For some years now, the Social Science Departments at the University of Wisconsin have badly needed access to a training facility in survey research. Students in our undergraduate programs are increasingly eager to develop survey skills because there is a substantial demand for able workers in this area. We have a growing number of younger faculty members trained in survey work who are prepared to pass on their skills. In the past several years we have increased the number of courses in our curriculum devoted to survey research and the survey research content of long-taught courses has increased considerably. We have been the only major University in the country without a closely allied survey facility which could be used for training purposes.

Access to a modest survey facility is also increasingly important for our research work. A growing fraction of our research dollars are being spent on collecting data through surveys. At minimum we need a facility which allows modest experiments in survey research, permits the pre-testing of questions and measurement instruments, and allows the inexpensive collection of basic descriptive data. All of this is in order to support major research proposals. Over the last several years, the Sociology Department alone has spent many millions of dollars hiring survey work from other agencies.

Below are detailed the plans to establish a very modest survey laboratory to be used for teaching and research activities. The distant model for this laboratory is the famous Detroit Area Study conducted by the Survey Research Center at the University of Michigan since mid-century.

The Detroit Area Study has produced a large fraction of our nation's survey research professionals. It also has produced a large number of research articles and monographs in Sociology, Political Science and Economics. It was the starting point for now well-established ways of asking questions and investigating social trends in voting, child-bearing, consumer confidence, religious beliefs and practices, racial attitudes, civic values and a host of other important issues. Each year the Detroit Area Study is conducted by one faculty member and one class of students who undertake personal interviews in the Detroit Metropolitan Area. The survey usually concerns a single topic of interest to the faculty member whose turn it is to "do" the DAS.
Our Laboratory will be similar to the DAS in its intention to simultaneously train students and conduct serious research. It will take advantage of recent technological changes in survey research to differ from the DAS in important ways: it will reduce the cost, increase flexibility and permit wider generalization of the findings. We will use computer-assisted telephone interviewing to conduct a national, continual omnibus survey from a three-workstation laboratory. The procedure will yield about 2,000, half-hour interviews a year. Calls will be made every day of the week. The resulting interviews will constitute a probability sample of the population on that day. Blocks of questions will move on and off the computer-controlled interview schedule, persisting long enough to yield the desired number of responses.

We assume that about 10 minutes of interview time will be absorbed in demographic and other always-asked questions. Another 10 minutes will be devoted to questions designed for and/or by classes. A final 10 minutes will be given over to pretesting and other research purposes.

The usual ratio of total interviewer hours to time actually recording data from a respondent is two to one. (The major proportion of time is given over to locating appropriate respondents, making return calls, etc.) The 1000 hours of time to collect 2000, half-hour interviews, then, will require about 3000 hours of interviewer time. Interviewers make about $6.00 per hour in Madison in 1987. Thus the 3000 hours cost $18,000.

Traditionally, telephone costs for national telephone surveys have been estimated as equal to interviewer costs. Recent changes in the long distance rates for the University of Wisconsin make it wise to estimate telephone costs as equal to 1.5 of interviewer costs. That ratio yields an estimate of $27,000.

The cost of coding and other data preparation services can be estimated at about 10 minutes per completed interview or about $2000 at the interviewers' rate of pay.

Routine administrative, supervisory, and technical tasks can probably be accomplished by a full-time academic staff person costing around $20,000. This estimate assumes that some faculty released time can be provided for oversight and negotiation with teachers and researchers about inclusion of their questions on the survey. We have agreed on a release of a quarter time for these purposes.

The final costs are a miscellaneous grabbag of supplies, equipment maintenance, and student hours: clerical assistance. The sum of these costs is estimated at $5000.
A summary of these costs is as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewing</td>
<td>$18,000</td>
</tr>
<tr>
<td>Telephones</td>
<td>$27,000</td>
</tr>
<tr>
<td>Coding</td>
<td>$2,000</td>
</tr>
<tr>
<td>Supervision</td>
<td>$20,000</td>
</tr>
<tr>
<td>Supplies, etc.</td>
<td>$3,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$70,000</strong></td>
</tr>
</tbody>
</table>

The College of Letters and Sciences and the Graduate School have agreed to split the roughly $70,000 per year cost of this operation.

The survey research facility will be located in the Department of Sociology for organizational and housekeeping functions but be controlled by a Steering Committee made up of interested survey researchers from several departments. This body will make decisions about which questions get on the survey, for how long, and under what circumstances. The Committee will add to its membership as new survey research faculty arrive on campus and will terminate the membership of faculty who do not participate in its activities. The Committee will nominate a new Director as the term of service of the initial director comes to an end.

The Director is appointed by the Dean of Letters and Sciences and serves as executive officer of the Steering Committee, carrying out the policies established by the Committee.

**Issues in Selecting a Sample**

Four technical issues must be faced in order to create a continual omnibus survey:

A. How will sampling be accomplished?
B. How will questions be added and subtracted from the schedule?
C. How will interviewers be trained to administer the continually changing schedule?
D. How will the data be scored to make maximum use of the continual aspect of the design?

The following sections will deal with these issues in turn.
Sampling

Because blocks of questions will move on and off the survey in an overlapping pattern and because respondents to each block should constitute a probability sample of the population during the time the questions are being asked, we believe it is best if each day’s interviews constitute a random sample of the population on that day. This requirement means that we must deal with the problem of nonresponse in a special way. Because there comes a time when today’s not-at-homes can’t be called back later today.

We propose to deal with this problem using a procedure first suggested by Klein and Hensy and elaborated upon by Maddox. The procedure depends on replacing current not-at-homes with not-at-homes saved from previous sample draws. Because we think that the kinds of people not at home on one day of the week may be different from those not at home on another, our replacement scheme will be day-of-the-week specific.

It works like this. A fixed number of calls to new sample numbers will be drawn every day. Consider Mondays. Responses to the first Monday’s new calls will constitute members of the first tier for the first Monday. Numbers not answering from these new numbers will constitute the replacement set for no-answers on the next Monday and so will be called again a week later. Those answering will fall into the second tier for the second Monday and be added to those in that Monday’s first tier to make up the day’s sample. Those still not answering will be called again the following week and responses will constitute the third tier for the third Monday. They will be added to that Monday’s first and second tier to comprise the third Monday’s sample.

Such a procedure will continue to an arbitrary cut-off for the number of tiers. The result is a sample for a given day in which not-at-homes from that day’s sample draw have been replaced by people who are similarly difficult to reach on that day of the week. Some measure is added to the variability of the resultant estimates. Nonetheless, each day’s interviews can be aggregated with those for other days to produce a probability sample for arbitrary contiguous blocks of time.

Editing and Substitution Questions

Telephone interviews will be conducted using the Computer Assisted Telephone Interviewing (CATI) system developed at the Wisconsin Survey Research Laboratory. Under this system, a single copy of the instrument is maintained on a central disk and transferred to workstations at the beginning of each day’s activities. Changes to the master schedule can be made in a word processing type of environment and are not difficult. Post-
Modification schedules are backed up to tape for an archival record of the instrument actually used on a given day.

In addition to modifying the schedule, the addition or subtraction of questions will require preparation of interviewer training materials as discussed subsequently.

The addition of a new block of questions will also require preparation of "relations" in the relational data base to store the new data. Of course coding materials must also be supplied as they are needed and special "relations" for on-line coding must be prepared if they are required. Finally, any prohibited conditions which will influence editing and data cleaning procedures must be specified.

Training Interviewers

The majority of training for schedule modifications will be accomplished within the CATI system itself. The system operates as a coaching program. At the beginning of a new work period for an interviewer, an explanation and preview of any changes in the schedule are presented before the work period's sample phone numbers are provided. Of course, major changes in the schedule and the introduction of particularly difficult sets of questions will require separate training sessions. A methodological note of some interest is that the sampling scheme permits investigation of any effect on response pattern with time since introduction of a block of questions, i.e., the effect of interviewer learning. It will also permit investigation of the effect of the introduction of a new block on responses to those carrying over from previous times.

Data Storage and Retrieval

Responses to questions, both before and after coding, are maintained in a relational data base. Each block of questions is kept in its own group of one or more relations. Interview number is a "key" variable in each relation. A data set made available to a class, for example, might consist of the responses to questions the class prepared for "their" block of questions joined through the key to the basic demographic questions for that case.

The group of relations for each block of questions will also include "codebook" relations, other relations used in the coding process and documentation of editing and cleaning. In addition there is a "blocks" relation which contains information about each block of questions including when it began and ended in the survey, its sponsor and reasons for inclusion.
Advantages to the WISCON Design

A major general advantage to the WISCON survey procedure is that it is cheap. Of course telephone surveys are less expensive than personal interviews. The WISCON procedure also saves money by being continual. It is not necessary to take on, train, and then lay-off a succession of varying numbers of telephone interviewers as new surveys move into and out of the field.

Advantages to the WISCON procedure for our teaching operation come primarily in its flexibility. It will serve a number of classes and can fit into each one's unique scheduling needs. Questions can remain "on" the schedule as long or as briefly as the instructor likes in order to garner sufficient responses for his/her classroom purposes.

Students may be more deeply involved in the process as that is desirable. Workstations will be wired so that an interviewer "in training" can listen in on an interview and enter data into the computer in tandem with a professional interviewer. Thus, students can be efficiently trained as interviewers. When a match of their responses with those of the professional reveal sufficient agreement, students can proceed to conduct additional interviews at non-peak hours if that is useful pedagogically.

Of course, similar arrangements can be made for coding activities. Student on-line coding can be saved in a separate relation and results compared with that of professionals.

The WISCON procedure has special advantages for research work although it is by no means a substitute for access to a full-scale survey operation. Variability in small-size for parts of the omnibus is an important feature. Early stages in the development of measurement instruments may require a modest number of responses while using the instrument to measure response from segments of the population may require quite a large sample. Of course, questions requiring large samples simply remain "on" the omnibus for quite a long time.

Large samples in WISCON are most straightforward for those things which are thought to change slowly. If the variable of interest is changing during the time the questions are "on" the survey, it may be necessary to include time as a factor in the analysis whether the issue of social change is important conceptually or not.

At its best, the WISCON procedure may make possible a kind of "interactive" survey analysis in which the researcher asks questions, gets answers, and then asks more directed questions; this in contrast to the current "batch" mode of survey operation.
in which one must think up all the relevant questions on a topic prior to introducing the single schedule into the field.

The procedure has a special advantage in studying things which are changing rapidly. Each day’s sample is an independent probability sample of the population and so provides an estimate, although one with considerable variance, of the level of an indicator on that day. Although one day’s estimate is in itself not very powerful in a time-series model of change it achieves considerable power. Thus, for a variable which has been relatively constant for a period of time and then begins to shift, the procedure will give a fairly tight estimate of the time when the shift began. Of course this feature has practical advantages because signals of change can come fairly quickly after the change has begun. For research work, the feature is especially interesting in determining the order of events in a social change. Does the decision in an important court case lead to attitudinal change or is the court simply reflecting popular beliefs?

Disadvantages of the WISCON Design

Our survey procedure has the vices of its virtues. Being a telephone survey, it shows their typical bias. Being a small continuous operation, it shows the aforementioned difficulty in collecting a large sample in a short time. This defect will be particularly noticeable for blocks of questions which require answers only from selected segments of the population. We will collect 800 responses in about 12 weeks but 500 responses from blocks will take over two years to accumulate. Since processing can proceed continually, it remains to be seen whether this longer time in the field increases the calendar distance between inception of the researcher’s idea and access to usable data.

Of course it will be possible to increase the number of workstations and hire additional interviewers to increase the number of interviews collected each day if there are funds from a grant. But such additions remove some of the cost advantage and pricing of the additional interviews must fully cover these diseconomies of scale.

From the teaching point of view, for most students the WISCON Survey is a less complete experience in survey research than is DAS. Although more students will gain the experience of being the "client" of a survey operation, fewer will achieve as full a knowledge of the details of a CATI omnibus as DAS students have of the personal interview, area sample, single purpose study.
Prior to conducting the first WISCEN Survey block, there are several tasks to be accomplished. Two of them involve selecting questions which will become part of the permanent survey. Selecting the demographic questions which are to be available to every block of added questions requires considerable discussion among potential users.

A second group of questions which will always be asked are also to be selected. They are questions about some aspect of society which the faculty believe is likely to change in the near future, an aspect for which the timing aspects of the WISCEN Survey are thought to be useful. Obviously such questions can be added at any time and it is probably not wise to include too many such questions initially. Nonetheless it is probably a good idea to include a few questions at the beginning to learn something about the behavior of the instrument. The General Social Survey includes some interesting questions on euthanasia and it might be interesting to duplicate a few of them in WISCEN. Another question which has received some support for inclusion is simply, "Do you know anyone who has AIDS?"

The issue of calibrating the "instrument" is a serious one for a new procedure. For this reason the first block of questions included in WISCEN should include questions which show little change and which have been asked under a number of survey regimes. Questions from the General Social Survey, Political Surveys from ISR at Michigan and the Current Population Survey are good candidates as are expected family size questions.

We expect to set up our workspace, install our computers, and prepare our initial schedule during the fall semester of 1987. We expect that routine data collection will begin with the new calendar year in January of 1988.
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7. cf., C. Date, A GUIDE TO INGRES, Addison-Wesley, 1987.
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