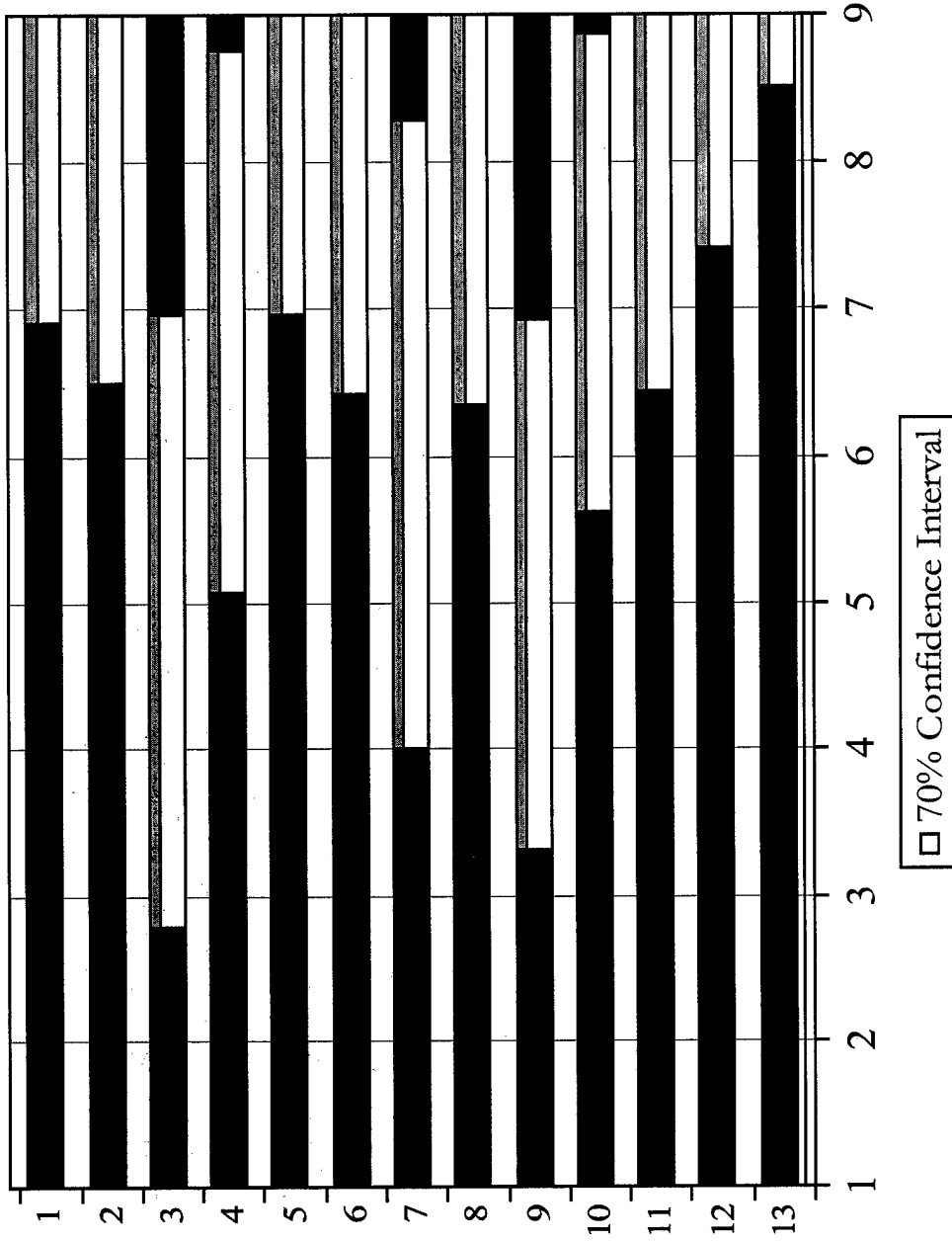
Expert Confidence Interval for Scoring Scenario B4



Response Options
(in order presented)

Rating

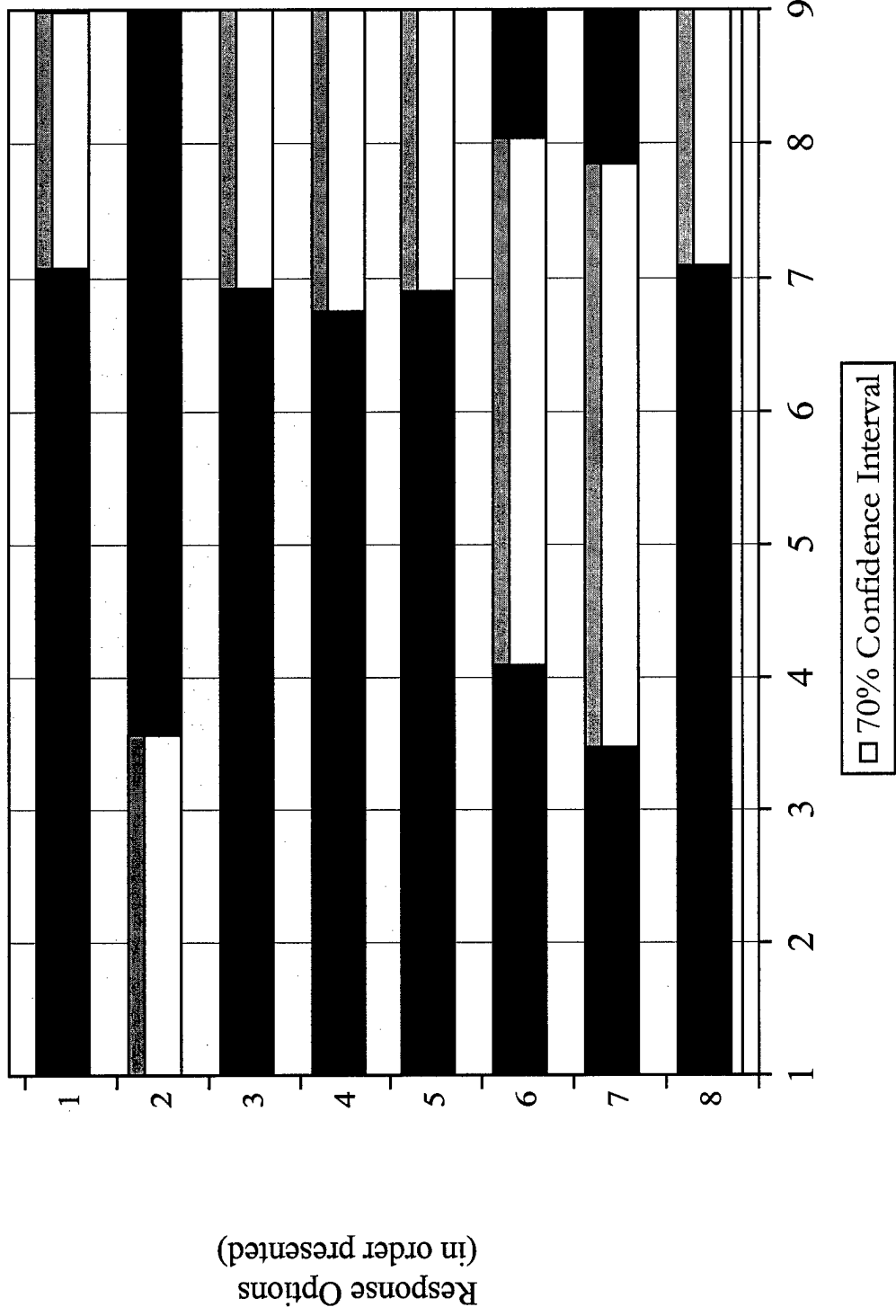
Expert Confidence Interval for Scoring Scenario B5



Response Options
(in order presented)

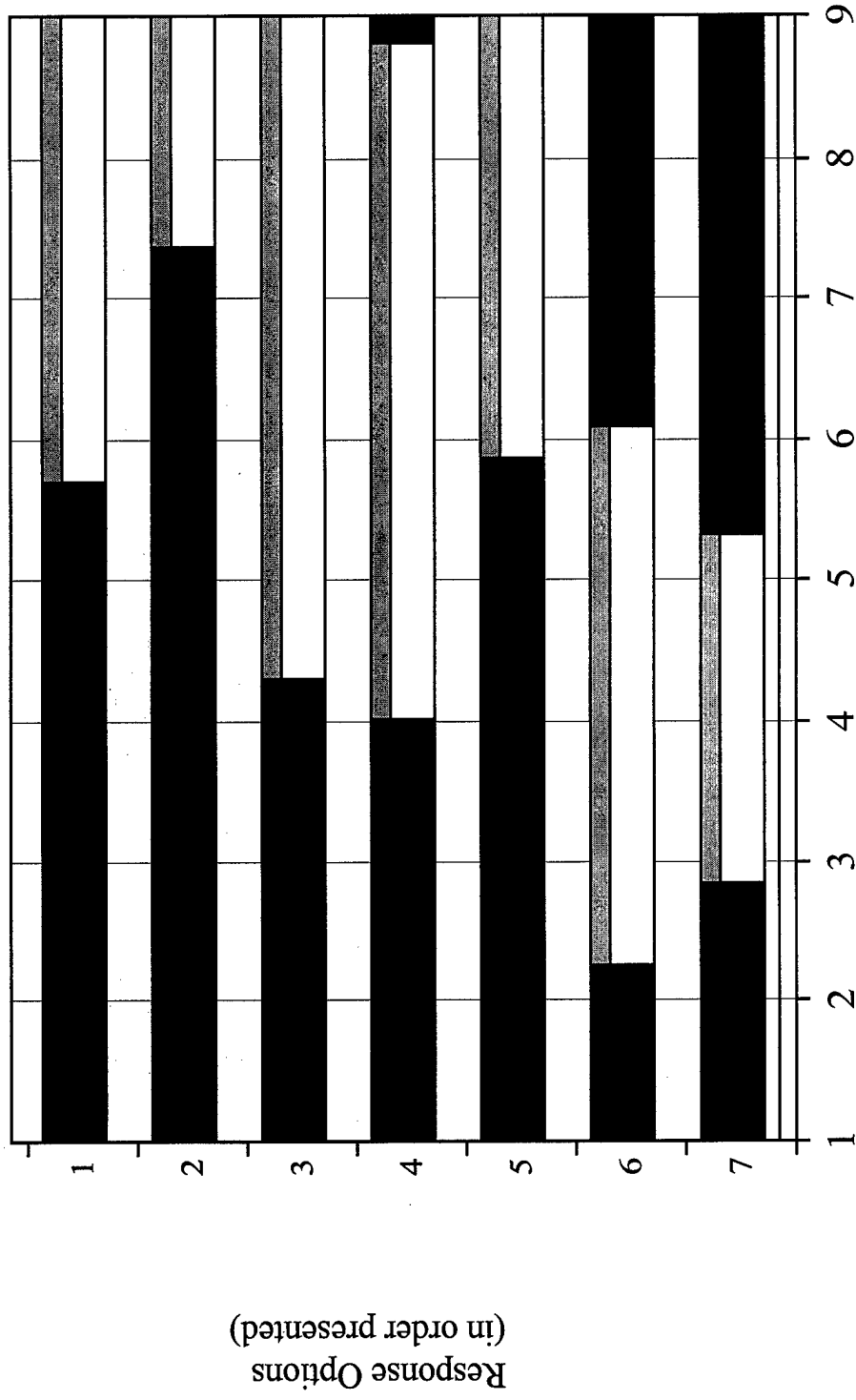
Rating

Expert Confidence Interval for Scoring Scenario B6



Rating

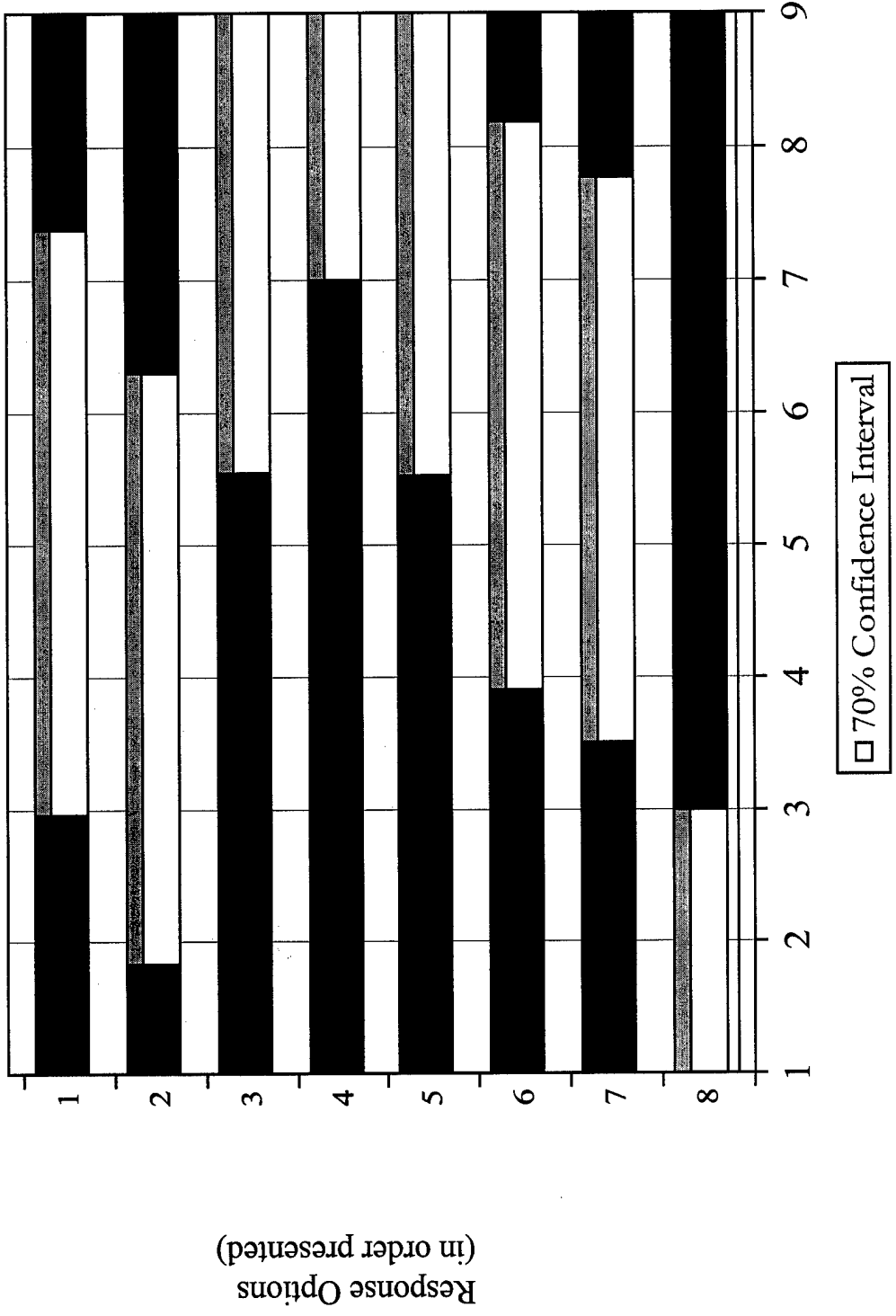
Expert Confidence Interval for Scoring Scenario B7



□ 70% Confidence Interval

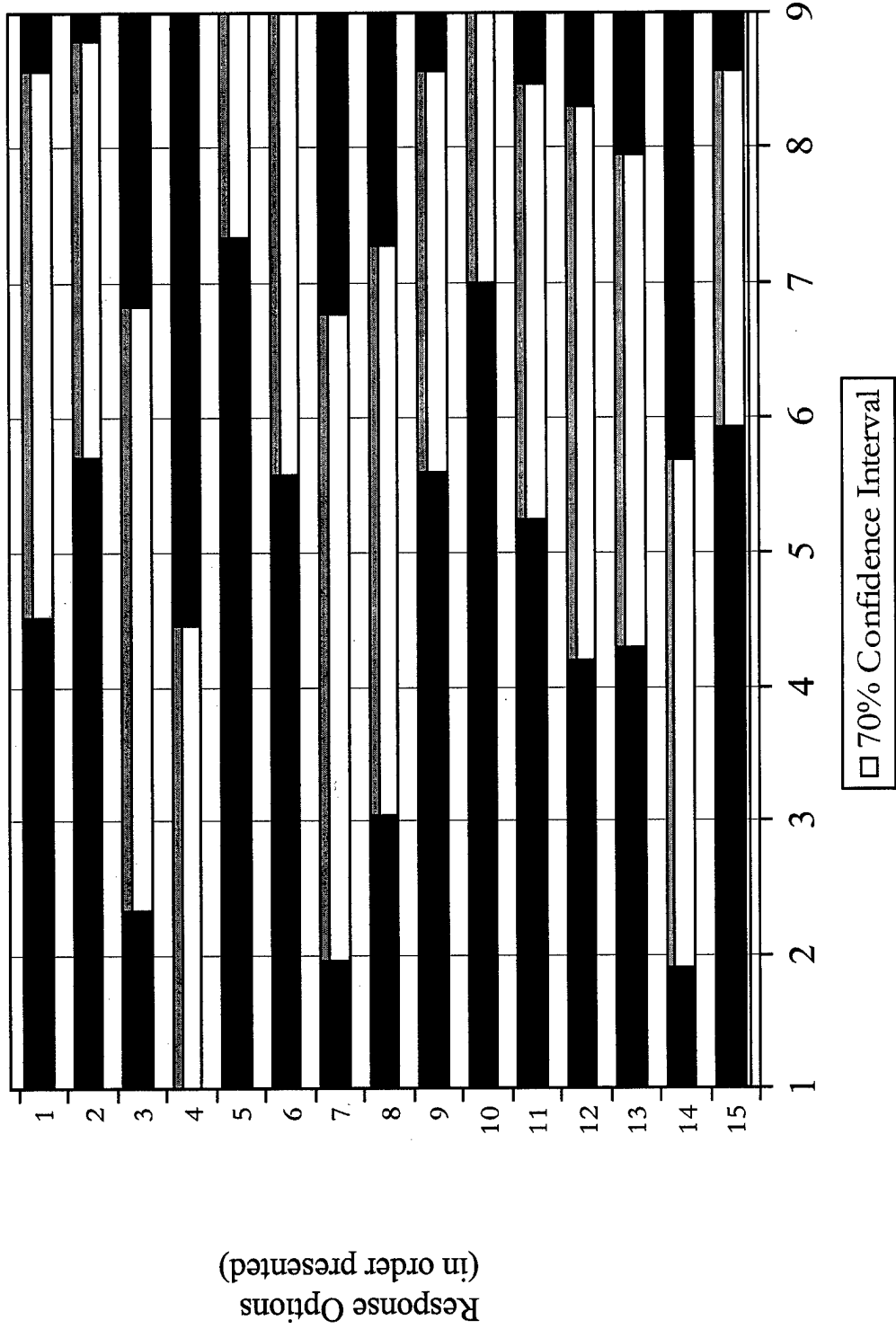
Rating

Expert Confidence Interval for Scoring Scenario B8



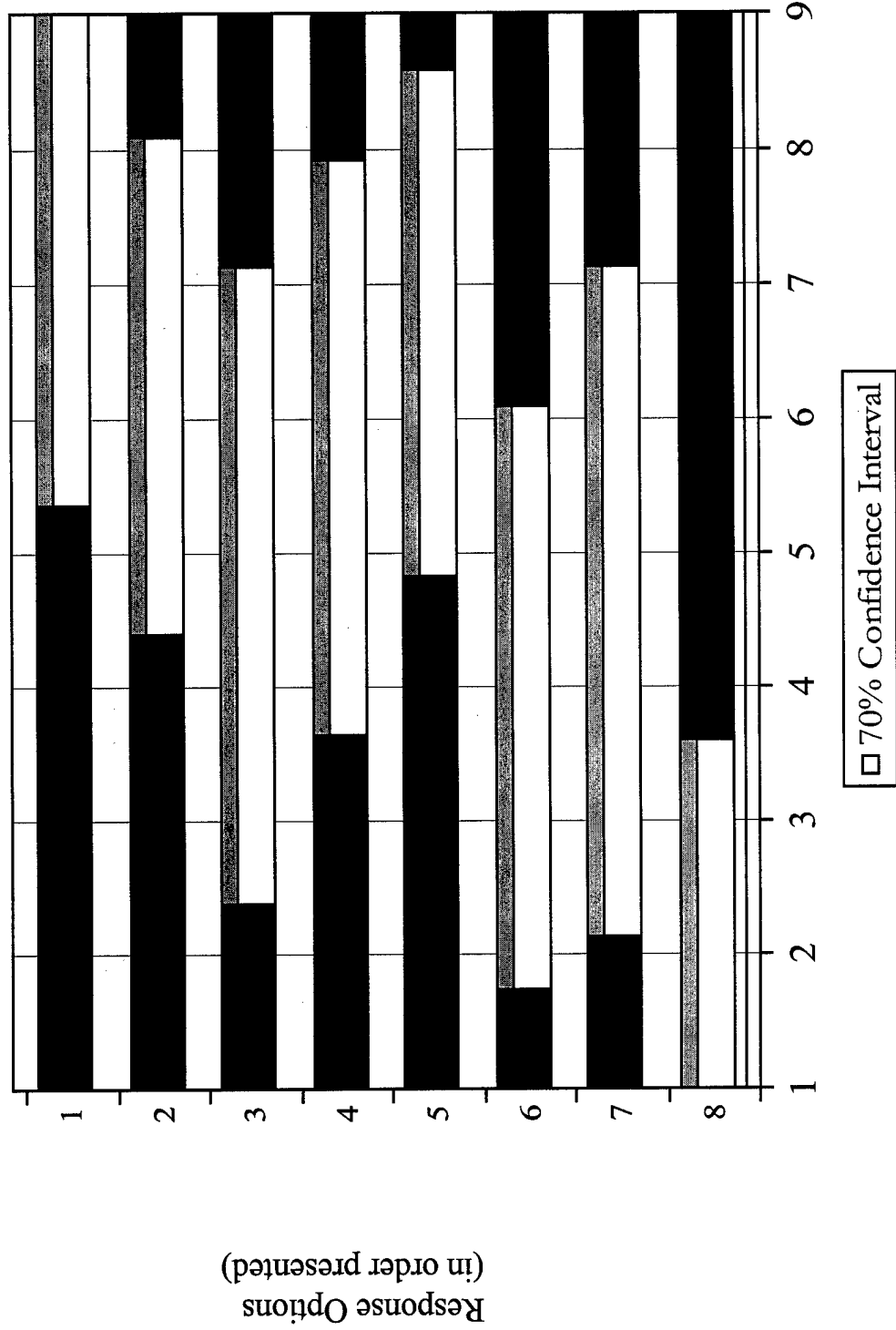
Rating

Expert Confidence Interval for Scoring Scenario B9



Rating

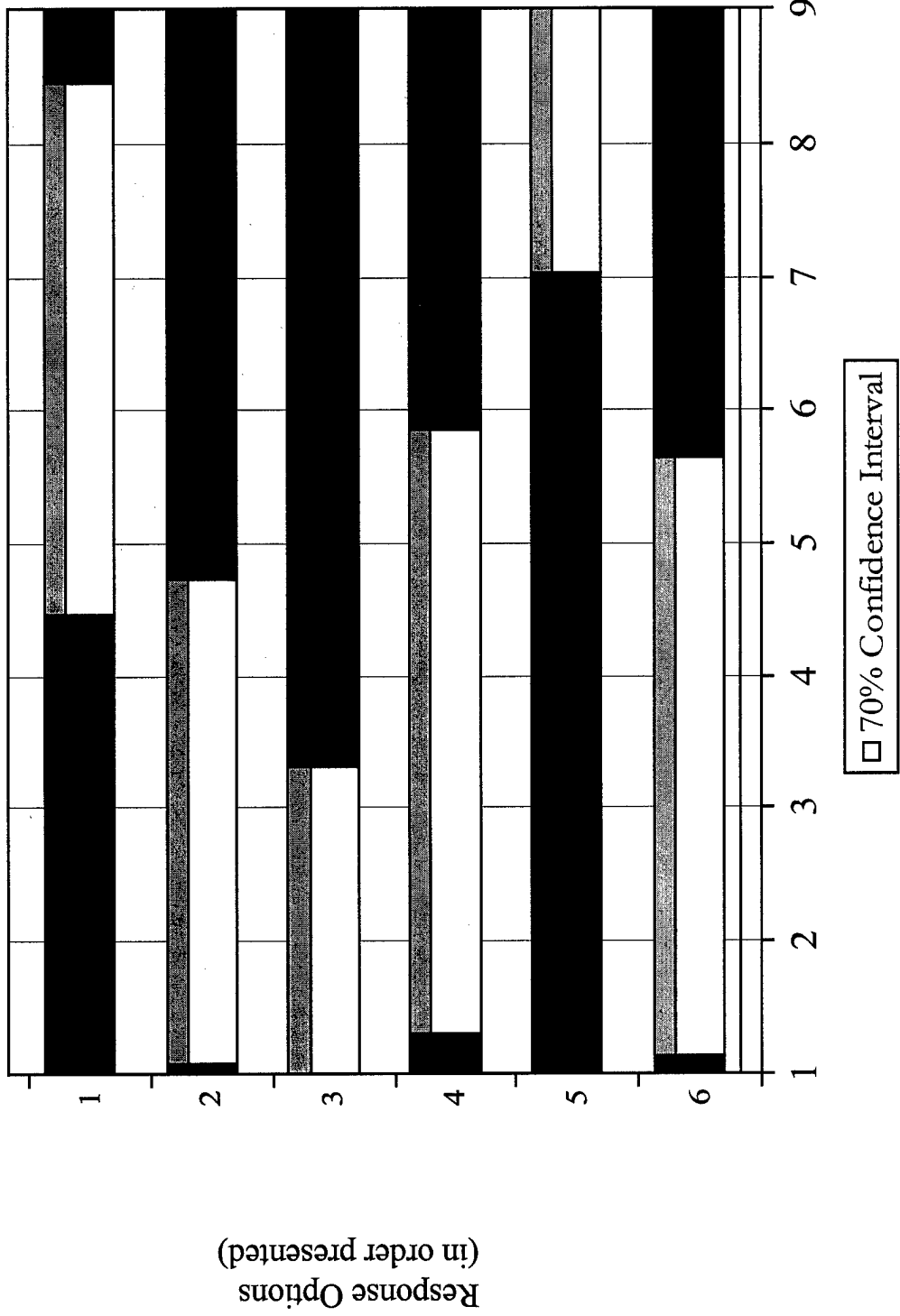
Expert Confidence Interval for Scoring Scenario B10



Rating

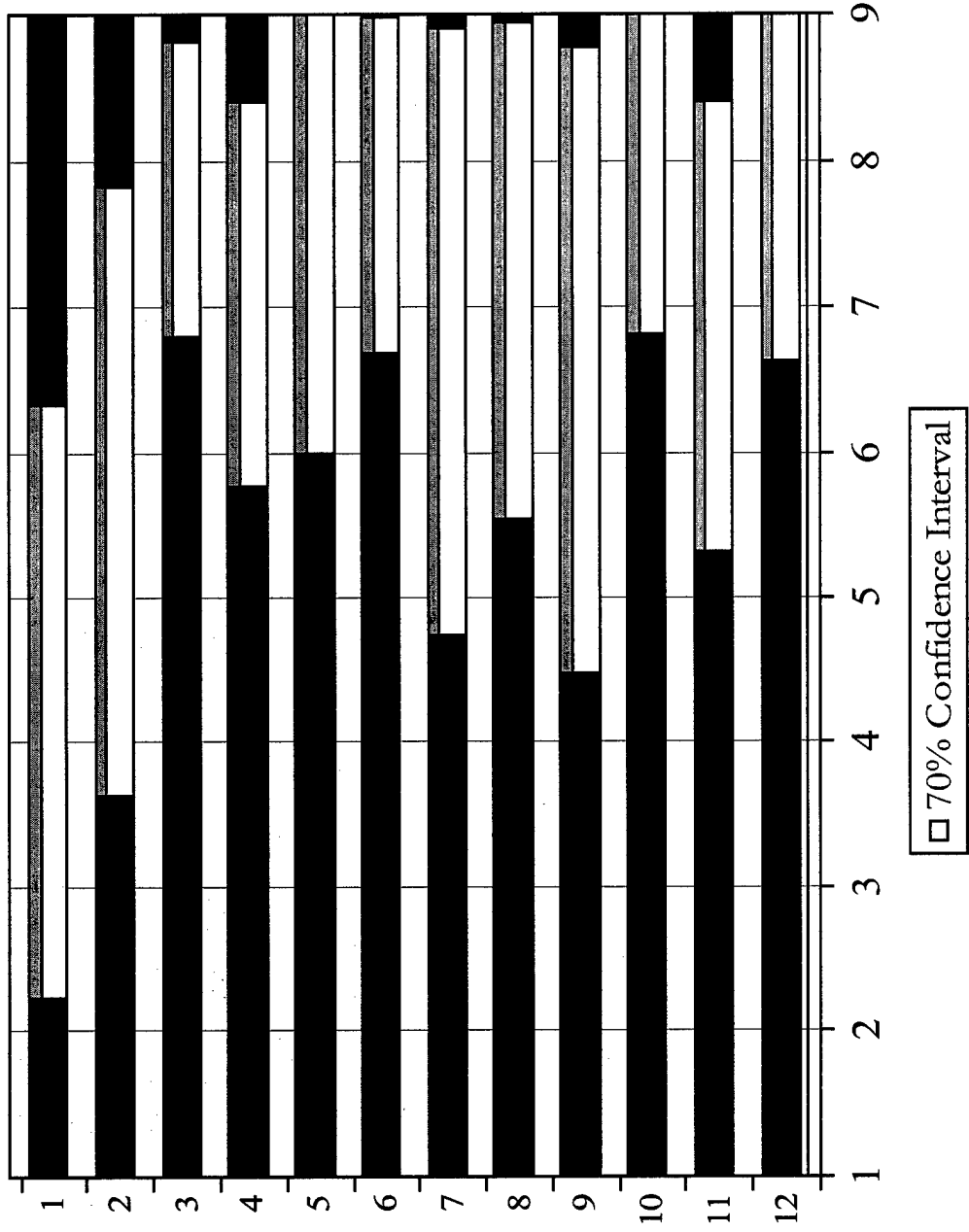
Response Options
(in order presented)

Expert Confidence Interval for Scoring Scenario B11



Rating

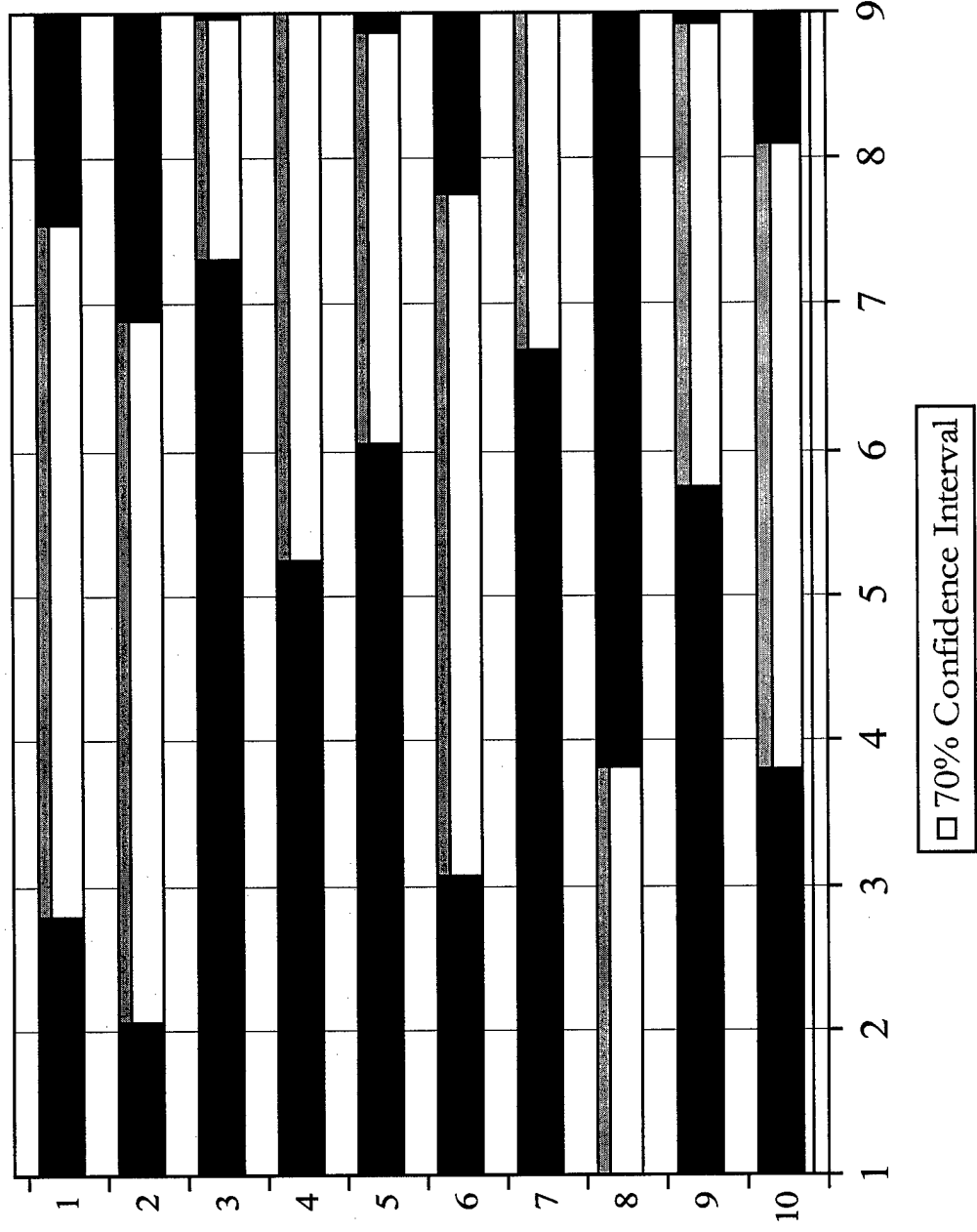
Expert Confidence Interval for Scoring Scenario B12



Response Options
(in order presented)

Rating

Expert Confidence Interval for Scoring Scenario B13



Response Options
(in order presented)

Rating