

Event History Calendar program development and anticipated effects - Main functions and characteristics of the KLI CAPI-EHC

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1 Introduction

An Event History Calendar (EHC) refers to a survey method or mode in which events are surveyed in the order or occurrence in a calendar-like format. The greatest difference between the EHC and the Event History Data is that the EHC survey looks like a calendar. Events are recorded on an EHC calendar which is known to facilitate interviews by utilizing interviewee past experience to induce recollection of related events (Robert F. Belli; 2000 etc.). EHCs are most useful for surveying major life events such as education, vocational training, employment, marriage and housing, and are used in order to reduce recall errors between past event time points and thereby increase data reliability. EHC can be used in both paper-based (PAPI) and computer-based (CAPI) formats. The KLI used a paper-based EHC in the 2007 Korean Longitudinal Study of Ageing.¹ In 2010, a computer-based EHC (CAPI-EHC) was developed for KLI use. This paper seeks to describe the main functions and characteristics of the CAPI-EHC developed by the KLI.

2 Main functions and characteristics of the KLI CAPI-EHC

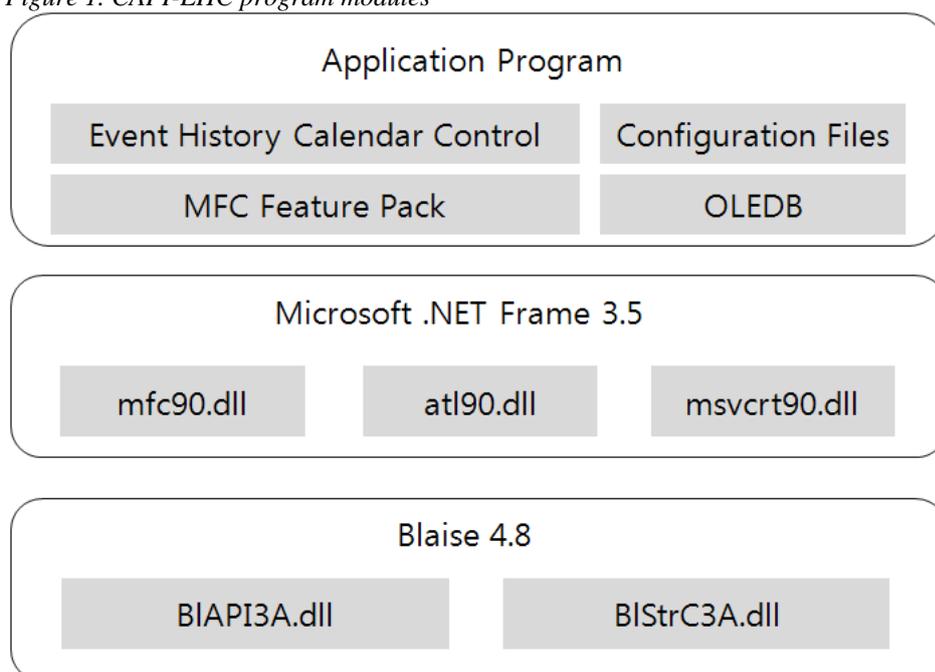
This section looks at three aspects of the CAPI-EHC program developed by the KLI. First, we look at the CAPI-EHC modules; second, we look at the CAPI-EHC screen characteristics; and third, we look at the KLI CAPI-EHC survey design to examine the main functions of the CAPI-EHC.

Our description is based on the fact that the KLI CAPI-EHC was designed on the basis of the life history survey.

2.1 CAPI-EHC modules

Figure 1 shows us the CAPI-EHC modules. The CAPI-EHC program uses three Microsoft.NET Frame 3.5 dll (Dynamic Link Library) files – mfc90.dll, atl90.dll and msvcrt90.dll – and BIAPI3A.dll and BISTC3a.dll provided by Blaise 4.8.

Figure 1. CAPI-EHC program modules



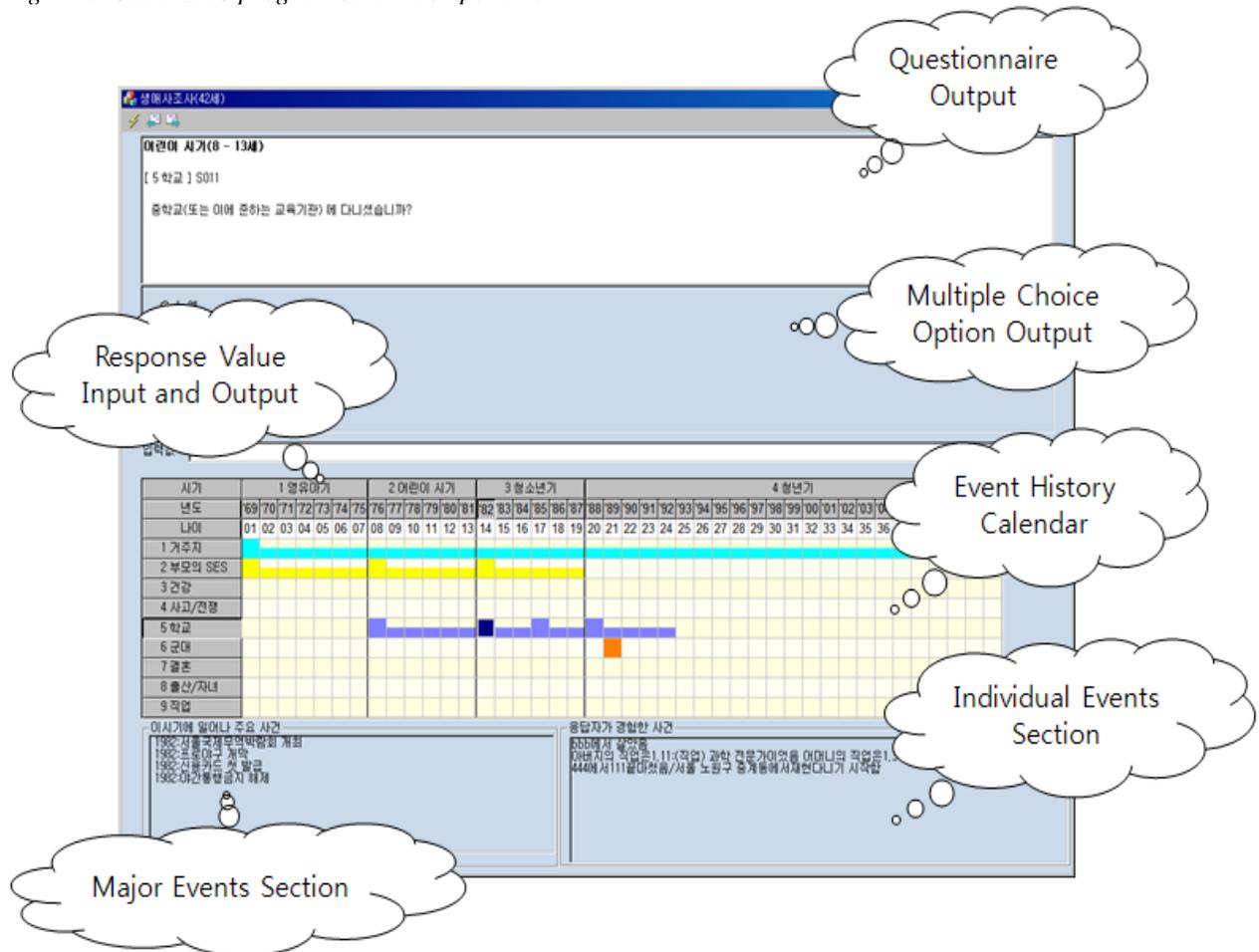
The CAPI-EHC program has 4 components: the Event History Calendar Control component that controls the overall calendar screen; the OLE DB (Object Linking and Embedding Database), an API developed by Microsoft that allows access to various types of databases; the MFC (Microsoft Foundation Class) Feature Pack that facilitates the development of Windows-based applications that have added functions such as the true color toolbar and ribbon menus; and the configuration files. The Event History Calendar Control component allows us to set the size and color of each calendar zone, while the OLE DB lets us link the EHC with various types of databases so that information from other surveys or from previously collected information can be quickly accessed. Meanwhile, the configuration files allow us to reconfigure the program according to the needs of the particular survey. Buttons, toolbars, input windows and frame structures on the calendar screen are designed to enhance interviewee convenience.

2.2 CAPI-EHC screen characteristics

The basic screen composition of the KLI CAPI-EHC is shown in Figure 2. The screen consists of a questionnaire section and an Event History Calendar section, each of which take up about one half of the screen. The questionnaire side has controls for questionnaire output, multiple choice option output and response value input and output, while the Event History Calendar side consists of an Event History Calendar where responses are shown on the calendar, a major events section for a particular year and an individual events section for the year.

As the questionnaire section is not very different from the existing CAPI questionnaire screen, we choose to look only at the Event History Calendar section. As mentioned above, the Event History Calendar section consists of an Event History Calendar, major events from a particular year and individual events for the year. Figure 3 shows us the Event History Calendar which can be adjusted to align the start point and the end point of the calendar display to the actual timeframe addressed in the survey. For life history surveys, interviewee convenience can be enhanced by separating the response periods according to the life periods of early childhood, childhood, adolescence and young adulthood.

Figure 2. CAPI-EHC program screen components



If multiple themes are being surveyed simultaneously, the various themes can be displayed together on a single screen with different colors used for each theme for easy recognition by interviewees. The whole box is colored in for the start and end date of an event, while only half of the box is colored in for dates in between. If the cursor is brought to an event start or end box, a tooltip immediately appears with information on the contents of the event; and if the year is clicked, a window with a submenu for the months of the year pops up.

In addition, the screen is programmed to maximize recollection by interviewees by allowing, for example, the user to simply click on the box and move directly to another input screen if the interviewee starts to provide information on marriage or jobs while responding to a question on housing.

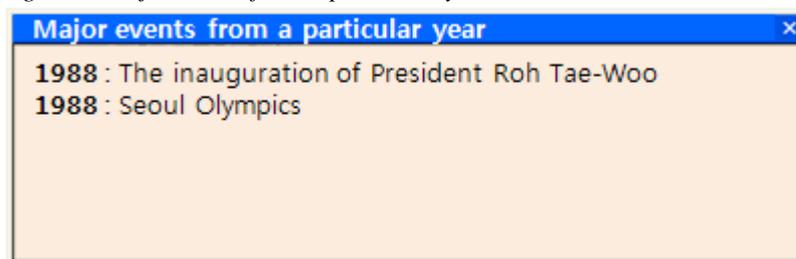
Figure 3. Event History Calendar

Moment	1 Babyhood							2 Childhood							3 Adolescent							4 The Delusion of Youth																					
Year	'69	'70	'71	'72	'73	'74	'75	'76	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11
Age	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
1. Residence																				I moved to Daechi-Dong from Haengdang-Dong.																							
2. SES	[Red]							[Red]							[Red]																												
3. Health																																											
4. Accident																																											
5. School								[Purple]							[Purple]																												
6. Army																																											
7. Marriage																																											
8. Children																																											
9. Occupation																																											

Major events from a particular year are displayed in the lower left side of the screen, while individual events for the year are displayed in the lower right side. Figure 4 shows us an example of major events in a year. If – as in the example below – the interviewee is providing information for the year 1988, the screen displays major events such as the inauguration of President Roh Tae-Woo and the Seoul Olympics in order to help them recall memories of that year. Previous responses by the interviewee are drawn upon to display personal individual events that occurred in the year in the lower right corner.¹

This feature of the CAPI-EHC takes full advantage of the merits of being a computer-based tool, whereas it was not easy to automatically display major events or individual events from a particular year in the PAPI-EHC.

Figure 4. Major events from a particular year



Because there is a limit to the number of events that can be displayed on a single screen, the CAPI-EHC allows users to choose characteristics for the major events that occurred in the year that they wish to have displayed on screen and thus lessens the scroll burden. For instance, if the interviewee is not interested in sports, all sports events can be deselected and hidden from view, while still allowing the interviewee to look at cultural and scientific events from the particular year.

¹ The individual event display is not shown here as it is not very different from the major event display.

Figure 5. Major events selection



2.3 CAPI-EHC major functions

This part of our paper focuses on describing the KLI CAPI-EHC program configuration in order to explain more about the main functions of the KLI CAPI-EHC program. The KLI CAPI-EHC is configured, first, in terms of screen components, second, the display of inputted questionnaires within the calendar and, lastly, linkages to previously obtained information or other non-EHC questionnaires. The KLI CAPI-EHC program is designed so that users can easily customize the program to the purpose of the survey by making changes on a single configuration file.

2.3.1 Screen configuration

The KLI CAPI-EHC can easily link chosen Blaise Database (questionnaire) files to the EHC program and allows users to very easily set the format of the calendar. The length of the survey period (i.e. years, months, days displayed on screen) can be set in the top row, while themes such as jobs and health are configured in the first column. Configuration instructions are outlined in Table 1

Table 1. Basic screen configuration

	Example
i) Assign the CAPI-EHC database	Blaise database=lifehistory.bdb
ii) Assign the color of screen	Color 0=15391434
iii) Assign the number of years	YearsOnSheet=49
iv) Assign the number of rows in EHC	NumberofRows=9

The KLI CAPI-EHC allows configuration of calendar themes and also allows simple configuration of the colors for each theme. Interviewee convenience is also enhanced as the year setting at the top of the screen can be set to display specific decades such as the 1970s or the 1980s or specific life periods such as early infancy or early childhood.

The program used for these purposes is presented in Table 2. For instance, simply changing the '16776960' in "SelColor 1=16776960 (Raw4/SkyBlue)" will change the color for a certain theme.

Table 2. Calendar screen composition

	Example
Initial Header	InitialHeader=Life History
i) Assign the Label of Row(default)	Row Label 1 = Moment Row Label 2 = Year Row Label 3 = Age
ii) Assign the Label of Row	Row Label 4 = Residence Row Label 5 = Health Row Label 6 = Occupation
iii) Assign the Color of Row	SetColor 1=16776960 (Row4/bright blue) SetColor 2=65535 (Row5/yellow) SetColor 3=255 (Row6/blue)
iv) Assign the Label of Column	Col Label 1=1 babyhood Col Label 2=2 childhood Col Label 3=3 Adolescent
v) Assign the number of columns	Col Size 1=7 Col Size 2=6 Col Size 3=6

2.3.2 Calendar display of inputted questionnaires

The KLI CAPI-EHC program allows users to configure the calendar start and end dates and the questions and responses to be displayed on the calendar. Since EHC questionnaires generally repeatedly ask the same questions, users can also configure the maximum number of repetitions in the program design.

In this process, there are some fields that are required in the questionnaire to be able to link the Event History Calendar and the Blaise program, the array for which is set forth in Table 4. As the program will not work if these required variables are absent, particular care must be taken in the design of the Blaise questionnaire (refer to figure 6).

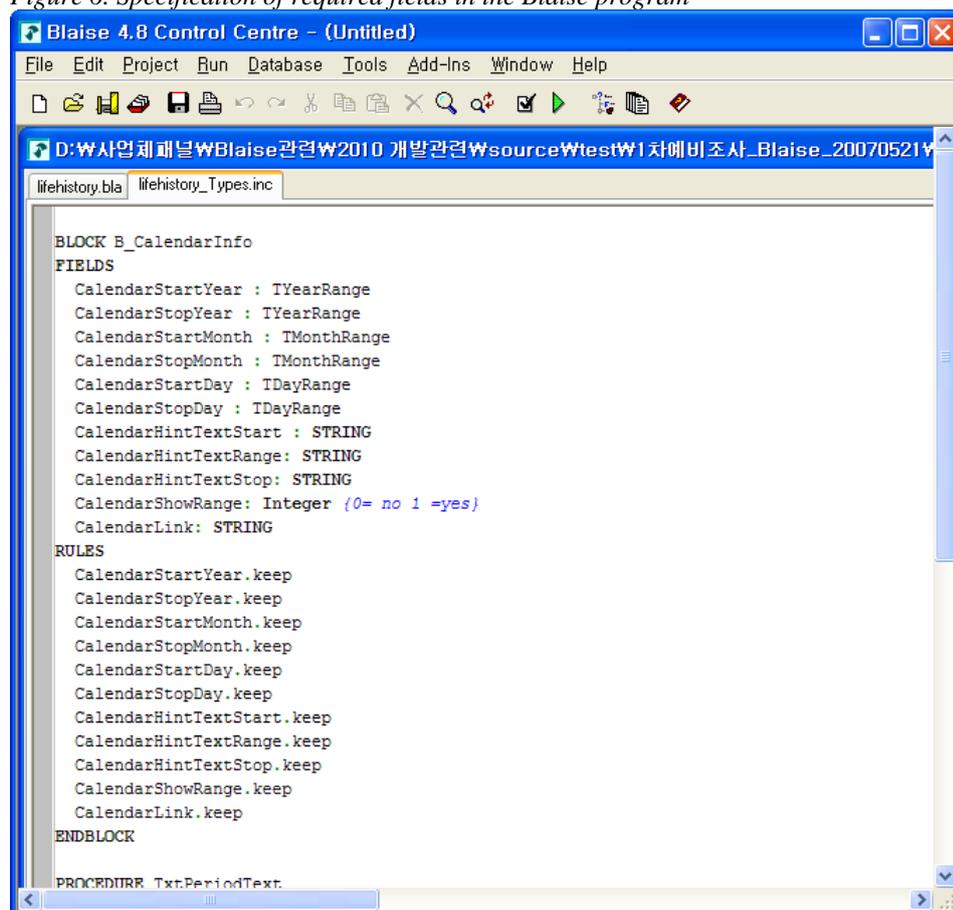
Table 3. On-screen questionnaire content components

	Example
i) Assign the Blaise database	User Name=preload_name
ii) Assign the Primary key	Primary Field=Bid
iii) The beginning question in EHC questionnaire	Start Question=IntroCalendar
iv) The end question in EHC questionnaire	Stop Question=Comp_stat
v) The beginning year set in BDB	BirthYear=preload_birthday
vi) Set up the number of loop in repeated question	Row 1 Loop=20 Row 2 Loop=40

Table 4. Required fields

	Subdivision	Description
Calendar Info	CalendarStartYear	The year of beginning
	CalendarStopYear	The year of end
Calendar Info	CalendarShowRange	
	CalendarHintTextStart	
	CalendarHintTextRange	
	CalendarHintTextStop	
	CalendarLink	Set up the linked field name

Figure 6. Specification of required fields in the Blaise program



2.3.3 Linking external data

EHC surveys help interviewees recall past events by displaying events in calendar format, and thus help to reduce recall errors and enhance the quality of data. Recall errors will decrease further if, along with the display of responses in calendar format, past information or responses to other questions are utilized to check for consistency.

The KLI CAPI-EHC has the additional functionality of being able to link with other data to block errors. This program was developed in consideration of linkage speed so as to ensure that the overall flow of the survey is not disrupted by linked data. Table 5 describes how to link external data to the CAPI-EHC program.

Table 5. How to link to other databases

	Example
i) Link the Database	DataBaseConnection=Provider=Microsoft.Jet.OLEDB.4.0;DataSource=Preload.mdb
ii) Assign Table Name	TableName=OldRespondentList
iii) Assign Table ID	Field 1=FID
iv) Assign EHC Blaise ID	Blaise 1=BID

3 Summary and conclusion

So far, we have discussed the CAPI-EHC program developed by the KLI.

Used mostly to survey major life events such as education, vocational training, employment, marriage and residence, the EHC increases readability to reduce errors in recalling time points at which past events occurred, and thus improves data reliability; but the design and data entry process of EHC is complicated, and requires a lot of time and money.

These weaknesses are expected, however, to be significantly alleviated with the introduction of CAPI,

as CAPI surveys characteristically require a lot of time and money in the early development process, but involve lower cost burdens in later years. Also, since CAPI data input and output occurs simultaneously with fieldwork, the input/output burden is that much lower. In particular, since error checks occur on a real-time basis during fieldwork in the CAPI-EHC, we are able to collect more consistent life event data.

The KLI CAPI-EHC program was developed with a focus on ensuring fast operation speeds, easy links with pre-collected information or other CAPI programs, and an easy-to-configure EHC program that can be customized to the questionnaire and survey design. The KLI CAPI-EHC program allows the 7 basic variables required for calendar composition to be specified in the Blaise questionnaire file, and is designed so that it can be quickly utilized in surveys just by designating the program title, calendar format and design and external linked files within the configuration file.

The KLI CAPI-EHC system is a very practical and useful program that has been developed on the basis of know-how accumulated by KLI panel researchers in the course of conducting numerous panel surveys, and which brings together the strengths of CAPI and EHC. This CAPI-EHC program has not, however, been used in the field so far, and is therefore limited in terms of verification of the program's stability and effectiveness. Through future cooperation with other panel surveys and through further improvements to the program, we hope to achieve higher quality and further progress in life event surveys and recalled data.