

COMPUTER-ASSISTED TELEPHONE INTERVIEWING IN THE UK  
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## SUMMARY

This paper describes the current status of telephone interviewing, especially computer-assisted telephone interviewing (CATI) in the UK. It discusses possible constraints on development in the fields of market and social survey research and describes a study designed to test the feasibility of conducting dual-mode social surveys, using both telephone and face-to-face interviewing.

## BACKGROUND

In examining the development of CATI in the UK, we need to remind ourselves that CATI represents the merging of two technologies - computerisation and telephone interviewing. The latter is well-established in the US as a data collection method in both market and social research. CATI can then be seen as a logical development, almost a natural progression.

The UK environment is very different. For good reasons, telephone interviewing is not widely used for interviews with private households. For possibly less sound reasons, it tends to be regarded as an inferior and limited substitute for face-to-face interviewing. While the introduction of CATI is stimulating interest in telephone interviewing, its growth can not be guaranteed. Because the two elements of CATI - computer-assistance and telephone interviewing - are not seen to be linked inextricably, one element could grow without the other, or both could develop separately.

This separation can be seen clearly in an illustration based on AGB Research, the largest British research agency. That company has a subsidiary that operates the largest central telephone interviewing facility, but has shown little enthusiasm for CATI. At the same time, another group company is actively developing data capture methods based on modern technology, but using videotex and cable rather than telephone interviewing.

### Computers in Data Collection

The potential of the computer in data collection, rather than in data processing, has been recognised and discussed by UK researchers for 15 years or more. But this potential has been linked only quite recently with telephone interviewing. We have seen experimental or established use of computer-assisted self-interviewing - bringing respondents to central location 'clinics' - and limited use of portable or hand-held terminals to assist face-to-face interviewing in the field. As mentioned above, electronic technology is also being applied to data collection through videotex and cable.

Strong encouragement to adopt CATI has come from suppliers of computer software, who have developed systems in advance of any real home demand. These systems tend to be suited to the requirements of survey researchers and relatively easy to adopt, not least because they are developed by bureaux with longstanding experience of survey data management and analysis. We can at

least avoid some of the problems that plagued some early US systems, with their tendency to generate data in unmanageable formats.

While the majority view is that computer assistance will be beneficial in survey data collection, it is not a unanimous opinion. Some see computer assistance only as a gimmick. Others see more marked limitations. Computers can be associated with highly structured and inflexible approaches that might limit unnecessarily the type of data collected in a survey. They can be seen as a barrier between the social scientist and the survey respondent, imposing superficiality on the interview.

Suspicion comes too from a history of underachievement, where the enthusiasm of the computer 'buff' and the quality of the software has not been matched by the reliability of the associated hardware and liveware. The researcher who has been forced to burn the midnight oil writing a report because tabulations were late by a day, a week or a month is not keen to hand over data collection to a computer rather than to the friendly, familiar and flexible field department.

These reservations may not reflect the truth about computers, and they ignore the potential benefits of increased control and reduced dependence on the interviewer's initiative. But they are bound to be influential.

### Telephone Interviewing

The weak link in CATI, however, is telephone interviewing. Survey practitioners in the UK have long experience of telephone interviews with businessmen and other non-domestic populations but have continuing - and understandable - reservations about their use among the general public. These reservations relate not only to the fact that one in four households still does not have a telephone but also to the relatively brief experience of telephone usage among many of the households that do have one.

Unfamiliarity with the telephone is widely believed to impose severe limitations on the kind of data that can be collected, and on the length of an interview. The telephone is seen to be best suited to short interviews seeking unambiguous factual data. Like the computer, the telephone may be seen as a barrier between the researcher and the complex truth.

As will be shown, most UK survey practitioners believe that the use of telephone interviewing will grow, but, for many, their acceptance of this growth is only grudging. Telephone interviewing is seen as a response to demands for quicker and cheaper data - demands that will be met only at the expense of quality.

Again these reservations may not be well-founded but must be influential. Arguments that CATI from a central location will improve data-quality have to overcome ingrained prejudices.

## CURRENT STATUS

Despite these reservations, there is no doubt that CATI has caught the imagination of many UK

researchers and that their enthusiasm is being translated into operational systems. A register recently published by the Market Research Development Fund listed 19 survey agencies with some investment in CATI (see Table 1).

Several of these organisations are still only at the stage of feasibility testing, but about 10 seem to be committed. The popularity of systems based on micro-computers is clear. In a highly fragmented market served to a considerable extent by under-capitalised suppliers, rapid growth in CATI must depend crucially on the availability of reasonably priced systems capable of development in small steps. (This could, of course, be taken too far. Just as telephone interviewing may be discredited by "quick and dirty" research, so CATI may be discredited by inadequate and inflexible systems based on machines not large enough to cope.)

### Future Investment

The MRDF survey of research suppliers and users showed a degree of enthusiasm for CATI, tempered by fears of the costs likely to be involved. As many as one in five of the 180 suppliers said they were "certain" or "very likely" to invest (or to invest further) in CATI. This claim becomes more impressive given that many of the organisations expressing a low likelihood of investing in CATI were not involved in large-scale interview surveys.

Enthusiasm for CATI, even divorced from views about telephone interviewing in general, was not total nor universal. About half of both suppliers and users saw it as having only limited value - for either large and complex surveys or small and very simple surveys.

### TELEPHONE INTERVIEWING

The future of CATI in UK survey research is dependent on the acceptance of telephone interviewing by researchers accustomed to thinking of it as an inferior method of data collection. About 90% of both suppliers and users of market research expect the use of telephone interviewing to increase. But about 25% are personally opposed to this development.

### Positive Pressures

Telephone interviewing is closely associated with flexible "fast-response" surveys, investigating the immediate effects of specific events. This facility is the most widely recognised encouragement to increased use of telephone interviewing.

Cost is also widely mentioned as a positive pressure. In the commercial sector, however, there are already dissenting voices questioning the cost advantage of telephone interviewing. In this sector the norm is the quota sample survey, yielding high productivity from relatively cheap interviewing time. The cost advantage will, of course, be much more marked in public sector and academic research, where probability sampling is the norm. But, for reasons discussed below, adoption of telephone interviewing in such research will be much slower.

The possibility that telephone interviewing might yield better survey data is not widely

recognised. Only a few respondents in the MRDF survey mentioned improvements in sampling, contacts rates or interview quality (through centralised control, instant checking and reduced stress on the interviewer).

### Constraints and Reservations

Factors regarded as constraints on the growth of telephone interviewing fall into three broad categories:

- low telephone ownership;
- limitations on the amount and depth of data that can be collected in a telephone interview;
- public opposition or resentment of the greater intrusiveness of the telephone.

### Telephone Ownership

The current estimate is that 73% of UK households have a telephone, and that these households contain 77% of the adult domestic population (MRDF, 1983). In the commercial research sector this has been seen as a threshold of acceptability (although most users of telephone interviewing persist in attempting to "represent" the total population through weighting procedures, rather than accepting the utility of information based upon the smaller telephone-owning population).

In public, social and academic research, this level of coverage is not acceptable. The problem is heightened by the uneven distribution of telephone ownership, with levels being especially low among the less privileged groups that are so often the focus of social surveys. Thus, telephone ownership is estimated at only:

- 66% among adults aged 65 or over;
- 55% among single person households;
- 50% among the unemployed;
- 47% among those dependent entirely on state benefit;
- 46% among low-income households.

While telephone ownership has been growing rapidly (by about 4 percentage points per year), non-ownership is increasingly concentrated among the worse off in society. It would be sensible to expect the rate of growth to decline in the future and for penetration to increase only slowly beyond a level of, say, 85%. For the foreseeable future, the use of telephone interviewing, and hence CATI, in social research will be limited to a minority of surveys. The barrier will only be broken if and when researchers and research users are satisfied that mixed-mode interviewing (telephone and face-to-face) is feasible.

### Limitations on the Interview

Apart from the obvious limitations arising from the inability to display material to respondents in telephone surveys, there is widespread suspicion regarding the depth of information that can be collected. Responses in telephone interviews are expected to be less well-considered and more superficial.

The majority view is that questions in telephone interviews have to be simple closed

questions about unambiguous and non-sensitive factual and behavioural topics. Only among a minority of enthusiasts is it felt that attitudes can be measured and that the telephone interview may actually be more suited to the coverage of sensitive topics.

### Public Reactions

Many researchers feel that a telephone call is more intrusive than a personal visit. They anticipate not only a lower level of agreement to take part in telephone surveys but also a higher post-interview resentment.

An associated concern is that telephone interviewing might be more prone to confusion with direct selling, to the detriment of the survey industry. The precautions against such confusion that have been developed by the industry in respect of face-to-face interviewing have not yet been replicated for telephone interviewing.

### A FEASIBILITY STUDY

UK survey practitioners are well aware of the widespread use of telephone interviewing in both market and social research in the USA. Many of them, however, are not confident that the methodology or the results of comparability studies are transferable between the two cultures. There is, therefore, a demand for feasibility and comparability studies in the UK.

The SCPR Survey Methods Centre has recently conducted one such study. Its objectives were to:

- compare response rates to telephone and face-to-face contacts;
- assess the willingness of the public to accept long telephone interviews;
- test whether various kinds of information, including attitudinal and possibly sensitive information, could be collected in a telephone interview.

Given the perceived need for mixed-mode surveys in the social research sector, our most important objectives were to test a methodology of conducting such surveys and to assess the compatibility of data collected by telephone and face-to-face interviews. In this assessment, it is not assumed that face-to-face interviews necessarily collect valid data. The question at this stage is not whether one of the two modes produces better data but whether it is possible to combine data collected by the two modes.

### Method

The feasibility study was attached to a survey of Social Attitudes. The main survey was conducted using face-to-face interviewing, among a probability sample of about 2000 adults. The interview was very long and covered a wide range of social attitudes and values. Further information was collected in a self-completion questionnaire.

For the main survey, a sample of about 2600 addresses was selected from the Register of Electors, spread over 114 sampling points. Addresses were selected with probability proportional to size; at each selected address one

adult was subsequently selected for interview using an established procedure based upon the "Kish Grid". A parallel sample of about 800 addresses - in the same 114 sampling points - was selected for an experimental sample. These addresses were submitted to a British Telecom telephone number retrieval facility - producing numbers for 65% of the submitted addresses. (The difference between this retrieval rate and the level of telephone ownership reflects the existence of unlisted numbers, population mobility and miscellaneous tracing problems.)

The telephone numbers obtained in this way were systematically assigned to four sub-samples. One of these was to be interviewed by telephone using a questionnaire expected to take about 20 minutes to complete, the questions being drawn from all sections of the main Social Attitudes Questionnaire. A second sub-sample was to be interviewed by telephone using a longer questionnaire - estimated at 40 minutes - again drawn from the main survey questionnaire. The remaining two sub-samples were similarly allocated to 20 minute and 40 minute telephone interviews but were also contacted in advance by mail. In all cases, the selection of a respondent for interview was to be on exactly the same basis as the main survey, ie. using a "Kish Grid" whenever there had been any change to the structure of a household since the compilation of the Register of Electors. (This typifies our preference to change practices only when change is shown to be necessary, a preference justified here by the lack of problems.)

Addresses from the experimental sample for which no telephone number was obtained were to be contacted for face-to-face interview, using the 20 minute questionnaire in all cases. Since telephone ownership is unevenly distributed through the population, it was likely that we would find some differences between the data collected by telephone and by face-to-face interview within the experimental sample. Accordingly, an additional basis for comparison was built into the feasibility study. A systematic sub-sample of 600 of the main sample addresses was submitted to the same telephone number retrieval facility. This allows us to make comparisons between those who were interviewed by telephone and those who could have been interviewed by telephone but were interviewed face-to-face. There are still limitations arising from differential patterns of non-response within the two groups and from the fact that the comparable questions in the face-to-face interviews were embedded in a much longer questionnaire. These limitations have to be accepted on budgetary grounds.

An additional feature of the study was that all who refused to be interviewed by telephone were followed up in person. An attempt was made to complete the shorter interview and to question the respondent about the reasons for his or her refusal to be interviewed by telephone. Selected respondents were also re-contacted in person and asked about their reactions to being interviewed by phone.

### Some Results

The experiment is currently being analysed for a report later in 1983 and much of the data from

the main survey is subject to an embargo. However, a few comparisons between mixed-mode (250 telephone; 150 face-to-face) and face-to-face results are given in Table 2 (factual items) and Table 3 (attitudinal items). The general impression is of encouraging similarity between the two sets of results. Some detailed notes adding to this impression are:

- Social Class Similar profiles from coding based on detailed information about occupation.
- Income Greater reticence in telephone interviewing, but not disastrously so. Income bands read out over phone, compared with letter-coded prompt card in face-to-face interview.
- Activity Status Similar profiles despite fairly complex definitions and ability to use prompt card in face-to-face interview.
- Political Allegiance Classification based on a series of questions.
- Newspapers Similarity extending to the numbers insisting they have more than one main daily newspaper, or none at all.
- Attitudes Closely comparable results, as for factual items, especially given the likelihood of imprecision within mode for some questions due to complexity or length.

#### Response Rates

Our experimental results suggest that response rates to telephone interview surveys will follow a pattern similar to that reported by American researchers - a response rate about 5 percentage points below that achieved in face-to-face interviewing. For longer interviews the reduction may be more severe.

A survey of this kind - a very long interview about a non-specific topic - is difficult to "sell" to respondents. Thus, the main Social Attitudes Survey - using face-to-face interviewing - enjoyed a response rate of only 65% at the end of initial fieldwork (although subsequent steps were taken to improve this rate).

In comparison with this 65% response rate, the results for the telephone interview samples were as follows:

- 60% overall for telephone contacts;
- 67% for the 20-minute interview;
- 53% for the 40-minute interview;
- 62% for those receiving an advance letter;
- 58% for those not receiving an advance letter;
- 61% for those whose telephone numbers were not traced and who were interviewed face-to-face with the shorter questionnaire.

One major advantage of telephone surveys is the facility to make more calls than would be employed in a survey using face-to-face interviewing. Thus, there were hardly any cases of non-contact at sampled addresses in the experimental study. But this gain was more than offset by a higher incidence of refusal to cooperate. This result certainly supports part of the industry prejudice against telephone surveys.

#### Further Research

The Survey Methods Centre is currently planning a second experiment, involving a three-way comparison between CATI, non computer-assisted telephone interviewing and face-to-face interviewing.

Table 1 CATI Facilities in UK Survey Organisations (May 1983)

Organisation	Number of stations	Base
GRL-CATI Research-Indep. Res. Bureau	30	VAX
Market Research Enterprises	25	New Brain; DEM 2; Prime (T/S)
NOP Market Research	20	Prime
MAS Survey Research	16	VAX; PDP 1144
MIL Research Group	16	Via Audits & Surveys, N.Y.
FDS Market Research	14	BBC Micro
Burke - RSL	6	VAX
Marplan - Dataplan	6	Pixel
Sample Surveys	5	Corvus
Marketing Sciences	3	Micro
MVA Consultancy	3	Prime
RBL	2	Micro
Transmark	2	Via Toronto
Carrick James	1	Sirius
Data Collection and Input	1	Micro
Overseas Market Research	1	Epson HX20
Plus Four Analysis	1	Prime (T/S)
Produce Studies	1	Prime (T/S)
Survey Force	1	Micro

Source: Market Research Development Fund

Table 2 Selected Factual Comparisons Between Mixed-Mode and Face-to-Face

		Mixed-Mode	Face-to-Face
		(399)	(1609)
		%	%
1. Social Class	I	2	2
	II	16	17
	IIIN	17	15
	IIIM	22	22
	IV	14	13
	V	4	5
	No occupation	24	25
	Not classifiable	2	2
2. Income	Stated	82	88
	Not stated	18	12
3. Activity Status	In paid work	56	52
	Seeking work	5	7
	In full-time education	2	2
	Retired	15	15
	Looking after the home	19	20
	Other	3	3
4. Political Allegiance	Conservative	39	38
	Labour	35	33
	Alliance	13	15
	Other	1	1
	None	12	13
5. Main Daily Newspaper	Mirror/Record	19	18
	Sun	16	17
	Mail	9	10
	Express	10	8
	Telegraph	6	5
	Star	5	4
	Guardian	2	3
	Times	1	1
	Others	4	7
	Two or more	3	3
	None	24	23

Table 3 Selected Attitudinal Comparisons Between Mixed-Mode and Face-to-Face

	Mixed-Mode	Face-to-Face
	(399)	(1609)
	%	%
1. Unemployment		
In a year from now, do you expect unemployment ...		
... to have gone up by a lot	32	32
to have gone up by a little	40	37
to have stayed the same	14	16
to have gone down by a little	12	12
or to have gone down by a lot?	1	1
(Don't know)	1	2
2. Finances		
How well would you say you are managing on your income these days ...		
... very well	5	9
quite well	62	58
not very well	25	23
or not at all well?	7	9
(Don't know)	1	0
3. Education Priority		
Which of these groups, if any, would be your highest priority for <u>extra</u> government spending on education?		
Nursery/Pre-school children	4	10
Primary school children	15	17
Secondary school children	32	29
Less able children with special needs	34	32
Students at colleges, universities or polytechnics	9	9
(None of them)	5	3
4. Discrimination Law		
There is a law in Britain against racial discrimination that is against giving unfair preference to a particular race in housing, jobs and so on. Do you generally support or oppose the idea of a law for this purpose?		
Support	65	69
Oppose	29	28
Don't know	5	3

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