

Audio-CASI with challenging respondents

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Introduction

In March 2001 Social Survey Division (SSD) of the Office for National Statistics (ONS) carried out the first pilot stage of a survey of the development and well-being of children and adolescents looked after by local authorities. Looked after children are either in the care of or accommodated by Local Government Departments. The survey questionnaire includes a substantial set of sensitive questions asked using audio-computer assisted self-interviewing (CASI), the decision to use audio-CASI is explained in more detail later in the 'Background to the survey' section of this paper. This was the first time SSD had used audio-CASI as a method of data collection.

Gaining any young person's co-operation in a survey can be problematic; however, looked after children are more likely than other children to have conduct disorders, emotional problems or hyperactivity. So they form particularly challenging subjects.

This paper will focus on usability and the practical aspects of using audio-CASI with this group of young people. Information for the paper was obtained from interviewers and respondents. Respondents were asked to answer a short set of questions about audio-CASI at the end of their interview. Feedback from interviewers was collected at a face to face debrief session. The paper also describes some of the more practical aspect of developing an audio-CASI instrument and would be of particular interest to others who are planning to use audio-CASI for the first time. The paper also assesses the benefits of using audio-CASI as a mode of interviewing amongst this particular group of young people. Conclusions made in this paper could also be related to other challenging groups of respondents. Other aspects that may also be of interest are that we used standard laptops and that the audio-CASI instrument included some open text questions.

Audio-CASI has been used extensively as a mode of collecting data on sensitive behaviours and this is obviously not the first time the method has been used when interviewing young people. During the development of the audio-CASI instrument we drew on the work of others who have used audio-CASI particularly the work of Jim O'Reilly.

Background to the survey

In 1999, ONS carried out the first national survey of the mental health of children and adolescents in private households in Great Britain (commissioned by the Department of Health, the Scottish Office and the Welsh Office). Interviews were completed about 10,438 children and adolescents aged 5-15 years. This study showed that 1 in 10 children aged 5-15 had a clinically recognisable mental disorder: anxiety, depression, hyperactivity or behavioural problems which had a severe impact on the family. It also showed that children with a mental disorder were three times more likely to have a specific learning difficulty than those without a disorder. In this previous survey the self-completion questionnaire was administered using CASI. For this new survey the questionnaire was developed as an audio-CASI instrument.

Audio-CASI was used as the mode of data collection for two main reasons. Firstly, the sensitive nature of the questions. It is well documented that audio-CASI can increase the reporting of sensitive behaviours. For example Turner et al (1998) reported that respondents were much more likely to report risky behaviours when they were interviewed with audio-CASI measurement technology than when interviewed with more traditional paper self-administered questionnaires. They also state that audio-CASI appears to have a more

pronounced effect on the reporting of behaviours that are particularly sensitive, stigmatised or subject to serious legal sanctions, compared with less sensitive areas of conduct. Although it has been found that CASI and audio-CASI are equally effective at obtaining reports of sensitive behaviours, respondents prefer audio-CASI as a reporting method. (O'Reilly et al, 1994).

The other main reason for using audio-CASI was the nature of the respondent. The young people in this survey sample were more likely to have learning difficulties and problems with concentration. Audio-CASI appears to be a suitable mode for administering surveys to low-literacy respondents, particularly when the survey is collecting personal or sensitive material. (Schneider and Edwards 2000). We hoped that using audio-CASI would enable the young people with learning difficulties to take part fully in the survey and increase the young people's level of attention and interest in the interview.

Not all the young people in this sample had learning difficulties, some had concentration problems and others just wanted to be doing something else or be somewhere else. Therefore it was necessary to develop a questionnaire that could be easily used by the young people who had learning difficulties, without appearing cumbersome or simplistic to respondents who are proficient readers (Couper, 1998).

Survey methodology

The survey involved collecting information about each child from up to three sources: parent, child and teacher. The questionnaire was composed of the following five sections administered using various modes and all contained within one datamodel;

- Parent/Carer face to face interview
- Young person face to face interview (11-15 year olds) (P)
- Young person self-completion section (11-15 year olds) (P)
- Specific learning difficulties test (all children 5-15 years)
- Teacher questionnaire (postal questionnaire, keyed into the datamodel when returned to office).

The two sections, marked with 'P', were set up as parallel fields to allow interviewers flexibility over the order in which they were administered. Depending on the number and complexity of problems the young persons face to face interview could be very long. We felt it was important that interviewers had the option to change to a different section if the child started to lose interest.

Design of the Audio-CASI questionnaire

The young person self-completion questionnaire included questions on the following topics:

- Moods and feelings
- Troublesome behaviour
- Cigarette smoking
- Drinking (alcohol)
- Experience of drugs
- Sexual activity
- Exclusion from school

The questionnaire included both closed and open questions. When developing the questionnaire we set a limit of four response categories for the closed questions. The open questions required only short text or numeric responses, for example: *What word best describes how you have felt in the past 2 weeks?*, up to 20 characters to be entered at this question.

The audio-CASI instrument was developed from a CASI questionnaire that had been used successfully in a previous survey of children. Some less sensitive questions that were in the CASI version were not included in the audio-CASI version but instead asked in the face to face interview. These were mainly questions that had more than four response categories and were part of standard instruments that could not be changed. When designing the audio-CASI instrument we also tried to avoid frequent changes in sets of response categories and to keep the number of different response sets to a minimum. In total the self-completion questionnaire (approximately 130 questions) included 6 different response sets.

The questionnaire was programmed using Blaise 4.2 and administered using interviewer laptops with the standard set up.

Interviewer assisted audio-CASI

The audio-CASI instrument was interviewer assisted. The section started with an introduction read by the interviewer in which they explained how the section worked i.e. they would hear the questions and possible answers through headphones and then enter their own answers into the laptop. Interviewers demonstrated to the child how to enter their answers, how to move on to the next question and how to repeat a question, the young people were also encouraged to ask for help if they needed it.

We hoped that this step by step approach would discourage the young people from being alienated and give them confidence to complete the section. At each stage the interviewer or the child was told via the headphones what they were required to do or happens next.

Changing mode of completion

Ideally we wanted all young people to complete the self-completion section using audio-CASI. However we were aware of the possibility that some young people would be too anxious or have hearing problems. Three possible modes of completion were available; audio CASI, CASI or CAPI (questions read by the interviewer). Instructions and screen layouts were programmed for each of the three modes.

Checking the volume level

Before handing the laptop to the child interviewers checked that the headphones were working and adjusted them to a reasonable volume. The interviewers then passed the headphones to the child who then heard the following instruction: *'The first question you will hear will be a test question just to check that the volume is ok for you'*. This was followed by: *'Is the volume OK for you?'*, if the child said 'no' they were then prompted to ask the interviewer to adjust the volume. The question was then repeated to ensure that the volume was at the correct level.

Practise question

Before starting the actual questions a simple practise question was asked to check that the respondent understood how to enter their responses.

Screen layout

Our aim, when designing the audio-CASI version of the questionnaire, was to keep the screen uncluttered to avoid distracting the respondent. The question text was not displayed on screen because we felt it was more important for the child to concentrate on listening to the question, we felt this was especially important for young people who had reading difficulties. The response categories were displayed in the answer list section of the infopane in the standard way.

Obviously if the section was completed using CASI or as a face to face interview it was necessary to display the question text. To achieve this the colour of the question text changed according to the mode of completion. If audio-CASI was used the text of the question was set to the same as the screen background and therefore could not be read, if CAI or CASI the question text was set to a contrasting colour so it could be read.

The colour switch variable was set up as a parameter in the top-level block of the self-completion section of the questionnaire. Appropriate colours were assigned to 'W' and 'P' in the modelib editor. The parameter (PColour1 and PColour2 – see example below) was switched between '@W' or '@P' depending on the mode of completion.

```
C3G3    "^PColour1  Have you ever used GLUE, GAS OR SOLVENTS?@/  
        PRESS 1 for NO, 2 for YES@/  
        PRESS the WHITE key TO CONTINUE@/ ^PColour1  
        ^PColour2@/ Question G3 ^PColour2@/"  
MML "SOUND (C3G3.WAV)  
      SOUND (Delay.WAV)  
      SOUND (NoYes.WAV)  
      SOUND (White.WAV) "  
: NY
```

Even if the section was completed using audio-CASI it was still necessary for interviewers to be able to recognise the respondents whereabouts in the questionnaire, if they required help. A small identifier was displayed. We were careful not to use an identifier that would be distracting to the respondent such as, the question number or question 1 of 250, so we used the questionnaire variable name.

Labelled keys

The main navigational keys were colour coded, using paper stickers. The <ENTER> key was labelled white and the <F10> key, which had been assigned as the repeat key, was blue. Respondents were also given a card with the following three simple instructions;

- *use the white key to get to the next question*
- *use the blue key to repeat the question*
- *ask the interviewer if you need any help*

When choosing which colours to assign to the two navigational keys we avoided colours that would be confused by people who were colour blind. We also used good quality stickers that would stay attached to the keys.

Audio guidance provided to respondents

Respondents were given audio instructions about how to record their response to a question and to proceed to the next question. For example, if the response categories were simply 'no' and 'yes', they would hear the instruction 'Press 1 for no and 2 for yes' and then 'Press the white key to continue'.

Our aim was to maintain a balance between firstly, providing sufficient guidance and secondly, avoiding frustration for the child by repeating the instructions too often. Instructions were displayed on the first few questions in the questionnaire and then repeated again after each change in response set. If the respondent was expected to record a different type of response such as, typing in their age or text responses they were provided with further instructions. For example, 'Please type in your age in years and then press the white key

to continue'. At these more complicated questions respondents were also reminded to ask the interviewer if they needed help. Other instructions that referred to specific questions were also included.

Recording the audio files

When deciding on the best voice for the audio files, and how to ensure a good quality recording we followed recommendations by O'Reilly (O'Reilly, 1998). A colleague at ONS was chosen as our voice. This meant that they would be easily available to record any additional audio files or make any essential amendments. The person we chose had a neutral and clear voice and did not have a strong regional accent. She also had a great deal of interviewing experience and was familiar with the questionnaire.

The audio files were recorded at a professional recording studio. This meant that the questionnaire text had to be finalised earlier in the questionnaire development stage than usual. In this instance it did not create any difficulties because the majority of the audio-CASI questionnaire was a replication of a CASI questionnaire used in a previous survey. The questions, response sets and instructions were all recorded as separate .WAV files.

Using the recording studio was an efficient method of recording the large number of audio files required (140). The recording process took approximately 90 minutes and cost approximately £200 (about \$300) which included recording time, editing and CD writing.

Other practicalities

Other practical issues considered were:

- Headphones - we purchased reasonably priced, robust and compact headphones.
- Screen wipes - interviewers were provided with screen wipes to use after each interview. These were intended to be used if the young person touched the screen.
- Saving the partially completed interview before passing it on to the child for the audio-CASI section – interviewers were given an on screen reminder to save their interview before passing the laptop over to the child.

Response and length of interview

All twenty-one 11-15 year olds chose to complete the self-completion using audio-CASI and none of the young people who started the audio-CASI section gave up part way through.

The audio section took, on average 25 minutes to complete. The total interview with a young person, including the face to face interview and learning difficulty tests, took on average 110 minutes.

Feedback from respondents

Feedback was collected from the young people via a short set of questions which were administered by the interviewer at the end of the audio-CASI section (a copy of the questions is included as an appendix to this paper). All 21 young people, who completed the audio section, provided feedback.

Overall, feedback from respondents was very positive, all the young people seemed to enjoy completing the audio-CASI questionnaire.

Previous experience of computers

All but one of the young people were frequent users of computers, and all had some previous experience.

General difficulties using audio-CASI

A third of the respondents 'got stuck' whilst completing the questionnaire. In only three instances were the problems related to audio-CASI. The remainder were difficulties interpreting the questions. Problems that did relate to audio-CASI were:

- *'Not much – just the typing',*
- *'I think it's because the computer said press enter and I didn't know how to go back',*
- *'May be when I heard the question I heard it wrong, and forgot what it was, I was listening to the question I was thinking about the answer but forgot what the question was, I think it would have been better if I had listened more carefully'.*

Voice/Volume

The majority of respondents (15) stated that they could hear the questions all of the time, five could hear them most of the time and just one said they could only hear them some of the time. When asked about how well they could understand the person asking the questions, most of the respondents (16) said that they could always understand the person asking the questions, three could hear them most of the time and just two said they could only understand some of the time.

Instructions

Only two respondents felt that the instructions were difficult to follow, the remainder felt they were easy to follow or about right. Respondents were also asked about the frequency of the instructions played after the questions. Four felt they were repeated too often, the majority, 12 respondents, thought they were played at about the right frequency and five respondents thought they were not repeated enough.

General comments about audio-CASI

Respondents were asked to say in their own words how they found their experience of audio-CASI. The most frequent response was 'easy', which was given by ten respondents. Five thought it was 'ok' or 'alright', two had 'no problems', one felt it was 'too easy'. This was despite the fact that a third of respondents had previously stated that they had 'got stuck' at some point during the questionnaire, this implies that the young people felt that overall they had not had any problems.

Respondents were given the opportunity to say whether they had any other problems that they had not already told us about – none of the young people said they had any.

Finally, respondents were asked whether there was anything else they would like to say. Twelve respondents did not add anything. The remaining responses were all positive remarks about aspects of audio-CASI or audio-CASI overall.

- *'it were bril',*
- *'apart from I would like to do it again',*
- *'good it was good fun',*
- *'I wish I had one',*
- *'it's fun',*

- *'I think it is a wicked idea that a computer can speak to you, it is so clever'*,
- *'I liked using it, I love laptops'*,
- *'it's good'*.

Feedback from interviewers

Feedback from interviewers was also very encouraging. All the interviewers agreed that the audio-CASI section was the most concentrated and well-received part of the interview. Interviewers got the impression that the young people really enjoyed completing this section. Often, respondents who were distracted during the face to face interview were really interested and did not fidget or show any signs of frustration whilst completing the audio-CASI section. Interviewers felt that one of the reasons why this section worked so well was because the question text was straightforward and therefore easy to understand.

Interviewers reported that the young people interviewed for this survey did generally have lower concentration levels or were more easily distracted than those they had interviewed for a previous survey of young people. During the face to face interview, which preceded the self-completion section, interviewers sometimes found it difficult to persuade the young people to keep going or had to work hard at maintaining their interest. In some cases interviewers used the audio-CASI section, and the opportunity of using the laptop, as an incentive to keep them going. Interviewers also found it helpful to jump between the different sections of the questionnaire (via the parallel fields).

Interviewers also reported that the whole process of introducing the audio-CASI section to the respondent worked well. Once the interviewer had explained what they were required to do the respondents just *'got on with it'*. There were very few instances when interviewers had to provide assistance to the young person during the completion of the section. Interviewers found that respondents did ask if they required help and if not, interviewers were able to identify when the young person was having difficulties.

According to the interviewers the young people did not have any problems navigating through the questionnaire. One interviewer decided to conduct her own experiment by not labelling the keys on her laptop, instead she told her respondents to press <ENTER> to move on to the next question and the <F10> key to repeat the question again. Her respondents were still easily able to find their way through the questionnaire.

The young people were not tempted to *'play around'* with the laptop once they had come to the end of the audio-CASI section; they just took off their headphones and let the interviewer know as soon as they had finished.

Some respondents seemed to enjoy it so much they asked the interviewers if there was anymore.

Finally, interviewers were asked what they did whilst the young person completed the audio-CASI section. All the interviewers stayed close by in case the young person had difficulties. Some read a newspaper or paperwork, others checked their papers, one interviewer looked at the young person's pets and another talked with the child's carer.

Open text questions

There were very few missing responses to the open text questions. In total the questionnaire included 27 open-ended questions, out of 89 responses there was only one missing answer and this was in response to a question asking why they had been in trouble with the police. The quality of some of the open text responses was poor, mostly due to incorrect spellings. However, only one of the responses was unrecognisable.

Some lessons for the future

Option to toggle between languages

Whilst developing the questionnaire for the pilot stage we found that it was not possible to toggle between playing the audio files and switching them off, depending on the mode of completion. As none of the respondents chose to complete the questionnaire using CAPI or CASI at this pilot stage this did not cause difficulties. However, a method needs to be developed that does not rely on interviewers remembering to plug in the headphones in order to stop the audio-files being heard. Ideally we would like to be able to toggle between languages depending on the mode of completion. The three specific languages would be:

1. ENG (text) with MML (sound)
2. ENG (text) without MML (sound)
3. MML (sound) without ENG (text)

Stop respondents entering early answers

During the pilot respondents were able to interrupt the question by entering early answers. This happened even when the check box 'stop on key' (in the multi-media section of the modelib editor) had not been ticked. If the box is not ticked the respondent should have to listen to the whole question before entering their response.

Checks, signals and error messages

No checks or signals were used in the audio-CASI questionnaire and no guidance was provided to respondents about error messages. Although this did not cause a problem on the small number of cases interviewed for the pilot it is a design issue that needs to be developed further before the mainstage.

Mistake facility

Some guidance needs to be provided to respondents about what to do if they make a mistake. At the pilot stage no instructions were given on how to go back and change their answer. This did cause confusion to one respondent.

Confidentiality

Although lack of confidentiality was not a concern during the pilot we would like to ensure that respondents are not able to go back through the responses the carer/parent gave during their interview. Our solution was to set the section up as a parallel field. This limited navigation to some extent but a more secure method needs to be developed for the mainstage survey.

Conclusion

Feedback received from the respondents and interviewers who took part in the pilot suggests that this particular group of young people enjoyed completing the audio-CASI questionnaire and were able to do so independently. Using audio-CASI as the data collection method enabled us to obtain information from respondents who would normally have refused to continue earlier in the interview.

Our main aim was to design an audio-CASI instrument that did not alienate the respondents and provided those with learning difficulties with the confidence to complete the questionnaire. This was achieved by:

- Providing clear guidance via on screen and audio instructions.
- Maintaining a balance between providing sufficient guidance and becoming too repetitive.
- Introducing the section ‘step by step’.
- Encouraging the respondent to ask questions.
- Minimising the effort required from the respondents.
- Including questions with straightforward wording.

References

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Appendix A
Feedback questionnaire for young people

IntroFd INTERVIEWER:
Please explain that we are interested in finding out what they thought of hearing the questions through the headphones and entering the answers on the laptop themselves.

CompUse RUNNING PROMPT
Have you used computers....

1. a lot
2. a bit,
3. or have you never used a computer before?

Probs Did you get stuck at all?

1. Yes
2. No

WhatPrbs *IF PROBS=YES*
Where did you get stuck?
PLEASE OBTAIN AS MUCH DETAIL AS POSSIBLE

Hear RUNNING PROMPT
Could you hear the questions...

1. all of the time
2. most of the time
3. or just some of the time?

Voice RUNNING PROMPT
Could you understand the person asking the questions...

1. all of the time
2. most of the time
3. or just some of the time?

Instr RUNNING PROMPT
Were the instructions....

1. easy to follow
2. about right
3. or difficult follow?

InstrRp

RUNNING PROMPT

Were the instructions that are played at the end of some questions repeated....

1. too often,
2. about right
3. or not enough?

KeyB

How did you find entering your answers into the laptop?

INTERVIEWERS: PLEASE PROBE IF HAD ANY PROBLEMS

AnyOth

Are there any problems that you have not already told me about?

INTERVIEWER: PLEASE PROBE IF HAD ANY PROBLEMS

AnyCom

Is there anything else you would like to say?

