

Blaise Multiple Contact Interface for Telephone Interviewing on a Complex Household Survey

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1 Introduction.

This paper will describe the challenges that we faced in developing a Blaise multiple contact interface in order to deliver the Understanding Society study in NatCen Social Research's Multi Mode Unit (MMU) and the solutions we implemented. It will start with some background information about the Understanding Society study and NatCen's computer-assisted telephone interviewing (CATI) resources. It will then discuss the challenges faced in developing this multiple contact interface and describe the dial screen solution we arrived at. Finally, it will reflect on the implications of the solution for interviewer training and assess its success in delivering this multiple contact requirement.

1.1 Background to Understanding Society.

Understanding Society is the world's largest longitudinal social science study, interviewing around 100,000 respondents each year. It was launched in 2009, and is already delivering high-quality, world-leading data on the social and economic circumstances of households from across the UK. The study is funded by the Economic and Social Research Council, with scientific leadership provided by the Institute of Social and Economic Research (ISER) at the University of Essex.

A nationally representative sample of 40,000 households was selected in 2009. Interviewers now contact each of these households every year and interview all members of the household. Adults are interviewed either face-to-face or over the phone. Respondents aged 10-15 fill in a paper self-completion questionnaire. It is arguably one of the most technically demanding social science studies in the world today.

In 2010 approximately 500 households were issued for CATI interview. These were households which had previously indicated that they would prefer to be contacted by telephone.

Understanding Society requires the whole sequence of both successful and unsuccessful telephone contact attempts with all household members to be recorded, capturing a complete call history for each household. The outcome of the attempt, who was spoken to and which telephone number was attempted, had to be recorded for each call. In addition, where sample members could not be contacted, attempts at tracing them, including contacting the stable address contact, were documented.

1.2 The Multi Mode Unit (MMU) and Project Computing at NatCen

The Multi Mode Unit (MMU) is situated in our Brentwood office and carries out CATI interviewing. It consists of 5 staff members (a Manager and 4 Project Supervisors) and a panel of 64 freelancers interviewers.

The CATI dial screen design and implementation was carried out by the Project Computing department at NatCen. The Project Computing department are responsible for the smooth running of surveys and also for any project specific survey systems needed in order to deliver the survey. Blaise 4.8.2 is used in the MMU. After evaluating the survey requirements, taking into account time constraints, interviewer training and cost we decided to keep the Blaise CATI call scheduler framework and develop our own dial screen to meet the survey requirements.

2 Design challenges we faced

2.1 Displaying and updating contact information.

The client's survey requirements were for us to contact and obtain an interview with up to 16 people in the household. Each person could have up to 5 phone number associated with them. The standard Blaise CATI dial screen would require a long list of contact fields to be displayed and although these could be updated this would become very difficult for interviewers to work with in a live interviewing situation. Furthermore, as interviewers needed to contact and interview all people in household in many cases it would not be possible to achieve all the interviewing through a single call. So dynamic updating of the dial screen to inform interviewers of current status of the case was needed.

Provision also needed to be made for following up individuals who had moved from the household since last interview, splitting the case, and transferring details from the original household to a new household created for those who had moved. To do this effectively we used Manipula to create the new households and updated contact information.

2.2 Keeping a complete call history of each phone number dialed and who answered the call.

The client also required us to keep a complete call history of each number dialed (including any new numbers discovered by interviewers) and to record the person that answered any call (this would in most cases be a household member but could also be a "new" person). This information could also then be displayed to interviewers so that they can review the dial history of numbers. We also needed to record when the phone had been transferred from one household member to another to do the interview.

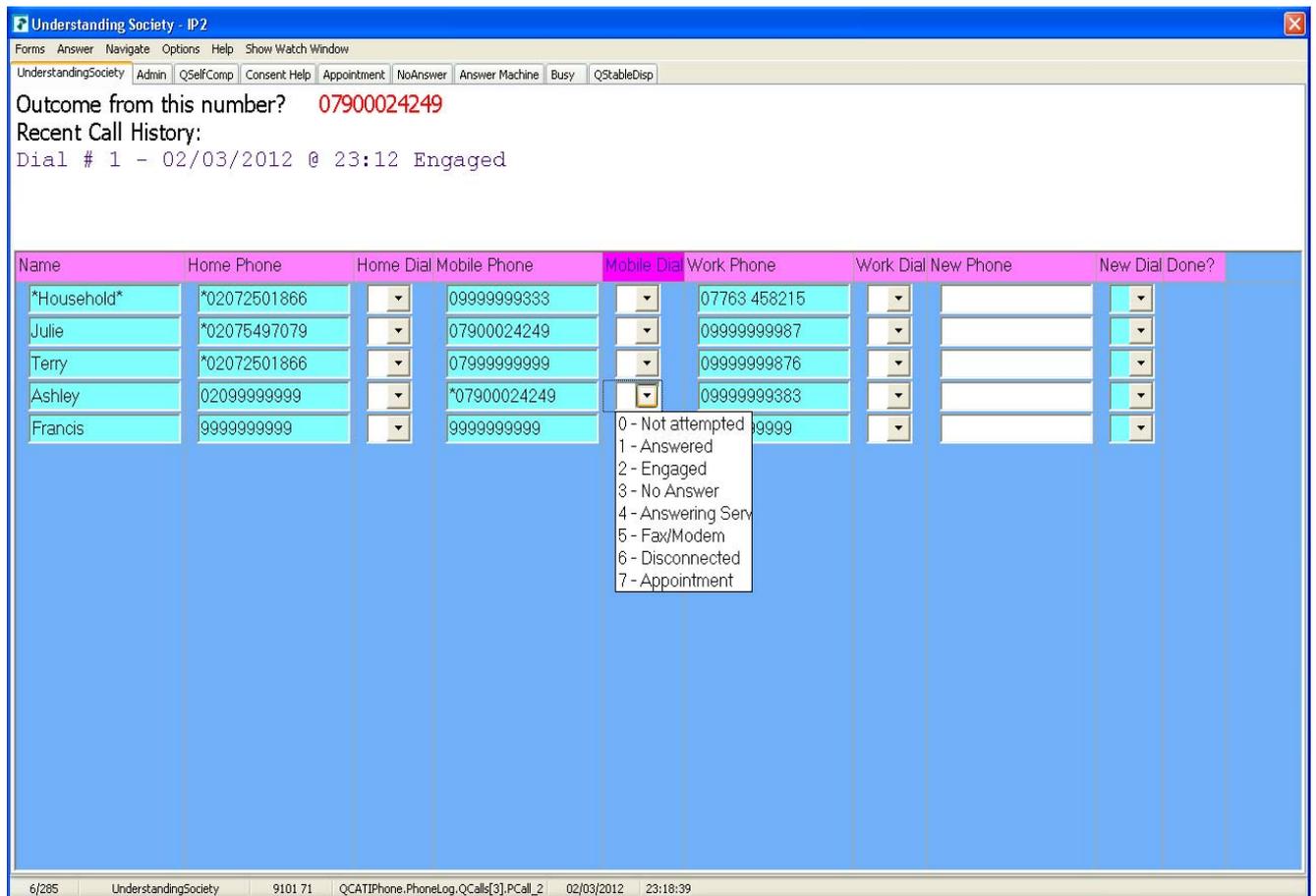
2.3 Ensuring usability for interviewers.

It was important to provide interviewers with information so that they could have a quick and accurate snapshot of the current status of the household. As it was possible to contact more than one person in the household at a time interviewers could also potentially make appointments for different people in the household. These appointments needed to be ordered by date and time and displayed so that interviewers could then make the next appointment via the standard CATI appointment function.

2.4 Initial design and lessons learned.

The design challenges described in above led us to the conclusion that we would need a multiple contact dial screen block at the start of the Blaise instrument.

We initially developed a front-end grid-type dial screen block in which all the household members names and contact phone numbers were displayed in a grid as the example below (which uses dummy sample information) shows.



Interviewers could dial numbers from the grid and record the dial result. The time, date and dial result would then be stored and displayed for future reference when the number was clicked on in the grid. Once contact was made with a household member the interviewer could enter the main questionnaire and start the house hold grid enumeration. We found that this method was unsuccessful as:

- When dialing a number from the dial screen grid if the person answering the phone was not the person who the phone number was associated with, it was not possible to record this on the grid, i.e. to link the phone number back to who actually answered the call rather than who the phone number was associated with.
- Interviewers found the grid could sometimes become quite cluttered with phone numbers. They generally found it difficult to keep track of which numbers had been dialed.

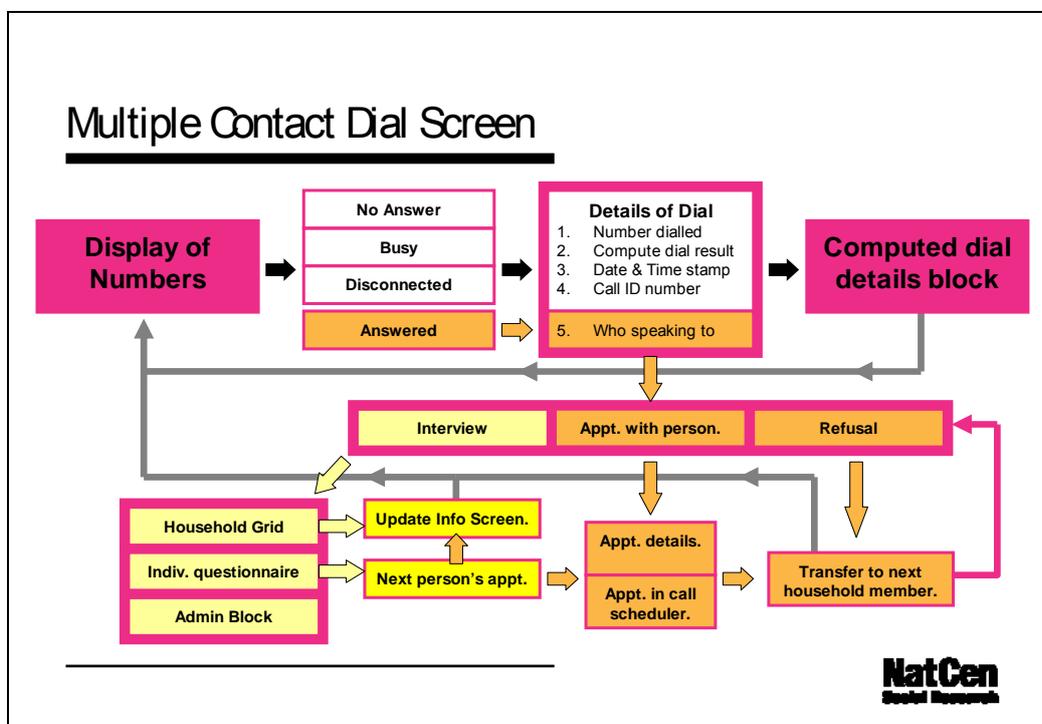
3 Implementation of the Multiple Contact Dial Screen block.

We needed to ensure that all the numbers interviewers were dialing were recorded as well as being able to record who actually answered the call. With this in mind, we moved away from the free-navigation grid-type approach and instead developed a dial screen auxiliary block at the start of the instrument. The purpose of this block was to:

- Display all household information (names, phone numbers, previous status, current status) and allow for this display to be updated at the start of each new call.
- Ask a series of questions which would establish which phone number had been dialed, the dial result and which person answered the phone and store the corresponding answers.

- Allow interviewers to try (up to 10) different phone numbers without having to exit the form. When exiting the form via a busy or no answer dial result, ensuring that this result was passed to the CATI call scheduler for appropriate dial treatment.
- Record the dial history and display this to interviewers.
- Record when the phone had been transferred to another household member.
- Record and display appointments for one or more household member.
- Record and display interviewer comments.

We produced a flow diagram of the whole survey processes needed for Understanding Society to help us focus on how the multiple contact dial screen should work to meet the survey needs.



We used the standard Blaise CATI dial screen to display only the interviewer comments and the main home phone number. Then interviewers had to select “interview” to go to the multiple contact dial screen block. As mentioned we made this an auxiliary array block so that it could be used for collecting call information for up to 10 dials before having to record a dial result for the call. The majority of households contained 10 or fewer unique phone numbers so looping the block 10 times and also allowing for the phone to be transferred 5 times within each dial was considered sufficient when balanced against performance of an already large interviewing model.

The information in the block was copied and stored in a call history block, an appointment history block and an interviewer comments block and used to provide interviewers with information on the current status of the household. Throughout the implementation process the MMU were involved in testing and ensuring that the multiple contact dial screen met their interviewing aims.

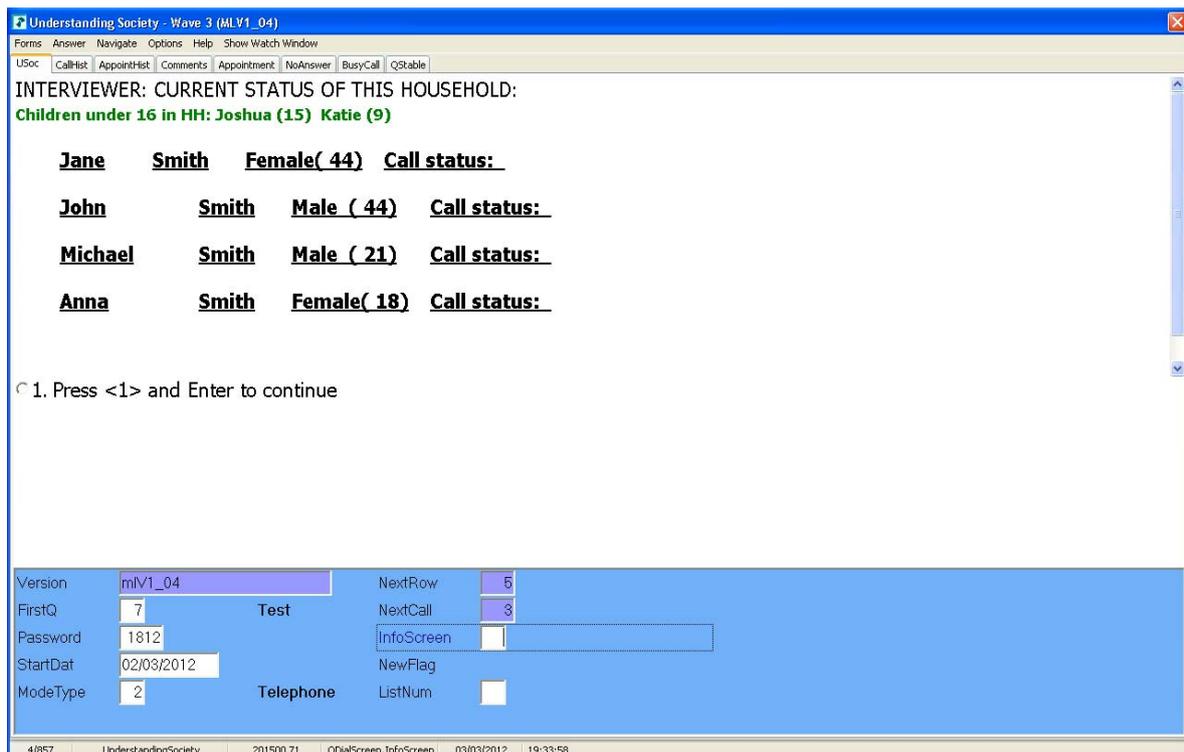
3.1 Details of each dial made.

The following set of core questions were asked to establish which phone number had been dialed, the dial result and which person answered the phone.

- Number dialled: listing all known numbers in an enumerated type list.
- Record new numbers: option of recording a previously-unreported number.
- Outcome of call: enumerated as 'Answered', 'Busy', 'No Answer', 'Disconnected'.
- Person spoken to: listing all known persons in an enumerated type list, with the option of recording a previously-unreported person.
- Date and time stamps: recording date and time dial was made.

3.2 Updating household information in display screen.

The initial display screen for interviewers contained household member information before the household grid was filled. Once contact was made with a household member and the grid filled the information was updated to reflect any movers into and out of the household.



For example household member's names were updated as follow:

FIELDS

PersonTXT "Forename of each household member": ARRAY[1..20] OF STRING[40]

SPersonTXT "Surname of each household member": ARRAY[1..20] OF STRING[40]

RULES

```
FOR ipp:=1 TO 20 DO    {initialising name}
    Persontxt[ipp]:=EMPTY
```

```

    Persontxt[ipp].KEEP
    SPersontxt[ipp]:=EMPTY
    SPersontxt[ipp].KEEP
  ENDDO

```

```

FOR ipp := 1 TO 16 DO
  PersonTxt[ipp]:=QPFFW.QP[ipp].QA.ff_forname {setting forename from sample
                                             name}
  SPersonTxt[ipp]:=QPFFW.QP[ipp].QA.ff_surname {setting surname from sample
                                             name}

  IF AName[ipp]=RESPONSE THEN
    PersonTxt[ipp]:=AName[ipp] {setting forename from household grid name}
    SPersonTXT[ipp]:=ASName[ipp] {setting forename from household grid name}
  ENDIF
ENDDO

```

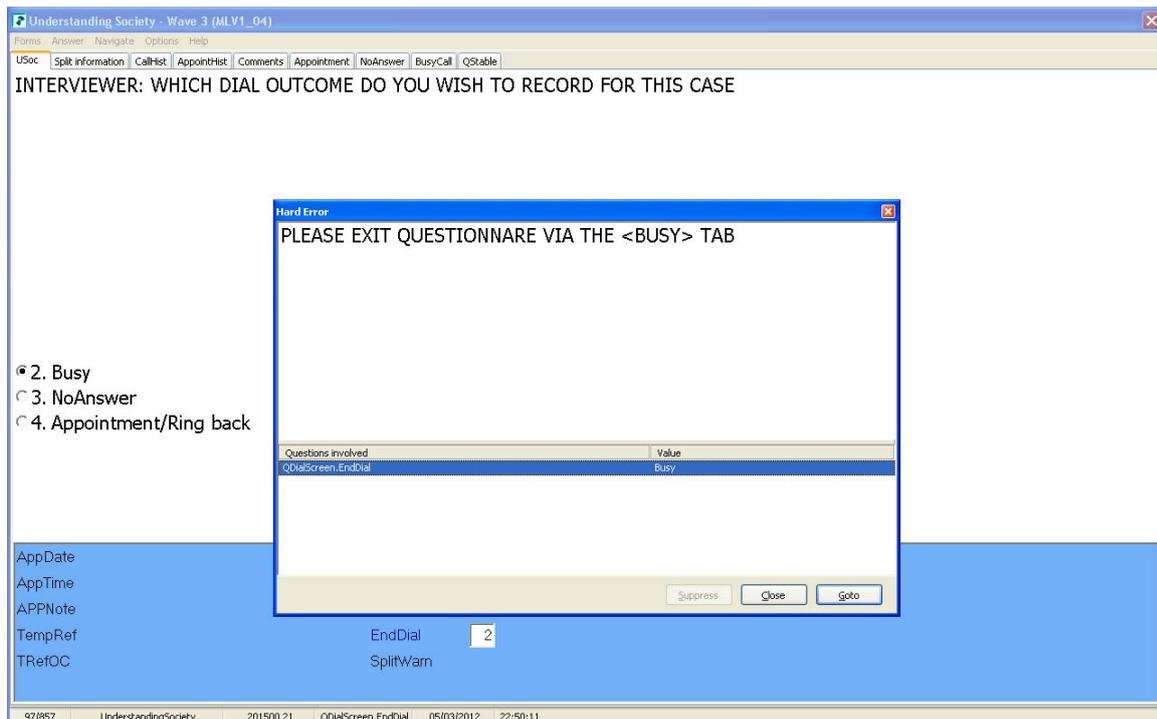
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IF (DMAge[ipp] = RESPONSE AND DMAge[ipp] < 16) OR
   (AGE(QPFFW.QP[ipp].QA.ff_birth,QSignIn.StartDat) < 16) OR
   (QPFFW.QP[ipp].QA.ff_Age < 16) THEN
  PersonTxt[ipp]:=EMPTY {if household member in grid is aged <16}
  SPersonTXT[ipp]:=EMPTY {if household member in grid is aged <16}
ENDIF

```

3.3 Busy and No answer calls.

Dial results such as busy, no answer and disconnected were handled in the multiple contact dial screen by use of parallel blocks. When interviewers entered a busy, no answer or disconnected dial result relevant display questions and hard checks ensured that interviewers exited the case using the appropriate parallel block so that the appropriate dial treatment would be recorded in the call scheduler.



3.4 Call history display details.

The details of each dial made (as described in 3.1 above) were stored in another parallel block we named the 'Call History' block. Details of each dial were written to this block once the interviewer had established a dial result. If the dial result was busy, no-answer or disconnected interviewers were given the option to try another phone number.

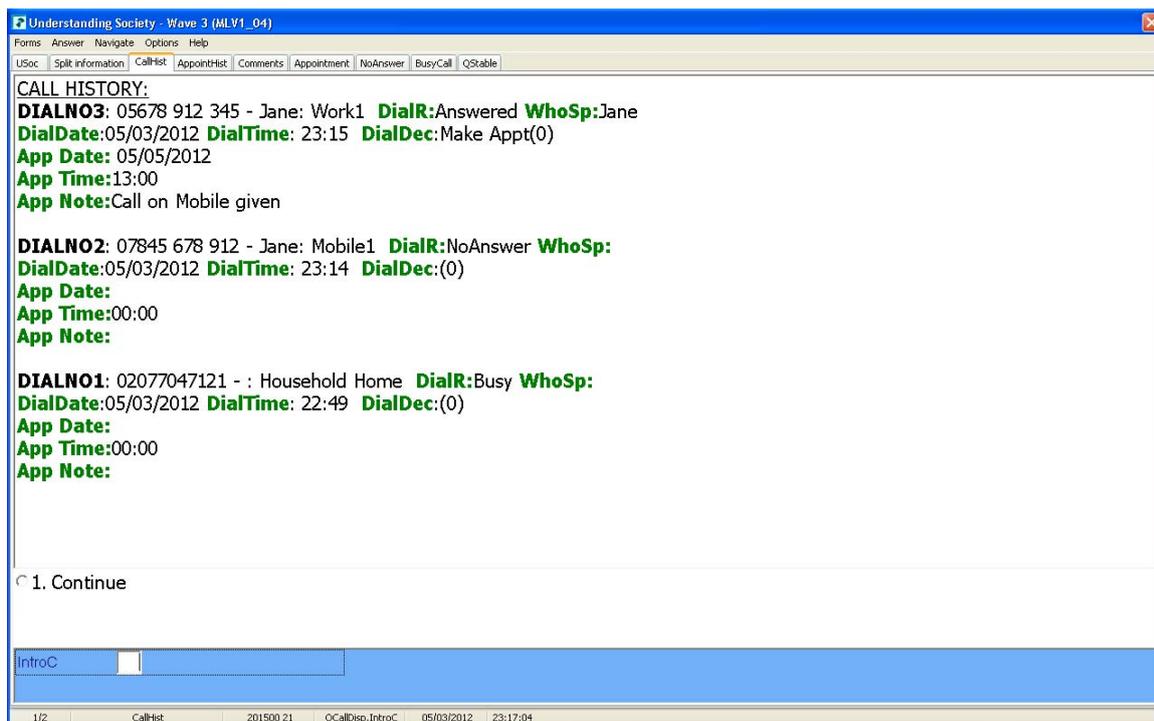
```
More "@/DO YOU WANT TO TRY ANOTHER NUMBER FOR THIS CASE?"  
      : (Yes,No), NODK, NORF
```

If the interviewer had other phone numbers available to try they could select the "Yes" option here and they would then be prompted with a soft check to confirm that the current dial had been concluded. The information was then computed, stored and displayed in the Call History block and the next element of the dial screen array came on the route ready for the next dial. The soft check was considered necessary in order to ensure interviewers could confirm or change the dial information they had recorded before it was stored.

RULES

```
Interview  
IF (Interview <> EMPTY) THEN  
    FlagInt:=Yes {used for copying to Call History block}  
ENDIF  
IF (Interview <> EMPTY) THEN  
    SIGNAL  
    (Interview = EMPTY)  
    "INTERVIEWER: ARE YOU SURE? YOU WILL NOT BE ABLE TO GO  
    BACK AND CHANGE YOUR ANSWERS AFTER THIS QUESTION"  
ENDIF  
  
{Computing dial details to Call History block}  
IF (More<>EMPTY OR FlagInt and datastored <> yes THEN  
    QCallHist[NextRow].ListNum := ListNum  
    QCallHist[NextRow].OtherNum := OtherNum  
    QCallHist[NextRow].OtherNam := OtherNam  
    QCallHist[NextRow].DialRes := DialRes  
    QCallHist[NextRow].Date := DialDate  
    QCallHist[NextRow].Time := DialTime  
    QCallHist[NextRow].whospoke := whospoke  
    QCallHist[NextRow].OthName := OthName  
    QCallHist[NextRow].DialDec := DialDec  
    QCallHist[NextRow].AppDate := AppDate  
    QCallHist[NextRow].AppTime := AppTime  
    QCallHist[NextRow].AppNote := AppNote  
    NextRow := NextRow + 1  
    Datastored := Yes  
ENDIF
```

The Call History block was made readily available to interviewers via a tab control on the multiple contact dial screen. The block displayed the result of the latest dial at the top of the page so that the most up to date information was available without having to scroll.



3.5 Transferring the phone and appointments.

For any dial that resulted in the phone being answered interviewers were presented with three options to proceed

DialDec "PLEASE SELECT APPROPRIATE OPTION BELOW"

:(Inter "Interview ^name now",
 Appt "Make appointment to call back to speak to ^name",
 Refu " ^name refuses"), NODK, NORF

If the household member wished to make an appointment for a call back interviewers were prompted to provide details of the appointment date (AppDate), appointment time (AppTime) and any useful comments regarding the appointment (AppNote).

Once the appointment details were recorded interviewers were then asked if the phone could be transferred to another household member.

Transfer "INTERVIEWER: CAN THE PHONE NOW BE TRANSFERRED TO SPEAK TO ANOTHER HOUSEHOLD MEMBER?":(Yes,No)

If a phone transfer did take place interviewers were routed to a sub block of the multiple contact dial screen block which we call the "Transfer" block. Here interviewers were presented with the same 3 options as in DialDec above so a further appointment could be recorded. The Transfer block was looped 5 times thus allowing the phone to be transferred 5 times for each dial made on the multiple contact dial screen. The result of the phone transfer was also computed, stored and displayed in the Call History block.

```
FOR J:=1 TO 5 DO
  QCallHist[NextRow].QTransHist[j].Twhospoke:=QTransfer[j].Twhospoke
  QCallHist[NextRow].QTransHist[j].TDialDec:= QTransfer[j].DialDec
```

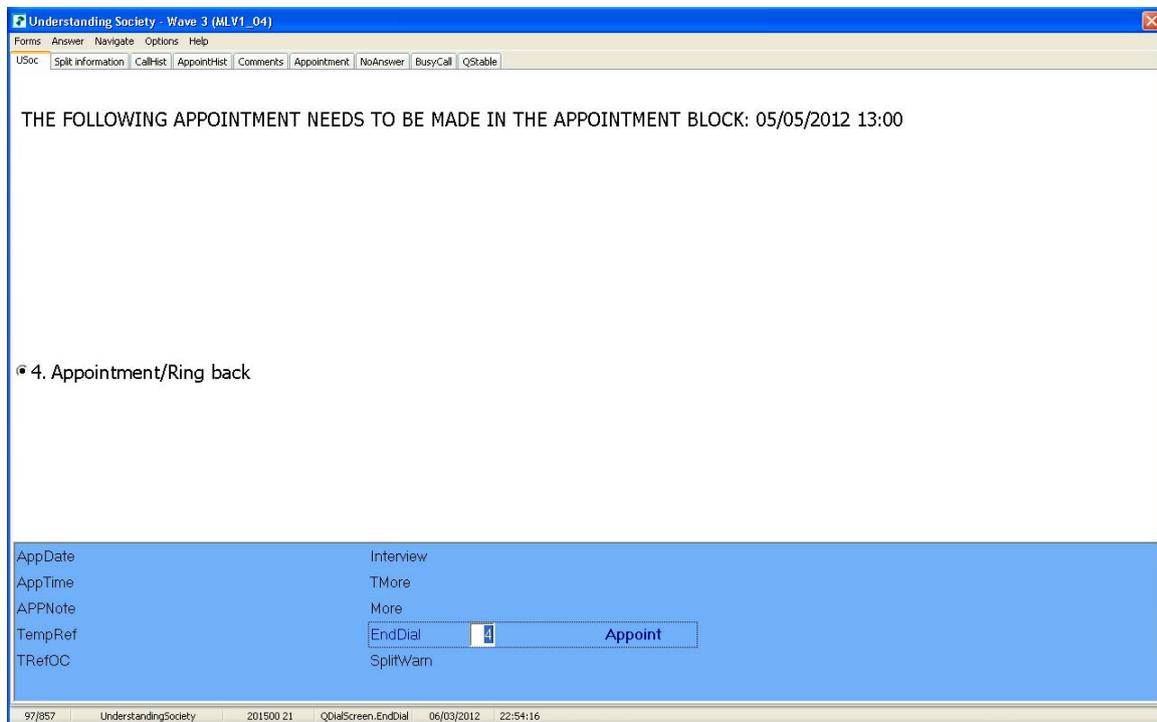
```

QCallHist[NextRow].QTransHist[j].TAppDate:= QTransfer[j].AppDate
QCallHist[NextRow].QTransHist[j].TAppTime:= QTransfer[j].AppTime
QCallHist[NextRow].QTransHist[j].TAppNote:= QTransfer[j].AppNote
QCallHist[NextRow].QTransHist[j].TDate:= QTransfer[j].DialDate
QCallHist[NextRow].QTransHist[j].TTime:= QTransfer[j].DialTime
ENDDO

```

If a household member refused at DialDec (above) interviewers were asked to code if the refusal was for the whole household or just the household member they were speaking to. If the refusal was for the household member only the interviewer was routed to the Transfer question (above) and subsequently onto the Transfer block.

As it was possible for interviewers to make appointments for several household members on ending the call all the appointments recorded in the multiple contact dial screen were ordered and interviewers were prompted to record details of the next one in date order via the standard CATI appointment function. A hard check here also ensured they left the form via the appointment block.



Details of all appointments were also made readily available to interviewers via an ‘AppointHist’ tab control on the multiple contact dial screen.

4 Interviewer training and usability.

The multiple contact dial screen required complete re-training on the way our interviewers worked. Initially we decided to select the more experienced interviewers to work on Understanding Society as it was felt that they would be able to deal with the change of working more easily. Interviewers were used to working with the standard Blaise dial screen, however this new approach meant that interviewers had to skip past this dial screen and instead use the multiple contact dial screen to make calls.

Usually on a given survey interviewers would be briefed on the CATI program but not on the dial screen and call scheduler as this was part of the standard training they would have received. For

Understanding Society a set of specific training sessions was developed to take interviewers through the functionality of the multiple contact dial screen and the logic behind it. The initial training sessions included feedback from interviewers so that shared concerns could be addressed and focused on during subsequent sessions.

We also built in a significant practice period prior to survey launch so that interviewers could use dummy sample cases to gain familiarity with the various screens.

MMU supervisors were also trained to check and inspect the various information tabs at the start of each shift so that they could check all appointments had been made and to help plan the work of interviewers to ensure the smooth running of the survey.

5 Conclusions.

Understanding Society was unlike any other CATI project that we had run in the MMU. Interviewing multiple household members with multiple phone numbers meant that we had to adapt the way we used the standard Blaise CATI call scheduler. The design of the multiple contact dial screen block had to meet our clients needs to capture all dial information as well facilitate successful interviewing. We have tried to take into account dynamic updating of the dial screen, calling multiple phone numbers, dealing with phone transfers and multiple appointments and recording and displaying all dial information. To this end we have looked to meet the clients survey needs as well as attempting to make the multiple contact dial screen as user-friendly and practical as possible.

We feel we have achieved a broadly successful solution to a complex problem. Interviewers have been using the multiple contact dial screen now for the past 2 years. Key to its success has been the careful monitoring of households that MMU supervisors do at the beginning of each interviewing shift using the dial and appointment information available.