INTRODUCING CAI STANDARDS WITHIN OPCS

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1. Introduction

The advent of computer assisted interviewing (CAI) has been one of the most important changes in survey methodology over the past few years. With CAI becoming the basic survey tool, a number of organisations, including OPCS, have tackled many of the initial technological problems and are now looking at other changes brought about by CAI. OPCS, for example, has set up a review of the structure of the organisation to take account of the new priorities in survey processing brought about by CAI.[1] In addition OPCS is reviewing some of its technical procedures with the aim of standardising many of these practices. Some of these standards are already in place; others are under review.

IT departments have long recognised standards: but CAI has sometimes been developed outside this environment. Also, to date, CAI methods have tended to be developmental and interactive, with practices and products changing quickly. These factors have meant that standards have often been a relatively low priority, particularly if the organisation has taken an incremental approach to adopting CAI, with each survey following its own needs. This paper is about how OPCS, after an initial period of almost autonomous development by the first surveys to adapt to CAI, has recognised the need to establish common standards and how it is attempting to do so.

2. What are standards?

The pursuit of standards is an attempt to introduce common working practices allowing an organisation to work more efficiently and effectively. In general, producing standard ways of doing things throughout the survey

process helps avoid error by preventing the proliferation of different and potentially conflicting, work practices. Having standards in place should mean that each new CAI survey does not try to reinvent processes that already exist and are tried and tested.

3. When should standards be introduced?

Timing the introduction of standards is most likely to be an issue if CAI has been introduced in an incremental fashion. Some survey organisations may prefer to bring in wholesale standards under one unifying plan, perhaps because they are converting a number of surveys to CAI at one time. OPCS has used its experience over the development of a number of surveys to introduce standards gradually. The Labour Force Survey (LFS) pioneered many of the systems that form the basis of OPCS's CAI environment: the case management system, interviewer training, screen layouts, client documentation. But inevitably the first CAI survey tends to develop its own standards, either explicitly or by accident, with the demands of the individual survey dictating the direction taken and the working practices that evolve.

With the experience of more CAI surveys different problems have been encountered and solutions devised. Subsequent OPCS surveys have included the Survey of English Housing (SEH), the Family Resources Survey (FRS)[2] and Family Expenditure Survey (FES). (See paper by Manners, Cheesbrough and Diamond).[3] The demands of these latter surveys have meant that different approaches have been developed, and in addition, with more staff working on CAI projects various different ideas and styles have emerged.

OPCS plans to move a number of its remaining paper and pencil (PAPI) surveys over to CAI in 1994 and to have CAI as the preferred method for new surveys. It is thus appropriate to consider whether practices already in place should be treated as standard and to discuss standards for other parts of the survey process where the situation is not so clear. For example, the latter include screen layouts and the style in which Blaise should be written.

4. How standards affect interviewers

Interviewers in OPCS's general field force often work on more than one survey at a time and with the expanding number of CAI surveys it was important early on to introduce consistent practices to avoid confusion when they moved from one survey to another.

OPCS has now been conducting CAI interviews for more than six years. Considerable experience has been built up in how to train interviewers in CAI methods. A co-ordinated interviewer training package has been put together and from 1994 the basic training course for new interviewers will include CAI training.

Field staff have developed a standard package of instructions to describe the common procedures used by interviewers. All interviewers' laptops are set up in a similar way with familiar menus used on all CAI surveys. The administration blocks in the Blaise questionnaires, where interviewers record the number and nature of calls, progress, and outcomes, are standard as are the protocols to transmit the data to the central office. An incentive for project managers to use the standard administration block is that it slots into the house case management system, which produces a range of commonly used reports. Having a standard system means that individual projects do not have to bear development costs.

Other standard procedures to ensure the smooth running of field operations include the colour coding of interviewer disks. For example, training disks are always green, questionnaire replacement disks are grey, yellow disks are for response reissues.

5. Screen layout standards

Screen layouts greatly affect interviewers' ability to work effectively. An objective of any questionnaire should be ease of use — with a clearly laid out and easily understood set of questions and instructions.

As already mentioned, CAI surveys within OPCS have been introduced incrementally and standards have evolved to suit different surveys. OPCS has begun reviewing screen layouts and intends soon to implement a number of standards across all its surveys.

The main requirements that we have been reviewing cover: (1) standardising functions across all surveys, and (2) improving factors such as the placement of instructions, lines per page, and the use of other highlighting features.

5.1 Features employed

Screen layout requires a number of functions to highlight interviewer instructions, points of emphasis in the question, and commands associated with the laptop. There are at present, on monochrome screens, only a limited number of these functions but we hope to make these consistent across all surveys. For example, in order to distinguish between question text and interviewer instructions the latter are now written in capitals. Computer commands are sometimes included as a reminder to interviewers (such as 'ctrl+Home' to prompt them that there is more text on another page); these commands use highlighting or reverse video.

For computer assisted personal interviewing (CAPI) surveys the costs of colour screen laptop computers are currently, for most organisations, prohibitively expensive. Colour screens offer greater possibilities to emphasise different instructions. No doubt it will be only a matter of time before the price drops and laptops with colour screens will become the norm. In the mean time computer assisted telephone interviewing (CATI) units using personal computers (PCs) may already enjoy the benefit of colour screens.

5.2 Concurrent interviewing

Concurrent interviewing is an important consideration for some OPCS surveys, that is conducting an interview with two individuals at the same time. This is desirable as it saves the amount of time an interviewer spends in

any one household and so reduces costs. It also reduces the burden on respondents. Within Blaise an approximation of concurrent interviewing may be made by using a series of tables which loop round the appropriate questions for each person being interviewed.

To indicate which respondent is currently being asked the questions, his or her name is shown (via text fill facilities) in the top left hand corner of the screen. On earlier tests of this method, the name was in either the left or the right corner of the screen depending on the person being interviewed; this proved difficult to follow — the eye, it appears, is used to start reading from left to right.

In a further effort to emphasise which respondent is being asked the question in concurrent interviewing, the screen also changes to reverse video mode for the second person.

5.3 Blaise screen messages

OPCS has also been reviewing the Blaise screen messages. Some of the default messages have proved confusing and hence, via the CAPITEXT.ENG file, new messages have been incorporated. Again it is important that any new messages, including those displayed in the status bars, should be standard. These new commands have been incorporated into training courses and interviewer study documents.

Some of the changes made have been:

- 'continue/suspend' to 'Stay in q're/Leave q're';

- 'Stop interview?' to 'Do you wish to leave [eg] the h'hold questionnaire';
  (This is appropriate where the instrument is made up of a number of questionnaires — which is a feature of hierarchical surveys under Blaise version 2.4).

- removal of the 'Browsing' mode.

A number of the functions on the help screen have been removed or the messages changed. We plan to have standard help screens on all surveys.

Other interviewer friendly devices which OPCS hopes to encourage are the use of 'screen headings' which display the topic currently being addressed in addition to the block name in the top status bar.

5.4 Advantages and disadvantages of standardisation

The separate development of each survey, led initially to screen layouts which were, on the whole, appropriate to its own needs. Standardisation has meant, inevitably, that some of the functions now required may not be the optimum solution for each case.

For example, it is generally considered that text written in capitals is hard to read; thus perhaps interviewer instructions could be better emphasised using the reverse video facility. Since this has been adopted as the standard to indicate concurrent interviewing, surveys which do not use this are missing out on the use of this facility for the sake of standardisation. Nevertheless, the greater need is that interviewers should be able to move from one survey to another without confusion — and when colour screens become available, with their greater number of options for presentation, some of these short term problems will disappear.

6. Authoring

6.1 Authoring styles

Within OPCS the Blaise code has been written both by researchers and by dedicated computing staff — depending on the survey. With the demands and intricacies of various surveys and also individuals' personal tastes a number of different styles have evolved which are not wholly consistent.

In OPCS staff move periodically from one project to another and must

therefore be able to start easily from where their colleagues have left off. With CAI surveys this means that it is essential that they can easily read the Blaise code — hence the need to introduce common authoring styles. A standard style should also help client departments (especially of continuous surveys) understand the Blaise code.

A number of the authoring standards that OPCS propose implementing are suggested in the Blaise handbook. However, the examples given are naturally elementary and do not go into all the detail that is required, in practice, for complex surveys. For example, OPCS has found it convenient to create a standard for the columns in which IF statements are to begin, so that a reader can know immediately what the current level of nesting is. The first OPCS CAI surveys developed separate ideas on such conventions.

We propose retaining the convention outlined in the Blaise manuals that reserved words and key questions should be in capitals and the end of blocks, tables and questionnaires should be marked with the relevant name as a comment. In addition QUEST, ROUTE and CHECK paragraphs should also identify the block within which they are working.

Other suggested authoring standards at OPCS include:

- where blocks need to be defined in a QUEST paragraph the question name should be the name of the BLOCK prefixed by q_. For example,
  QUEST
  q_ Intro   : Intro;

- and similarly with INCLUDE files the filename should be   prefixed by I_.

An incentive to use this style includes access to standard utility programs. For example, the use of the 'I_' to prefix INCLUDE files gives access to a utility program to merge all INCLUDE files into the main questionnaire.

We are also planning to review authoring styles across a number of our surveys and incorporate into our standards the most useful practices.

6.2 *Variable names*

Unlike PAPI surveys where question numbers are used, Blaise CAI surveys use variable names. Inevitably surveys ask a number of common questions notably for the basic demographic variables such as age, sex and marital status. It might be useful to interviewers that the names of such basic variables are common to all surveys. On surveys where there is a CADI element and editors are presented only with the variable name on the screen, the more comprehensible and standard these names the better.

7. Guidelines

This paper aims to show that standards avoid confusion and permit a more efficient and effective organisation. To make this happen standards should be fully adhered to; if one survey decides to go its own way it has an impact on the whole standardisation process. Guidelines, on the other hand, do not produce this 'domino effect' — if they are ignored they will not have an impact on the quality of other surveys. Nevertheless, guidelines based on experience bring about useful time and cost savings.

7.1 *Using Blaise facilities*

One such guideline might concern the extent to which a survey should use all the possible features of Blaise. For example text fills can significantly enhance CAI interviews by allowing the interviewer to read out the appropriate name or part of speech required. In some cases, however, disproportionate effort may be necessary to write the appropriate code and test this enhanced instrument.

Similarly it is possible to use Blaise to work out complicated computations. This is a valuable feature of Blaise but it is sometimes possible to overload a program with complexities that are not required. Therefore it is important to draw a line between what is desirable and what is necessary, and weigh up the benefits in terms of cost and time.

7.2 Costing surveys

With each new CAI survey, whether it is one being converted from a PAPI format or a new project, the cost of a survey has to be estimated. It is difficult to come up with a model for costing a survey, because each has its own intricacies. However it is possible to set down some guidelines. OPCS has drawn up a list of the processes to be considered when costing a survey giving indicators of the amount of time various tasks are likely to take. For example, a ratio of IT specialist time (for Blaise support) to the time the researcher is costed to write the Blaise questionnaire is provided.

8. Dissemination

The development of standards apply to many aspects of the survey process and it is important that the required standards are circulated showing how things should be done: for interviewers, field staff, central editors, IT specialists, and project managers. In addition OPCS has appointed co-ordinators to review, consult and act as advisers on CAI projects, and to disseminate standards and guidelines.

8.1 Networks

The spread of Blaise in OPCS has come at the same time as the widespread use of networking facilities by all groups of staff. Bulletin boards are used for a variety of purposes which help the adoption of common standards. For example, the documentation for each CAI survey is held on-line as it is thus more readily accessible than paper documentation, and more easily and more often consulted by people working on other surveys, as well as those immediately involved. The newness of CAI methods provides a particular incentive to look at the methods others are using. Simple access, through bulletin boards, ensures that such practice is facilitated.

Bulletin boards are also used to provide up to date reports on what is actually happening in fieldwork, or any other stage of the survey process.

People become used to browsing these reports on problems and solutions, and this helps them to anticipate difficulties for their own surveys and apply standard remedies which have been tested by experience. The bulletin boards also offer the opportunity for discussions between all interested parties, with the resolution of conflicting needs and views before standard approaches are agreed.

While networks can be used to spread information and discussion as an adjunct to PAPI surveys, this tends to require additional effort (for example, to hold a questionnaire in electronic as well as printed form). With CAI surveys, it is natural to hold the main documents electronically, and as all processing is speeded up it is equally natural to do as much work as possible on networked microcomputers. This change in work practices itself needs to be organised through network standards — a point that is already familiar to IT specialists.

8.2 Terminology

CAI has lead to the growth of a number of terms which previously were not commonly used and which may cause confusion. Indeed it is important to make sure that what one person or section means by a term is shared, not only with other people in the organisation, but also with the wider survey world. For example, the term 'source code' may be used both to refer to Pascal or to code used to write Blaise questionnaires. OPCS is working towards standard terminology. It would be useful to agree terms between agencies as well as within them.

8.3 Documentation

With CAI the paper questionnaire has obviously disappeared; however paper documentation still has a number of important uses. In addition to the program on the laptop it is useful for interviewers and researchers and also for clients, secondary analysts, and other readers of results, to have an accessible document whose style is consistent across all OPCS surveys.

At present some OPCS surveys use the option within Blaise to produce a paper questionnaire. The output is subsequently edited and the appropriate variable names are included with a brief description of the sub-population to which the question is asked. OPCS is continuing to review the style of these documents.

9. Conclusion

The 'technological revolution' which CAI has meant to organisations such as OPCS must be consolidated by good management practice. The development and implementation of CAI standards are an important step in this process. Standards should not, however, act as a restraint to new developments; they should always be under review. They are likely to be subject to change due to new challenges and advances in technology.'

References

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