

Retrospective Data Collection

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1. Objectives of the paper

This paper will outline the selection, design, and use of a Computer Assisted Personal Interviewing (CAPI) event history calendar (EHC) to collect retrospective life course data. In contrast to traditional linear questioning models (Q-lists), the event history approach encourages the sequential and parallel retrieval of information from autobiographical memory, and has been found to produce better-quality retrospective reports (Belli et al 2001)¹. This method was employed in 2007 to collect detailed information about key events that had occurred in the lives of approximately 9,000 participants from the English Longitudinal Study of Ageing (ELSA). We aimed to enhance our understanding of how early life events influence the circumstances of older people by asking participants to recall events that had happened prior to joining the ELSA panel study in 2002. Key dimensions covered were relationships and fertility; housing and mobility; jobs and earnings; and health.

The following aspects of the event history calendar will be described in the paper:

- Advantages of an event history approach over traditional questioning methods in terms of improving recall and increasing user-friendliness
- Outline of the time units and domains covered in the calendar
- Issues relating to the design of the calendar - e.g. flexibility of the interview, changing responses during the interview, displaying events on the calendar
- Implications for interviewer training

2. Background to ELSA and the life history interview

The English Longitudinal Study of Ageing (ELSA) is a study of people aged 50 and over and their younger partners. ELSA explores the dynamic relationships between health and functioning, social networks and participation, and economic position as people plan for, move into and progress beyond retirement. ELSA has been developed through a collaboration between University College London, the Institute of Fiscal Studies, and NatCen, with specialist advice provided by academics at the Universities of Cambridge, Nottingham, East Anglia and elsewhere. Funding for the first four waves of the study was provided by the US National Institute on Aging, and a consortium of British Government Departments.

The ELSA sample was drawn from households that had previously responded to five years of the Health Survey for England (HSE) between 1998 and 2003. The ELSA panel

¹ R.F. Belli, W.L. Shay, F.P. Stafford (2001). Event History Calendars and Question List Surveys: A Direct Comparison of Interviewing Methods. *Public Opinion Quarterly* 65:45-74. American Association for Public Opinion Research.

are interviewed every two years; the first wave of fieldwork was conducted in 2002-2003, with wave two in 2004-5 and fieldwork has recently be completed for Wave 3. A total of 12,009 interviews were conducted at Wave 1. Wave 2 included a visit by a qualified nurse which captured a wide variety of health measures, including biometric measures such as lung function, blood samples, and blood pressure and physical performance tests to assess the respondents' strength and balance.

Wave 3 included a separate follow up interview to collect life history information. Before this, the majority of information collected for ELSA respondents has been about the circumstances of their lives from the time they were first interviewed for HSE until the present day. At HSE, all the ELSA respondents were over 46 years old and some of them were already in their nineties. As a result, we know little about what happened earlier on in their lives. Many aspects of early life have been shown to have a significant impact on people's health, economic circumstances and quality of life in later years. The life history interview enabled the collection of more detailed information about important events that have occurred in ELSA respondents' lives and gives us more of an idea about what their childhood was like. The life history interview collected data in a number of different areas including relationships and fertility; housing and mobility; jobs and earnings; and health. This data will be used to enhance our understanding of how early life and events throughout life have influenced the circumstances of older people.

2.1 Rationale for using the EHC for ELSA

The literature has shown that collecting accurate information about all these different types of events over a lengthy period of time is a challenge². People do not always accurately recall events from the past and life/event histories are often incomplete (i.e. gaps, unsystematic recall of parallel events) and inconsistent across different life domains (i.e. information given on one aspect of their life is inconsistent with another). The Event History Calendar (EHC) method has been developed to help improve the way we ask people about events in their past. This method utilises our understanding of memory processes in order to help people remember past events more accurately (Belli et al, 2001).

3. Background to the EHC approach

3.1 Key elements of the EHC approach

The aim of the EHC is to serve as a device to help respondents recall and anchor changes in major life events. The EHC approach does this in two key ways: first, by providing the respondent with personalised cues and stimuli which may aid recall; secondly, by increasing the flexibility of the interview to allow respondents to recall events in their own way. The key elements of the EHC are outlined below:

A. Providing cues and stimuli to aid recall:

These 'cues' take the form of two types of events or 'landmarks' that the interviewer can use to stimulate the respondent's memory.

² Sudman, S., Bradman, N.M. and Schwarz, N. (1996) *Thinking about answers. The application of cognitive processes to survey methodology* Jossey-Bass.

(i) Personal events

Personal events are ‘internal landmarks’ that are particular to a given individual –such as when they moved house, changed jobs or had children. By plotting life events on the calendar, the EHC approach enables respondents to cross-reference certain life-events with others (e.g. "when I had my first child I was living in house B").

(ii) External events

The calendar shows important ‘external landmarks’ – that is major world or national events such as JFK’s assassination, which may help respondents recall the timing of personal life events which the interview aims to collect.

B. Increasing the flexibility of the interview:

There are four main ways in which a calendar interview is more flexible than a traditional interview (or questioning model):

(i) Entering/inputting events whenever raised

Information can be entered onto the calendar whenever a respondent’s memory is prompted and events are recalled. These events may not be recalled in a sequential order and may relate to different domains or topics. The calendar therefore needs to be flexible enough for events to be recorded in the relevant domain and in the order recalled, rather than being prescribed by the interviewing instrument.

(ii) Moving forwards and backwards in time

The EHC allows for the forward recall of events (i.e. in a chronological order) and/or for respondents to report events starting from the present day and working backwards.

(iii) Order of topics

Respondents are able to choose to answer the topics that they remember easily first. This may help them later in the interview when trying to remember events that are more difficult to recall as the more salient events can be used as recall aids to help anchor the memory.

(iv) Verifying and revising data collected during the interview

As more events are recalled, inconsistencies or errors may become apparent. For example, by checking across domains it may be obvious that a date entered for a job change was incorrect as it was not in the same year as a change in residence, even though the new job was in a new geographical area. The EHC approach allows the interviewer to check responses against those already given and revise the information entered if necessary.

3.2 Layout of the ELSA EHC

The EHC method is in the form of a calendar, which shows time across the top and multiple rows down its side which make it possible to record different kinds of events in respondents' lives (e.g. where they lived, family events). Each column represents a calendar year, going back to the respondent's birth, and each row represents a key domain in a respondent's life, such as births and deaths of children, and changes in accommodation and employment. The calendar is filled in by the interviewer, who conducts a semi-structured interview in which the respondent is asked to review the calendar and report the dates when key events occurred. As respondents answer questions about key life events, these events are recorded on the EHC. Using the EHC technique has been shown to improve the accuracy of the information people can remember³.

Picture 1 shows the ELSA EHC. The top half of the screen resembles a standard Blaise questionnaire with a box where the question wording appears, response categories and response field. The EHC takes up the lower half of the screen. During the interview, questions are asked of the respondent and their responses are entered by the interviewer in a standard way. However, when the interviewer enters the date of an event in the respondent's life, a coloured bar appears on the calendar in the appropriate years (columns), and domains (rows). The personal events box at the bottom right hand side of the calendar displays the information relating to the coloured bars. The box on the left shows important external events (i.e. national and world events) for each year. The information displayed in both these boxes depends on the column that the interviewer's cursor is focused on. The interviewer (and respondent) can only see the events in the respondent's life and external events that happened in one year at a time. Interviewers are able to navigate around the calendar using keyboard arrow keys so that information relating to different years of a respondent's life can be seen.

The questionnaire was written in Blaise, so the Blaise datamodel provides the questions, rules and checks. The "dll" takes the place of the normal data entry program and provides the calendar display and the other normal features of the data entry program, for example, the display of the question text, retrieval of the next question on route and the display of check and signal messages.

4. Development of the calendar

4.1 Stages of development

The ELSA EHC was developed over 31 months (August 2004 to February 2007) incorporating a number of pre-tests and pilots. The aims of this lengthy developmental stage were two fold:

- (a) to ensure that the interview incorporated the elements of the EHC approach; and
- (b) to ensure the EHC was as easy to use as possible (see section 5).

³ Belli, R.F., Lee, E.H., Stafford, F.P. and Chou, C. (2004) 'Calendar and Question-List Survey Methods: Association between Interviewer Behaviours and Data Quality' *Journal of Official Statistics*, Vol 20, No. 2, pp. 185-218.

At each stage of the development of the ELSA life history interview we held discussions with interviewers after the stage was complete to assess the effectiveness of the interview. At some stages the interviews were also evaluated using respondent and interviewer de-briefing questionnaires and by audio-recording the interviews themselves.

The information obtained from these techniques was used to improve the EHC at each stage.

There were three development stages:

(i) PAPI & CAPI pre-test

The EHC approach was initially tested using a paper calendar and CAPI interview. 4 interviewers conducted interviews with 18 respondents. The interviewer firstly asked respondents for the dates of key events from their life and entered these onto the paper calendar. The interviewer then entered these dates into a typical Blaise program whilst intermittently asking respondents follow up questions on the CAPI about these events. The interview at this stage was time intensive and involved duplication of effort with data being entered on the paper EHC and then copied into the CAPI program. However, the pilot did show that the paper calendar was an effective tool in helping respondents remember key events and so this element of the interview was retained.

(ii) CAPI life history calendar I.

It was decided that the whole EHC interview would be conducted in CAPI, in order to address the problems identified at stage (i). However, as we wanted to retain all the key elements of the calendar approach (outlined in section 3.1), this version of the interview was very flexible: it did not involve Blaise type modular interviewing but allowed interviewers to navigate around the EHC using a mouse. In the second pre-test, which involved three interviewers and three respondents, a number of problems with the flexibility of the CAPI interview became apparent. Due to the flexibility of the program the questions about each event were separate which meant that many questions were repeated and that the questionnaire did not flow well (see Section 5.2.1). Interviewers also had problems in using the program due to its flexibility.

(iii) CAPI life history calendar II.

The final development phase included a pilot, where 28 respondents were interviewed by five interviewers, and a dress rehearsal, involving 11 interviewers and 58 respondents.

In response to the problems experienced in the pre-test, the interview was made more structured and incorporated more elements of a standard Blaise interview. The program combined a typical Blaise script with the EHC so that the questions would be generated by the script and input in the calendar. It was at this stage that the program moved to the format where only half the screen was devoted to the calendar. This was a step away from the previous approach where the EHC was central: both for entering information (questions would be launched by clicking in the appropriate year of the calendar) and for displaying the information gathered (so that personalised cues could be generated).

The end result was a less flexible EHC, now combined with a Blaise questionnaire.

5. Flexibility Vs usability of the interview

The next section goes on to explain in a little more detail, the decisions made surrounding the ELSA EHC, some of the difficulties faced, and the rationale for those decisions. It will take each of the key elements outlined in section 3.1 and discuss the extent that each aspect of the EHC approach could be incorporated into the ELSA life history interview. In instances where a more standardised approach restricted the flexibility of the EHC method, an attempt will be made to evaluate whether this reduced the effectiveness of the calendar as a tool to aid recall.

A key development aim of the ELSA life history interview was to ensure the correct balance was achieved between the flexibility of the interview and the usability of the instrument. As outlined in sections 3.2.1 and 3.1, some of the existing literature shows that the EHC approach depends on flexibility to allow respondents to recall events in the way that is most effective for them. For example, respondents should be able to choose the order of topics, and recall events in chronological or reverse chronological order. However, the life history calendar must also be a user-friendly tool. Another consideration was that more than two hundred interviewers would be trained to use the EHC to collect over 8000 respondent life histories.

The development phase showed that there were some aspects of the EHC method which were difficult to apply to a large-scale project. To a degree, it was necessary to restrict flexibility to ensure a user-friendly and workable program was created.

5.1 Providing cues and stimuli to aid recall

5.1.1. Personal events

The personal events box (shown in picture 1) provided a highly visible and easy to use stimulus for both interviewer and respondent. This was an integral part of the interview as it gave the opportunity for interviewers to provide personalised cues when needed, at any point in the interview. The personal events box displays key information recorded during the interview, such as residence, job title and births of children, for each appropriate year. In the CAPI life history interview the events occurring in a particular year were displayed (once the respondent had relayed this information) when the cursor was placed in the appropriate column of the appropriate year.

Feedback from interviewers and respondents (both during the development stage, and since the life history interview has been in the field) have confirmed that this was a useful tool, and is used frequently throughout most interviews.

5.1.2 External events

Putting the EHC onto CAPI allowed for more extensive use of external events because there were less space constraints. External events included important national and world events that were provided to aid respondents' recall and help them anchor personal events. A Microsoft Access database was used to store these events, and the events were displayed on the screen. During the pilot respondents had the opportunity to choose the type and number of external events that could be displayed (e.g. sporting events and/or key political events and/or key events in popular culture). However, the number of

events was in fact reduced before the dress rehearsal to produce one streamlined list that would not overwhelm respondents.

Selecting a list of external events to use in the program which is relevant to respondents and likely to stimulate a response for many individuals is challenging. Additionally, while feedback does show that the inclusion of external events in the CAPI program did lighten the mood of the interview and help maintain respondent interest, on the whole, interviewers felt that these external events did not assist respondent recall.

5.2 Increasing the flexibility of the interview

5.2.1 Entering events whenever raised

A benefit of a paper calendar is the ease of entering events at the time they are raised. For example, if a respondent gives information about a past job, they may then recall where they were living at or around that time. The interviewer can then easily enter this information there and then even though it relates to a different domain and perhaps a different time period.

The first CAPI version of the EHC retained this flexibility. Interviewers could use a mouse and click in the appropriate domain and year where an event had been recalled. This would launch a question box with a series of questions corresponding to the event (e.g. what the event was, start and end dates of the event).

There were several problems with this method. Firstly, interviewers who are trained in traditional linear questioning models had difficulty navigating around a very unstructured program. There was a strong possibility that events could be missed out if they were not recalled in any topic or time order, especially as this made it difficult to identify and check gaps and overlaps. It was also difficult to make the questions flow well, and often there was unnecessary repetition of questions because each event was treated as a separate entity rather than a series of events occurring sequentially. For example, for each event it was necessary to ask both the start and end date. This made the interview more lengthy than necessary and interviewers and respondents found this irritating.

The pre-test showed that respondents predominantly recalled events, domain by domain, and in chronological order. For example, respondents were more likely to relay their entire accommodation history from birth to present day than part of their work and residence history at the same time. By introducing a more standardised Blaise script and making the EHC more of a visual tool rather than the basis for the data entry screen, the program was more suitable for a large scale survey. The flow of questions was significantly improved and questions or checks could be triggered when gaps or overlaps were reported.

5.2.2 Moving forwards and backwards in time

It is fairly easy to move forwards and backwards in time using a paper EHC. However, complex programming is required to translate this into a CAPI interview. In the pre-tests and pilot, nearly all respondents said that they preferred forward chronological recall (for example beginning their work history from their first job and ending with their last or current occupation) and felt this was how they best remembered events. We therefore decided that incorporating programming functions which allowed backwards as well as

forwards recall into the CAPI program was an unnecessary complication, given that very few respondents remembered life events in this way. This also enabled us to improve the flow of the questions.

5.2.3 Order of topics

The flexibility of the paper based EHC for allowing respondents to choose and change the order in which they answer topics could easily be incorporated into the CAPI program using parallel blocks. The default order that topics are asked and appear on the EHC is: children and fertility, relationship history, accommodation, work history, health and other life events. In the CAPI pilot, respondents were explicitly asked to choose the order they wanted to answer topics in. However, at the beginning of the interview this is a difficult task for respondents to do. Many respondents were unsure which areas they would remember best and preferred to revert to the default order. In the main stage, respondents were no longer asked to choose the order, but interviewers were instructed that they can change the order if necessary at any time in the interview. This can be done using a simple key combination which takes the interviewer to the beginning of the required module. However, feedback suggests that most respondents were happy with the default order and therefore this function was very rarely used.

5.2.4 Revising and editing

With a paper calendar, revisions can be made using a pencil and eraser. For the CAPI interview, functions were developed which allowed interviewers to edit data previously entered when required. This was needed because the calendar can reveal inconsistencies which mean that the year an event occurred needs to be changed, or that the data relating to that event is incorrect. For example, a respondent may remember that they were a deputy head in 1990 but had previously recorded the job title as subject teacher. Some interviewers found this function easy to use and frequently used it during live interviews. However, this was quite technically challenging and therefore others did not use it so extensively or found it time consuming and difficult when they did.

Finding a way to insert an entire new event was most challenging (e.g. if the respondent realised in the interview that they had forgotten to say that they lived abroad for a year). Although, a function was created, this was too difficult to use in practice so unfortunately it was not part of the mainstage program. This may have affected data quality and the length of interviews. More development time and interviewer training could improve this and hopefully give a more workable and user-friendly solution.

6. Interviewer training

6.1 Interviewing skills

In a standardised Blaise interview, instructions, questions and probes are identical. The EHC method represents a shift in interviewing techniques and requires interviewers to generate personalised cues as the need arises. Furthermore, they are encouraged to check the information the respondent provides (using information displayed on the EHC such as respondent's age and personal events already entered). This needs to be done with subtlety and care to ensure the respondent does not feel they are being tested or undermined.

In addition to the change in interviewing style, the EHC presents a technical challenge to interviewers. The EHC utilises keys and key combinations which the interviewer would not use in a standard Blaise interview. For the less computer literate this was particularly difficult.

It was essential that interviewers were able to effectively use all the elements of the EHC and felt able to adapt to the (unconventional) style of interviewing the EHC approach entails. Training therefore focused on:

- (a) Familiarising interviewers with the EHC: workshops gave interviewers the opportunity to practice using the program, both at the briefing and for homework.
- (b) Interviewer style: screen capture software was used to give examples of respondent/interviewer interaction using the EHC.

6.2 Respondent and interviewer interaction with the EHC

An element of the EHC approach is that the respondent should interact with the EHC as well as the interviewer. Respondents should ideally be more involved in the process: a key aspect of this is being able to look at the calendar so that the respondent has the opportunity to see the visual prompts available (such as the personal events box) and possibly identify inconsistencies in their reports.

In practice, it was difficult for interviewers to adhere to this, especially when the CAPI EHC was used. Respondents did not always wish to sit next to the interviewer, and often the seating arrangement was not suitable for two people to sit and view the screen. The calendar was fairly difficult to see due to the size of the laptop screen, and this problem was heightened by both interviewers and respondents needing to 'share' the screen. Interviewers also found this approach difficult: they were unable to maintain eye contact with the respondent which they are used to in standardised CAPI interviewing, and disliked that respondents were able to read questions from the screen before they were asked by the interviewer.

Initial feedback from interviewers shows that most respondents did not look at the screen because they were not interested in the EHC. This problem may have been partly due to the age of the ELSA respondents (50 and over): bad eyesight or a general lack of experience with computers is more likely amongst this age group, whereas a different cohort may be more open to looking at the computer screen. Therefore, these early findings demonstrate that the calendar is a more effective tool for the interviewer than for the respondent. This shows how essential it is for interviewers to master the new interviewing technique (i.e. both the technical aspects of it and the more collaborative interviewing style) because responsibility for generating personalised cues and checking for inaccuracies falls to them.

7. Conclusion

The ELSA life history interview shows how an EHC can be incorporated into a standard Blaise style interview. This interview retained key features of the EHC approach: interviewers were able to generate personalised cues using the information displayed on the calendar and respondents could, to an extent, recall events in their own way. Thorough testing in the development stage showed that flexibility is not always necessary

for the EHC to be an effective tool to help respondents recall events. We are confident that despite the life history interview representing a more structured approach, the EHC we used enabled respondents to give more accurate and robust life histories. There are some areas which would benefit from more development time, particularly creating a more user-friendly way to insert new events and revise data already entered. This will be taken into account if we use the EHC for future projects. The feedback we have based this paper on is from respondent and interviewer de-brief reports and eighteen audio-recorded interviews in the development stage. We will be carrying out further analyses based on approximately 100 audio-recorded mainstage interviews. We will use behavior coding techniques to explore further the respondents' and interviewers' experiences of the ELSA life history interview and the effectiveness of the different elements of the calendar.