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**Report of the Workshop on Applying  
Cognitive Psychology to Recall Problems  
of the National Crime Survey**

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Report of the  
Workshop on Applying Cognitive Psychology to  
Recall Problems of the National Crime Survey

Albert D. Bideman, Chair

Lombardy Towers Hotel  
Washington, D.C.  
September 17-18, 1980

Rapporteur:

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TO RECALL PROBLEMS OF THE NATIONAL CRIME SURVEY

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AGENDA

WORKSHOP ON APPLYING COGNITIVE PSYCHOLOGY TO RECALL  
PROBLEMS OF THE NATIONAL CRIME SURVEY

Lombardy Towers Hotel -- Washington, DC

WEDNESDAY, SEP 17

- 10:00 - 10:20      INTRODUCTORY REMARKS ON WORKSHOP OBJECTIVES AND  
PROPOSED PROCEDURES
- 10:30 - 10:35      --COFFEE--
- 10:35 - 12:15      PARTICIPANTS' SELF-INTRODUCTIONS, STATEMENTS OF INTERESTS  
AND SUGGESTIONS OF SPECIFIC DISCUSSION TOPICS
- 12:30 - 13:45      --LUNCH.....LOMBARDY TOWERS--
- 13:45 - 17:30      DISCUSSION OF SURVEY RECALL PROBLEM FORMULATIONS POSED IN  
THE PROSPECTUS AND BY THE PARTICIPANTS
1. Victimized events and their long-term memory  
storage consequences
- BREAK--
2. Event recall and verbal reconstruction in the  
interview
- 18:00 - 19:30      --Refreshments and Computerteleconference Demonstration  
BSSR, 1990 M Street, NW, 7th Floor
- 19:30 -              --RECEPTION (Cash Bar) and DINNER  
LeProvençal, 1234 20th Street, NW

THURSDAY, SEP 18

- 09:00 - 10:20      SUGGESTED APPROACHES TO COGNITIVE PROBLEMS IN SURVEY  
REDESIGN TESTS AND EXPERIMENTS
1. Brief statements of Census Bureau, NORC and SRC  
planned approaches
  2. General discussion
- 10:20 - 10:40      --COFFEE--

10:40 - 12:30

UTILITY OF SURVEY STATISTICS FOR COGNITIVE PSYCHOLOGY

1. Census Data Resources and User Access  
(10 minute presentation)

--COFFEE--

2. Survey archives (10 minute presentation)
3. General Discussion (1 hour)

12:30 - 13:45

--LUNCH.....Lombardy Towers--

13:45 - 17:00

PLANNING CONTINUING COLLABORATION BETWEEN SURVEY  
STATISTICS AND COGNITIVE PSYCHOLOGY

1. General discussion of potential usefulness, problem  
agendas, desirable modes of activity (future  
workshops, teleconference network, professional  
meeting sessions, ex parte collaborative undertakings,  
information dissemination), desirable representation  
in and boundaries of network, potential sponsors.

--BREAK--

2. Implementing steps and suggestions for Workshop Report



NOTE:

Several unilateral decisions have been made regarding the recording of the workshop discussions, and it is important that the reader be aware of these at the outset. First, there has been an attempt to remain faithful to the actual chronology of events. If the report seems at times to lack a coherent structure and to ricochet rather abruptly from topic to topic, this reflects both the free-flowing nature of the discussions, and the editing out of a certain amount of transitional material which had low substantive interest. An attempt simply to record the events of the workshop as they unfolded is less prone to idiosyncratic biases and perceptions--and less likely to exclude potentially valuable but not easily categorized material--than a reorganization and recombination into a tighter package. Second, no attempt has been made to identify separate statements and points of discussion with the particular individuals who made them. Given the limitations of both memory and cheap electronic recording devices, this has not always been possible; it also forces the ideas expressed to stand or fall on their own merit. Finally, as suggested above, there has been a conscious effort to minimize interpretation, and where there is interpretation clearly to identify it as such. A necessary first step is to insure agreement about what was said, before moving on to what was meant by what was said, or how it all fits together.

REPORT OF THE WORKSHOP ON APPLYING COGNITIVE PSYCHOLOGY TO  
RECALL PROBLEMS OF THE NATIONAL CRIME SURVEY

September 17, 1980

In his introductory remarks which elaborated on the focus and objectives of the workshop presented in the workshop prospectus, the chair proposed four modest restrictions on the scope of the discussion, as follows: a) the discussion should assume a motivated respondent who wants to answer the survey questions to the best of his/her ability; b) it should also avoid any focus on affective mechanisms, such as repression; c) given the distinction between remembering an event at all and remembering the particular details of an event, the discussion should focus on the former; and d) linguistic issues, especially as they relate to the specifics of any particular cultural-linguistic system, are declared out-of-scope. In their self-introductions, the other participants raised the following questions as potentially fruitful avenues of discussion:

- 1) How is it possible that a criminal victimization experience can be forgotten by the victim?
- 2) What are the informal norms generated by the respondent regarding the perceived intent of the survey questions, and what impact do these norms have on response?
- 3) What is the relationship between the way material is encoded in memory, the retrieval cues provided in the questionnaire, and recall?
- 4) To what extent is inadequate or invalid recall a function of poor questioning?
- 5) Are there events which can be recalled directly from memory, and which are immediately available, as opposed to events which must be reconstructed?
- 6) How should survey questions be constructed to exploit best the way the material is encoded in memory?
- 7) What are the particular effects on survey results (especially with regard to the NCS) of personal versus telephone contact? Are there demonstrable differences in recall performance when only auditory cues are available?
- 8) Is the victimization event always in memory, waiting to be triggered by the appropriate retrieval cue(s), or does the memory fade significantly over time, requiring timely intervention if it is to be recaptured at all?

- 9) What are the effects on recall of the degree of similarity between the original occurrence of an event and the conditions under which it is recalled?
- 10) What techniques can be brought to bear in the interview situation to assist the respondent in the recall task?

The workshop was conducted in strict accord with a ground rule proposed by the chair that accorded priority of the floor at all times to any of the panel of invited cognitive psychologists over other participants requesting recognition.

Following the introductions of the participants, discussion was initiated by the chair on the general issue of the "memorability" of criminal victimization. How is the original victimization experience of the respondent stored in memory? What are the consequences of this storage process for future attempts to stimulate recall? Is the original crime experience such a monumental event cognitively that it is very readily memorable? Are these experiences of a kind which are always and universally accessible (i.e., very quickly retrievable with perhaps only a very general cue), or do they require more effort to recall?

Early criminal victimization surveys showed that in fact a great many crime experiences are not extremely prominent or salient events in memory, and the reasons for this are obvious. In comparison with the frequency and magnitude of other life events (e.g., births, marriages, bereavements, accidents, illnesses, daily mistakes and frustrations, etc.), even most "major" victimizations such as burglary or auto theft are far less severe in terms of harmful material consequences or the dramatic character of the events. In short, many life events are more memorable, and many crimes are really only memorable to the extent that they are unusual or infrequent.

Even serious events, however, are not always recalled, and recall has been shown to vary greatly across different surveys. So it is not at all clear how much work is to be done in getting respondents simply to exert more effort in order to recall past victimizations, nor is it evident which crimes or types of crimes are so obviously memorable that something other than the imperfections of human memory must be responsible for the fact that they are under-reported (i.e., motivation, reticence, repression, etc.). Therefore, the first question put to the panel of cognitive psychologists was as follows: Can the criminal victimization universe be categorized into events which should be available to "direct" recall and which are stored in some easily accessible way, versus those that are less salient and can only be recalled with cognitive effort? More generally, what models are there from cognitive psychology regarding the classification of experiences in memory?

In response, it was reported that standard thinking recognizes two basic types of memory--short-term and long-term memory. The former corresponds more or less to the contents of immediate consciousness, and is thus directly accessible. What is in memory but not in immediate consciousness

is in long-term memory, which necessarily can be retrieved only through a more derived process. Recent work also suggests the possibility of another kind of memory--"working" memory--which is somewhat intermediate between long and short-term memory, containing material which has been recently retrieved and rehearsed. Obviously, the NCS (or any other survey) recall task is directed toward effects of events on long-term memory processes almost exclusively, and thus the long/short distinction is not particularly germane to this issue. However, the working memory notion might be useful--the idea that recently activated or accessed information is in a different state and can be retrieved more quickly and easily than that which has not been accessed for a long time. Thus, it may be the case that the recency of the event, or the recency of its last recall, causes the perception that the memory is recalled directly rather than through a more derived process.

It was argued that this line of thought is counterintuitive in that there are elements of memory which are immediately available with no real cognitive effort and without any recent rehearsal ("Have you ever been in the Army?"). In response to this point it was suggested that it may be useful to distinguish between asking people about an ongoing state (i.e., for retrieval of a memory which reflects one's current definition of self); versus asking about an episode, which has a specific beginning and ending, a finite and typically brief duration, and no durable consequences relating to changes in self-definition or ongoing state.

Following this discussion, it was suggested that those people for whom criminal victimization is not episodic, but rather is embedded in a lifestyle and does represent an ongoing state, might have more difficulty extracting the information from memory because the cues (survey questions) are designed under the assumption that victimization is episodic. The cues, in other words, are only designed to retrieve information about discrete events, and not about current states.

In response to this discussion, the point was made that even retrieval of distinct episodic material from memory is often problematic, and thus a basic question is: What distinguishes episodic memories which are easily retrievable from those which require great effort to bring forth? One such dimension may be the ready availability of contextual cues. Recall of events is probably greatly facilitated when the context in which they occur is unique, or when a typical set of contextual material may be easily generated from general knowledge. Some crime events, therefore, may not be easily retrievable because there is no typical context in which they occur, and thus it may be difficult to generate a large set of essential characteristics of the event. Some evidence suggests that subjects asked to recall such events are forced to generate a limited context on their own and then engage in specific search processes. This would also imply the possibility of vast individual differences (probably related to IQ) in people's ability to engage in this work successfully--i.e., to search out memory material which is not connected to a great deal of contextual material. Perhaps interviewers could, in the process of the

interview, identify those respondents who have difficulty carrying out the recall task and help them generate cues as if the respondent were doing so him/herself.

At this point it was noted that the discussion had been unable to focus on the encoding and storage of criminal victimization events apart from the retrieval process, even though the material goes into memory without any specific knowledge that it may later have to be retrieved. In response it was reported that there is a substantial body of recent experimental knowledge regarding the effects of different encoding processes in subsequent retrieval. However, it was also suggested that for present purposes this material is irrelevant because of the impossibility of affecting how the victim encodes his/her victimization. There are, on the other hand, obvious and common sense things that can be done--for example: respondents could be sensitized to the kinds of questions they are going to be asked and the kinds of events which are the focus of the survey; or respondents could be asked to keep a written record of victimizations, perhaps with payment for each event recorded [laughter] (but not too much); or, respondents could be instructed to call the survey organization each time a victimization occurs, not to report the details of the event but simply that such an event had taken place.

Some of the problems of the diary method and other related techniques were discussed, and the suggestion was made that a combination of retrospective recall in the survey and some sort of record keeping might offer the best opportunity of fulfilling the objectives of the research--which are not to test memory but rather to obtain the most reliable and valid data possible. Still the question was raised whether this might result in a greater problem with respondent's idiosyncratic definitions of events that are in and out of scope. One of the benefits of the survey method is its capability of more clearly and uniformly defining what are the topics of interest. As a means of combining the best of both the survey and record-keeping methods it was subsequently suggested that a sample be designed such that 1/365th of the sample is interviewed every day and asked to recall only events of the previous day before being presented with the ordinary reference period screen questions.

Returning to the question of the encoding of the victimization experience, it was pointed out that although it is not possible to control the way the episode is encoded in the victim's memory, it is quite possible to find out how it was in fact encoded. The questionnaire itself is a device for doing this; a test of recollection is a test of encoding. A possibly fruitful avenue of research might be to gain access to a sample of victims immediately after they have been victimized, and obtain as full and complete a description of the event as possible, in order to learn the nature of the encoding process for victimization events. Greater knowledge of this process may suggest more effective retrieval cues.

A problem in conceptualizing the under-reporting problem in the NCS concerns the inability to separate out the extent to which the events themselves are not memorable or not easily extractable from memory, versus the

extent to which people's memories in general are not adequate for such a recall task. There is, it seems, no information regarding the distribution of memory among the population sampled for the survey (see Appendix), about the differential "memorability" of the events the NCS attempts to capture, about the extent to which effort must be expended to retrieve such material from memory, and about whether even under the best of circumstances the survey asks too much of respondents; despite the fact that the formulation of the survey questions makes assumptions about all these issues. A suggestion made at this point was the possibility of calibrating the respondent's ability to perform the required memory tasks by including questions about other events which are known (or can be reasonably assumed) to have happened, to provide a general indication of the adequacy of the individual's memory. In response to this discussion, the hypothesis was raised that, given the background characteristics of those persons more frequently victimized, perhaps victims' memories are not as good as non-victims, which may explain the counterintuitive finding that reported victimization is higher among the well-educated than among people with less education.

Returning to the issue of encoding, two propositions were raised for consideration: 1) There seems to be agreement that it is not possible to control the way the respondent/victim has encoded the event; however, there is also an assumption that knowing about how the event has been encoded enables the researcher to write "better" questions. Clearly, the way survey questions are worded reflects the implicit assumptions about how such experiences are encoded. 2) It is also obviously assumed, at least in the world of survey research and for events that are potentially measureable by survey methods, that there is reasonable similarity across the population in the general way information is encoded. If this were not the case a conventional survey would be impossible, since each respondent would require his/her own individual form of questioning in order to retrieve material from memory effectively.

Although very little work has been done about the storage of episodic material, laboratory research suggests that memory is organized more according to semantic dimensions than it is according to attributes. (Thus, people find it easier to "tell me all the fruits you can think of" than to "tell me all the red things you can think of.") However, the practical implications of this are unclear with regard to whether it is better to ask about burglaries (for example) in terms of stolen goods or break-ins at one's home, or some other way.

At this juncture it was pointed out that all of the discussion regarding the task of the respondent in the survey seemed to assume a straight stimulus/response model that requires no training, despite the fact that a great deal of evidence indicates the beneficial effects of training on performance. Recall in the survey might be more complete if respondents were taught how to answer the questions.

Following some discussion on the topic of the number of response alternatives, in general, that a respondent could be expected to be able to process in parallel (the consensus was five), focus was shifted to a

related and more relevant issue. This issue (sometimes referred to as "mnemonic spillover") can be summarized as follows: In asking respondents about a particular type of victimization--whether they have experienced thefts, for example--the question is typically phrased in general terms followed by a few specific examples (e.g., "Was anything at all stolen that is kept outside your home or happened to be left out, such as a bicycle, a garden hose, or lawn furniture?") The intent of the list of examples is to imply to the respondent "et cetera" so that a memory search will also be activated for other related (but unspecified) events. An important strategic question then becomes: What is the optimal number and type of examples to provide to the respondent to stimulate a thorough memory search, especially for types of events not specified in (or not even directly related to) the list of examples? Should the examples be similar, or should they point the respondent in diverse directions? In survey practice, to what degree do specific examples of a larger class of events at which a question is aimed act to narrow or alter the effective definition of that class for a given respondent? What are the trade-offs between such distortions of the effective meaning from that intended, versus the usefulness of specific examples as memory cues and facilitators of question comprehension?

Aside from agreeing that the specific examples presented undoubtedly constrain the respondent's memory search process, very little was offered regarding the nature or direction of the effects, or what effects would result from a different set of examples. It was suggested, however, that a program of research could be designed around this issue by presenting different samples of respondents with the identical base question followed by different sets of examples and possibly a control condition with no explicit examples. By examining the recall protocols and comparing recall in general, recall of events specifically mentioned in the example list, and recall of events outside the given examples, the effects of different sets of examples could be determined. Although field studies of this type would be difficult (because of the lack of knowledge about what is a "correct" response), laboratory experiments with a staged or filmed "victimization" would be quite simple. It was hypothesized that the order of the listed examples would probably not need to be experimentally varied--as long as the absolute number of examples was kept to a minimum--due to people's capacity to engage in parallel processing of more than one item at a time. It was also hypothesized that the most effective strategy for stimulating a thorough and accurate search of memory would be to provide the respondent with as many concrete examples as could be easily processed in parallel, and to cover in the examples as large a proportion of the most likely incidents of the crime of interest (e.g., objects likely to be stolen) as possible.

Turning to other strategies to elicit more complete recall, it was noted that the inclusion of an attitude supplement to the NCS prior to the victimization questions resulted in a greater frequency of victimization reports. Two distinct (but not mutually exclusive) hypotheses were advanced to explain this finding: 1) In thinking about his/her attitudes toward crime, the respondent almost necessarily "stumbles across" some personal experiences with regard to crimes and victimizations that are

stored in memory and which might not be activated by the screener questions alone; or 2) The presence of the supplement may have served simply to provide the respondent with more time to become comfortable with the interview situation and to carry out a more thorough search of memory. (Following the conference, participants suggested two additional hypotheses which might also explain the increase in reported victimization with the addition of an attitude supplement: First, the supplement might serve to define for the respondent the appropriate range of events with which the survey is concerned, thus reducing report failures due to the respondent not realizing that an event qualifies for reporting. The second hypothesis also assumes that the supplement plays a "defining" role, but attributes the reporting increment to the effect of demand characteristics on ambiguous events (e.g., missing articles become thefts). The latter explanation obviously calls into question the generally assumed notion that more reporting means more accurate reporting.) In fact, hypothesis 2) above, coincides with research findings which demonstrate that given extra time, subjects in memory experiments can often produce more stored material. As an outgrowth of this discussion, it was suggested that starting the NCS interview with a general, free-form discussion about crime and the respondent's experiences with crime might serve to stimulate more complete recall in response to the actual survey items. The parallels of this scenario with the concept of "warm-up" from learning theory were noted.

One problem with this approach, it was noted, is the great likelihood--given the relative rarity of criminal victimization--that the respondent would say, in effect, "No, that's never happened to me" in the opening discussion. This would present difficulty in continuing the interview.

To this point the discussion regarding encoding had raised two distinct types of problems, one having to do with the communication between interviewer and respondent, and the other concerning decay over time. Again the point was raised that unlike the former problem the latter seemed, theoretically at least, to have a straightforward solution: namely, decrease the retention interval by phrasing the victimization inquiry in terms of the previous day (or week) rather than the past six months. (Obviously, this would necessitate intolerably large samples.) This discussion led to further discussion about the role of time in the encoding of episodic events--that is, whether time is linked in memory to the target episode or vice-versa. In response, it was asserted that, despite some evidence suggesting that memory tends to be organized with reference to landmark events (holidays, the beginning of the school year, moving into a new house, etc.) there has been little if any research which would address the issue of how best to use time "anchors" in the phrasing of the NCS (or other) questions.

In response to a request for a bibliography of key works in the area of cognitive psychology which would be most relevant to the focus of the workshop, three recent books were cited:

Loftus, Elizabeth. Eyewitness Testimony. Harvard University Press, 1979.



Yarmey, A. Daniel. The Psychology of Eyewitness Testimony. Free Press, 1979.

Clifford, Brian & Ray Bull. The Psychology of Person Identification. Routledge & Kegan, Boston, 1978.

It was noted, however, that the relevance of these works is limited by the fact that the occurrence of the event about which testimony is sought is rarely problematic--that is, there is always (and it is known by the questioners that there is always) an event which has occurred and about which specific questions can be asked. The recall task typically involves the recall of the details of an event that the subject is already thinking about and knows has occurred.

Some relevant work was noted in the area of health surveys, in which the goal is to obtain complete and accurate reporting of illnesses. An important finding from this research was that no single frame of reference was sufficient by itself to elicit complete reporting. Thus, for example, if the subject of interest were surgery, the most effective questioning strategy is to ask not only about surgery directly, but also to ask about stays in a hospital, whether stitches were ever taken, etc. Each additional frame of reference (a total of 8 was included in the study) produced a reporting increment such that at the end of the series there were approximately 5 times as many reports of illness as would have been captured by the single base question alone.

Some discussion was also generated regarding the effects of interviewer behavior on survey response, and the possible application of this research to the NCS. Some experimental evidence was cited to indicate that a questionnaire can be structured such that the desired respondent behaviors (putting forth effort to answer the questions completely and accurately) are consistently rewarded by the interviewer. Beneficial effects were observed, both in terms of increased reporting and reduced interviewer variance. These effects were attributed both to the rewards in the situation and the fact that, as a consequence of the slower pace necessitated by the structure of the instrument, the respondent had more time to think about the questions.

Following some discussion regarding the difficulties inherent in the comparison of survey and record check data (especially the specific problem of knowing how to interpret discrepancies, and the more general issue of what is the truth) the point was made that the appropriate question is not "which set of data is true?" but rather "How can these disparate and/or discrepant measures be combined to shed light on the question at hand?" It was argued that using a single instrument to assess the "truth" from the general public was questionable at best, and at worst, absurd. The more promising strategy is to approach the question with a variety of fairly orthogonal and independent instruments from which the analyst can derive interpretations of truth, rather than simply asking the general public what the truth is.

The question was then raised regarding the extent to which the "telescoping" phenomenon from survey research--the recalling of past events as having occurred more recently than they actually did--has also been observed in an experimental setting. One proposed explanation from the cognitive domain involves the concept of rehearsal of the event by talking about it, and the possibility that the respondent in some way confuses the occurrence of the event with its rehearsal, which would necessarily bias recall in the forward direction. It was suggested that reference in the survey to landmark dates (Christmas, before or after school started, etc.) may be of great help to respondents in anchoring events correctly in time.

September 18, 1980

The opening session of the second day of the workshop was devoted to summaries of the research plans of the Census Bureau and the participant organizations in the Crime Survey Research Consortium regarding the NCS. Representatives of the Census Bureau described new procedures (necessitated by a severe budget reduction) which increased the extent of telephone as opposed to personal interviewing, and their plans to monitor the results of the survey for any impact of the new procedures. No important conclusions have been reached to date regarding the effects of interview mode on victimization reporting. Also noted briefly was an experiment varying the length of the reference period (3, 6, or 12 months) in the NCS. The results of this research were not yet available at the time of the workshop, but were expected to be available shortly. Another small research project was mentioned, the results of which confirmed an earlier finding that the presence of an attitude supplement prior to the actual NCS interview increased the reporting of victimization. Further research is planned to investigate whether any supplement will increase reported victimization, or whether the crime-related content of the supplement is important to the effect.

In subsequent discussion about the probable mechanisms of this effect--most commonly attributed to "getting the respondent thinking about" the issue--the concept of state-dependent learning was mentioned. Briefly stated, research has shown that experimental subjects are better able to remember material when they are in the same state they were in when the material was originally learned or experienced. Typically, "state" has been manipulated with psycho-active drugs; recent evidence suggests that similarity of emotional state also has a substantial impact on access to memory. The suggestion was that the attitude supplement may not simply stimulate intellectual "thinking about" crime, but may also give rise to the same sort of emotional state or mood as was experienced in some earlier victimization, thus increasing the likelihood that the event is recalled. (A reference on the issue of emotions and state-dependent memory was suggested after the conference had adjourned: Gordon H. Bower, "Mood and Memory." American Psychologist, 1981, 36 (Feb.), p. 129-148.)

A different but somewhat related methodology was reported from the area of health surveys. In order to insure accuracy and completeness of information, respondents in some panel studies have been sent complete summaries of all previously obtained survey results for review by all members of the household prior to subsequent interviews. In addition, as part of the interview process, the interviewer goes over the summary with the respondent, making revisions as appropriate. A question raised was whether this approach might also be expected to stimulate recall in the NCS, even though for a great many respondents the summaries would consist largely of statements to the effect that "no event of type X has occurred" (i.e., was reported).

In response, it was suggested that such a procedure might serve to sensitize respondents to the type of event that is of interest to the investigator, thus affecting the encoding of subsequent events of a similar type and increasing the probability of their recall in later interviews. An analogy with psychological testing was suggested as another possible mechanism through which improvements in retrieval of information might be realized. One could view the initial interview as simply a typically unreliable one-item recall test; the addition of more "items" (i.e., the review by other household members) almost necessarily makes the test more reliable.

A strong reservation was voiced about the advisability of applying this or similar techniques in the context of the NCS. A large proportion of crimes having to do with interpersonal violence--which are, of course, of great interest in the survey--occur within a household, and others may involve some personal embarrassment for the respondent. For these and other reasons, it is possible that a review procedure might actually serve to suppress the reporting of certain types of victimization events, rather than elicit them. A related concern was also expressed about the Census Bureau's plans to increase reliance on telephone interviewing in the NCS. Purely apart from the difficulty of knowing what the effects on the data might be when others are present during the interview, in the telephone interview situation it becomes impossible to know for certain whether others are present. In a personal interview at least the presence of others can be noted by the interviewer. On the other hand, the telephone interview also has advantages for privacy in that, usually, only the respondent can hear the question being asked, and the respondent's replies are likely to be of no meaning to someone ignorant of the question.

Next on the agenda was a discussion of NORC's research plans for possible redesign of the NCS screener. Three general areas of research were described by NORC representatives, as follows: 1) Giving the respondent more time and more and better cues to jog memory. This includes kinds of introductions to the survey, directions to the respondent regarding the nature of the task, various mechanisms to provide the respondent with more time for a thorough search of memory, working through an initial example as a means of rehearsing the task, etc. 2) Increasing respondent motivation. Possibilities mentioned here include various messages to the respondent regarding the importance of the task, and thus the importance of putting effort into recalling past events accurately and completely; and a

written agreement with the respondent not only to participate in the study but to attempt to participate well. 3) Aiding recall, and other methods of helping the respondent carry out the required cognitive work. This might include the use of cards or other visual presentations, and other devices to break up the routine of simply obtaining answers to questions. A related issue is the loss of respondent interest and attention which often results from an extended series of "no" responses, and which is a problem in any survey investigating low-probability events. The insertion of occasional questions to which the respondent could give a "yes" reply might serve to dissolve the "no" response set, and help to maintain the respondent's attention in the event that a victimization item were presented to which a "yes" response was appropriate. Yet another avenue of research involves methods of anchoring events in memory (and facilitating recall) with significant dates, either personally or socially defined. The overall thrust of this work is to find the optimal balance between a task which is overly complex for the respondent versus one which is so simple as to be boring.

Closely coordinated with NORC's research plans are those of SRC, which perceives its task to be the general examination of several sources of error in the NCS, not limited to respondents' reporting errors. Three specific areas of investigation are 1) the characteristics of the sample design, and the impact of this design on sampling errors; 2) the utility of alternative measurement techniques; 3) differing modes of data collection. Of specific interest in this regard are the differences between telephone and personal interviews, the particular strengths and weaknesses of each mode as are relevant to the NCS, and the potential benefits of the application of CATI to surveys of criminal victimization.

With regard to the second area of investigation--which is most germane to the topic of the workshop--the first step in the planned progression of research activities is to assemble groups of people from diverse backgrounds, perhaps with recent victimization experiences, and conduct group sessions focusing on the ways that victimization episodes are stored in memory and the impediments that exist to the reporting of those episodes. The hoped-for end product of these sessions would be a clearer idea of the most promising dimensions on which to attack the issues of memory and motivation. Using instruments derived from or modified by the group sessions, a series of small field pretests would be mounted, followed by larger field tests with a refined instrument.

It is anticipated that many of the possible approaches to asking people about crime which have already been enumerated and discussed by the consortium will emerge out of the group sessions as well. These include alternative phrasings of the NCS screener questions in terms of a) the domains in which crimes may occur (e.g., at home, at work, in connection with certain common activities); b) the types of people by whom the crimes were committed (e.g., strangers or non-strangers, family members, seen versus unseen); c) the types of acts that are committed (the current Census Bureau approach); and d) the possible consequences of the victimization (e.g., absence from work, financial loss, hospitalization). The expectation is that the final instrument which evolves from the research program will combine features of all of these approaches.

The final report of contemplated research plans was from the Yale contingent of the Crime Survey Research Consortium. These plans include an examination of a longitudinal data file for response effects due to mode of interview (telephone vs. personal), length of time in sample, screener modifications, and screened versus unscreened responding. Another major research effort involves an investigation of the impact on survey estimates of natural changes in the composition of the longitudinal sample (e.g., deaths, household dissolution/reformation, etc.).

Returning to the issue of how best to stimulate an effective search of memory, it was suggested that if the survey questions rely on incidental cues (e.g., domains, actors, acts, consequences) to help direct the recall process, then the respondent's task can be made easier by assisting him or her in the retrieval of those cues. For example, response to the question about packages or clothing stolen from a car might be made easier and more efficient if the respondent were first asked about cars owned or rented during the recall period. It was acknowledged that this strategy could potentially inhibit rather than stimulate recall if a crime occurred in a domain not specifically noted in the preliminary question. It was also noted, however, that distributing such preliminary questions throughout the survey instrument could serve (as did, apparently, the attitude supplement) to allow more time to carry out the cognitive work required for a thorough memory search, and also to break up long strings of negative responses. Both would tend to stimulate better reporting of victimization. On the other hand, a reservation about this procedure is that, in attempting to insure maximum inclusiveness, cues might be incorporated into the preliminary or "warm-up" item which would only add to respondent burden and increase the likelihood of more "no" responses (e.g., asking about rental cars).

A question was put to the panel of cognitive psychologists regarding the possible utility of re-structuring the NCS screener to focus not on whether specific events have happened to the respondent, but rather whether the respondent has certain attributes (e.g., recent hospitalizations, insurance claims) which might be traceable to a criminal victimization. The response was that this is an empirical question, best answered by developing alternative cues based on people's descriptions of victimization experiences soon after they have occurred, followed by experimental tests of these cues. One hypothesis was that affective state would emerge from such a program of research as an effective retrieval cue. Other possibilities may have to do with the moment of discovery of the crime. These were clearly labeled as mere speculations; it would take a carefully conducted research effort to determine authoritatively the degree of salience of the features by which victimization experiences are stored in memory, and the utility of the features as retrieval cues.

Relative to this discussion, research was described which measured reaction time in response to stimuli in which the order of noun and adjective were varied. For simple semantic knowledge ("name a red fruit" versus "name a fruit that is red"), reaction time was significantly lessened when the noun category was presented first, suggesting that such knowledge is organized by the noun category, and that processing cannot begin until that information is presented. Comparable experiments with episodic material ("What

did you have for breakfast on Monday morning?" versus "On Monday morning, what did you have for breakfast?") showed no differences in reaction time. So there is currently little experimental evidence to indicate how episodic experiences are stored in memory which could direct the construction of effective survey item retrieval cues. Other recent experimental work was described in which the importance of the physical context of the original learning experience as a retrieval cue was demonstrated. Recreating that context, or stimulating the subject to simply imagine the context, has been shown to improve recall significantly. It was argued that these findings suggest that a focus on domains or locales of criminal acts (e.g., "While you were at work was anything stolen from you?") in the phrasing of the survey items may be the most fruitful approach to improving recall. The point was restated, however, that a research program could (and should) be designed to address these issues.

At the chair's direction, the discussion was shifted to the issue of the utility to cognitive psychologists of the body of knowledge regarding human memory growing out of survey research. In response, it was noted that the survey setting has been largely overlooked as a place to study human memory as it operates in natural "real-world" settings, among a much broader range of people than is typically available to laboratory experimentation, and in confronting issues that are of real importance to society. Perhaps most importantly, the NCS and other like surveys can provide valuable insights into how memory processes act on the storage and retrieval of everyday, episodic experience. However, a basic weakness of the survey method as opposed to experimentation is lack of knowledge about what ought to be in the respondent's head. That is, a survey can indicate what has been stored in memory, and how that material has been organized for storage, but it cannot address the questions of accuracy and completeness because the respondent's actual experiences are unknown.

The question was then raised whether the processes of storage and retrieval of episodic material could be studied with experiments which measure response time to various cues. Would a quicker reaction time to a cue focusing on locales (as opposed to acts or consequences) suggest how the experience is stored, and thus what type of survey item might best elicit it? The response was equivocal: while fast reaction time might be an appropriate criterion, it might also be the case that the best cues are those with the slowest response time, since the best cues are those that elicit rare or low salience events. A related question was whether there is any evidence from cognitive psychology that first-hand experiences are stored in a qualitatively different way than events which are "experienced" indirectly. Should different strategies be employed to retrieve the former type of experience versus the latter? More generally--assuming that what is salient to the respondent is easily retrievable--what is the best way to go about trying to recover low salience, difficult-to-recall material?

In response it was noted that two critical determinants of the retrieval of such information are sufficient time for the retrieval process and multiple cues. It was stressed again that the latter factor--the retrieval information with which the "rememberer" is provided--is exceedingly important in all recall tasks, easy and effortful. It was argued that, in fact,

there is no such thing as "effortful retrieval" apart from the absence of appropriate retrieval cues, and that the real effort in an effortful recall task is the subject/respondent's generation of additional cues to aid retrieval on his or her own. Of course, there may also be problems of inadequate or incomplete initial encoding of the event, and decay of the memory trace over time, but these are processes over which the survey method simply has no control. One promising strategy might be to give the respondent two attempts at retrieving the information, by following an earlier quick question with a slightly different question directed at the same target information later in the interview. Since not all retrieval needs to be under the conscious control of the subject, unconscious processing of earlier questions can go on in parallel with conscious work on current questions. Another strategy is to use successive cues directed at the same to-be-retrieved event. Since the encoding format for a particular respondent is always unknown, the use of successive cues maximizes the chance of retrieval. A final suggestion was based on the obvious notion that the more memory traces there are for an event, the greater is the probability that the event will be recalled. These memory traces need not be contained in the same head--that is, if A has been victimized, memory traces for this event would presumably be present in both A and B (another member of the household). More memory traces would be available, in other words, if more than one member of the household were interviewed about the same events. In response to the earlier question regarding the difference between the victim's encoding of an event and the encoding of the same event in the head of someone who did not experience it directly, it was suggested that the difference in the information provided by A and B about A (in the example above) would define the difference in the two types of encoding, and could be examined systematically to address that question.

A written question from the floor requested suggestions regarding what information ought to be obtained from respondents in a post-interview debriefing session. In response it was noted that of the three general categories of reasons for incomplete recall in the survey--deliberate misreporting, memory failure, and memory impairment--almost nothing is known about the extent of the latter in the population. It would be valuable to know the extent of such impairment in the general population, and it would also be valuable in interpreting the results of the survey to have some index of respondents' memory capabilities (see Appendix). Little was offered, however, as to how such information would actually be put to use in analyzing survey data, although it was suggested that memory impaired respondents' data might simply be excluded from analysis.

Opinions were also solicited from the panel of cognitive psychologists regarding the debriefing of victims in the immediate aftermath of their victimization experience, and how it could be structured to illuminate most effectively the nature of the encoding of victimization episodes. Suggestions included the following: focusing on victims' descriptions of their emotional state during and immediately after the event, in terms of both quality (anger, fear, annoyance) and intensity; estimates of the duration of the emotional state; whether or not they had told others about the event, and if so to whom they had talked, why, and what information was transmitted. Others made explicit the implicit message in the above suggestions that what is needed is not a police-type report of the objective

facts of the crime (which typically involves reconstructions as opposed to memories), but rather a subjective, totally person-centered recounting of the victimization and its aftereffects. A careful effort to elicit true memories, and to avoid the reconstruction of facts and events, might provide valuable insights into what would be the most effective search cues for later retrieval of the memories.

Discussion then shifted to the topic of sub-cultural differences in the ability to carry out a memory task of the type required of respondents to the NCS. Evidence was cited regarding possible major differences in the encoding processes of American Indians. Striking differences were reported, for example, in the extent to which information is organized temporally as opposed to semantically. These differences might lead to impaired reporting in response to structured questions, even though the information is in memory and readily accessible through alternative interviewing approaches.

The chair synthesized common themes of several written questions into general questions on the role of the reference period in the retrieval process: What differences are there, if any, in the process as it searches through a three-month reference period versus a six- or twelve-month period? Can respondents effectively use the reference period to delimit systematically their recall task? Are respondents able to think about an interval of a particular length and use the period itself to exclude out-of-scope material and assist in the retrieval of in-scope material? In response, it was noted that people generally perform rather poorly at tasks requiring temporal dating of memories. Although a reference period is obviously of some use in bounding the appropriate areas of memory to be searched (respondents do not, for example, retrieve events from early childhood) the reference period may only discriminate different events in memory and be of no benefit as a retrieval cue. The likely role of the reference period in retrieval is that it roughly delineates which memories are appropriate at the beginning of the process, serves no role in the actual retrieval of information, and is used at the end of the process to check retrieved memory "candidates" of the type cued by the question to determine whether they fall within the specified target interval.

The final discussion topic concerned possible formats for future collaboration between survey research and cognitive psychology. An open invitation was extended to all workshop participants to join the NCS teleconference system, both to continue discussion on the issues raised in the workshop, and to be informed of other conferences and professional meetings at which such topics could be pursued. The consensus seemed to be that any future gatherings be organized with a specific and operational focus, as opposed to a theoretical one. Somewhat ironically, participants from the survey research domain expressed the hope that the psychological laboratory would be put to greater use in examining the general problem of recall in retrospective surveys, while the psychologists talked about the benefits of taking the laboratory into the field. Another suggestion for collaboration involved the secondary analysis of existing survey data to address issues of cognition; survey archives contain a wealth of data which could be put



to use in this way. Finally, it was suggested that concrete ideas or proposals for research on the topic of cognitive processes and survey research be brought to the attention of the National Science Foundation for further development and possible sponsorship.

## APPENDIX

[The following information relating to the use of surveys to estimate memory impairment in the general population was submitted by Dr. Schuman after the conference had adjourned.]

In a large national household survey spread over the fall months of 1974, the following question was asked about one-third of the way through an hour-long interview:

The Arab nations are trying to work for a real peace with Israel. Do you have an opinion on that?  
[If yes] Do you agree or disagree?

There were no other similar questions in the survey that might easily have been confused with this one.

About four months later, in February 1975, all of the reachable respondents were reinterviewed by telephone. The above question was repeated in a routine way as part of the second questionnaire, and all respondents were then asked:

When you answered that question about the Arab nations did you recall having been asked it before?

This February sample also included a small set of respondents who had not been in the Fall survey, though they had been interviewed previously in another survey. These people were also asked whether they recalled the "Arabs" question, even though in fact they had not been asked it before. Of those who had been asked the item a few months before, only 24% replied "yes" to the recall question; of those who had not been asked the item before, 8% also said (incorrectly) "yes". Thus, the true proportion of persons who remembered the "Arabs" item is probably only some 16%.

The following table summarizes the recall of the "Arabs" question by age and education. "Correct Yes" refers to the percentage reporting that they recalled the item among the subsample that had actually been asked the item several months earlier; "Incorrect Yes" refers to the corresponding percentage among those who had not been asked the item. The base for each percentage figure is indicated in parentheses.

APPENDIX (continued)

AGE

	<u>18-24</u>	<u>25-34</u>	<u>35-44</u>	<u>45-54</u>	<u>54-65</u>	<u>65+</u>	<u>gamma</u>	<u>s.e.</u>	<u>p</u>
Correct Yes	23.2%	33.3%	27.6%	21.3%	16.4%	11.2%	.21	.05	.001
	(155)	(273)	(174)	(183)	(152)	(116)			
Incorrect Yes	7.3%	2.8%	7.3%	10.0%	7.3%	14.0%	-.23	.15	n.s.
	(55)	(72)	(41)	(40)	(41)	(43)			

EDUCATION

	<u>0-8</u>	<u>9-11</u>	<u>12</u>	<u>13-15</u>	<u>16+</u>			
Correct Yes	14.2%	19.5%	25.8%	27.7%	25.4%	-.14	.05	.01
	(141)	(118)	(383)	(231)	(181)			
Incorrect Yes	8.6%	12.5%	7.6%	9.1%	2.0%	.22	.15	n.s.
	(35)	(32)	(119)	(55)	(51)			

NOTE: The interaction of response (yes/no), correctness (correct/incorrect), and age (linear trend) yields:  $\chi^2 = 8.87$ ,  $df = 1$ ,  $p < .01$ . The equivalent interaction with education replacing age yields:  $\chi^2 = 4.43$ ,  $df = 1$ ,  $p < .05$ . (Cases are too few to allow adequate testing of the four-way interaction.) If "Correct Yes" is regressed on both age and education, only the coefficient for age is significant ( $p < .001$ ), the coefficient for education becoming borderline ( $p = .10$ ).

## APPENDIX (continued)

The results can be summarized as follows: Older respondents who had been asked the item were significantly less likely to recall it, while there is a trend for older respondents who had not been asked the item to be more likely to recall (incorrectly) having heard it. Less educated respondents who had been asked the item were significantly less apt to recall it; only the college educated appeared less likely to recall incorrectly having heard it. There are also suggestive departures from monotonicity in most of these relations.