

## Part 3 - Converting the survey to mixed mode data collection

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Incorporating web as an additional data collection mode to a long running longitudinal study required much development work and posed numerous methodological and procedural issues. This part of our series of papers describes the approach used to convert the survey to mixed mode data collection - the focus is the survey instrument but does include a description of the other components of the survey process and protocols that also required conversion.

### 1. Converting the survey instrument to mixed mode

The adaption of an interviewer-administered instrument for self-completion on the web in the context of a longitudinal study is not simple. It involves decisions about optimal screen design and layout, as well as modification of wording for some survey questions, converting interviewer instructions to respondent instructions, question level help functions and consistency checks to be appropriate for self-completion. All these decisions around adaption involve balancing the goal of minimizing mode effects and maintaining longitudinal consistency against making the web survey design as attractive and easy-to-navigate as possible for respondents. There are numerous issues and challenges that required consideration throughout the conversion process, these are summarized below.

#### 1.1 Design challenges

- Comparability of questions and responses, longitudinally and across modes. The introduction of a new mode (web) must not affect the data - it must remain comparable and mode effects between web and interviewer administered should be kept to a minimum.
- Comparability of data structure. Adding the web mode would inevitably involve adding new data fields, however, a single set of variables for both modes presented in a similar structure as previous waves was the goal. In addition, the majority of any reconfiguration of the data would be done in Blaise rather than in the post processing stage.
- Clarity and ease of navigation for internet. Providing the a good user experience for web respondents required changes to the interviewer administered version - these changes were only made if they also enhanced the interviewer version and maintained comparability.
- Complexity of instrument and implications for performance and maintenance. The HRS is a large, complex instrument. In order to reduce the burden of maintaining two versions of the questionnaire, the goal was to minimize differences between the web and interviewer versions of the instrument.
- Capabilities of Blaise 5. We were transitioning the questionnaire to Blaise 5 and adapting to mixed mode while Blaise 5 itself was in development this meant that some features were not available when needed. Work arounds had to be developed or we put programming on hold until the features were/are available.

#### 1.2 Design issues

The HRS questionnaire has evolved over the years and designed for interviewer administered - additional instructions have been added for interviewer reference which makes some screens cluttered, the questionnaire includes 'volunteer only' responses have range checks at some questions for unlikely

responses. None of these are in line with design guidelines for self-administration. Some of the specific design issues included:

- Item missing data, use of don't know and refusal prompts for self-completion and routing based on non-responses.
- Appropriate ranges for numeric variables and use of hard and soft checks.
- Accommodating multiple browsers and devices.
- Interviewer help features - how and when to convert interviewer instructions, definitions, question level help to self-administered.
- Volunteered response options – these responses that are not read to respondents, but are listed in the code frame for the interviewer to select if mentioned by the respondent.
- Display of response options - avoiding the need to scroll.
- Question rewording; 'or what' terminology.
- Confidentiality: we preload responses from the respondent's previous interview there was concern about displaying preloaded information in case someone other than the respondent is completing the survey of seeing the screen.
- Multiple response formats - the interviewer administered version offers multiple ways of recording a response, for example, responses provided for when stopped smoking are 'age', 'years ago', or 'calendar year'. This would be complex for self-completion.
- 'Gates' - there are points within the questionnaire where the interviewer is not able to back up once they have moved passed a question or mark the beginning of a section and provide a point from which routing can be based.
- For most content areas, the same questions will be asked in the interviewer-administered and web modes – although this is not desirable or possible for the cognition section. We use tests in the face to face and telephone interview that are not well suited to the web. Web also offered the possibility of using visual based tests.

### **1.3 The design process**

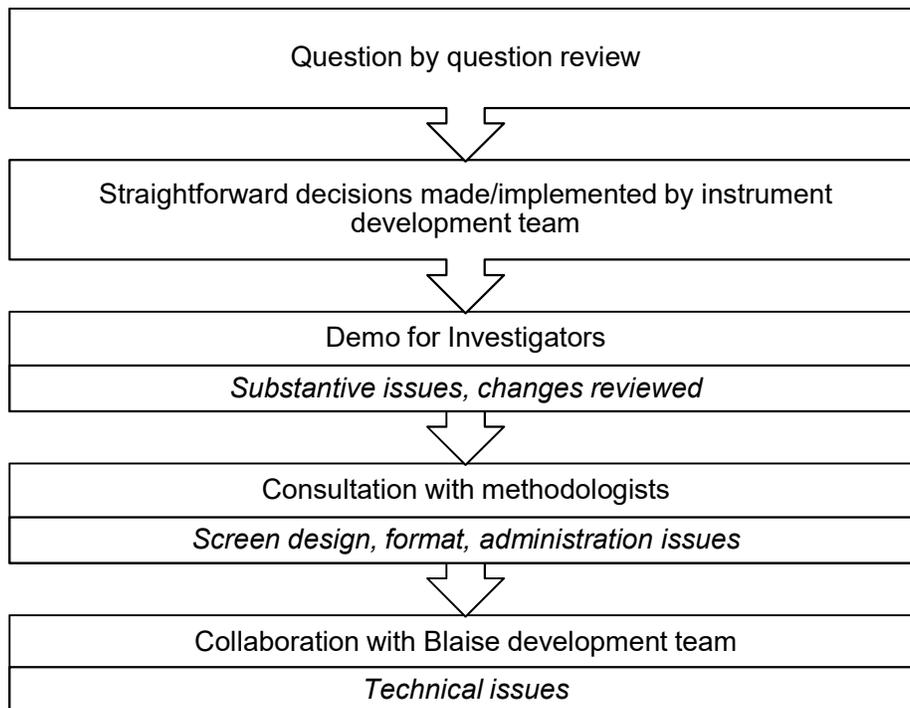
With all of these issues and challenges to consider and a large team of programmers and content experts it was necessary to develop a process to provide some structure and efficiency around the design process.

The process began with the HRS instrument development team who are involved in design, programming and testing of the Blaise instrument. This team made a first pass at reviewing each section, question by question to determine if any changes were required to question wording, response options, interviewer instructions, on-screen definitions, and/or question level help. Recommendations for substantive changes to question wording or response options were discussed with the Co-investigators who are the content experts for that section before implementation.

Each questionnaire section was demonstrated to for the Co-investigator working group. The team also worked closely with Methodologists who are experts in web survey design, question format and administration issues.

The team developed two documents which helped manage any design decisions that were relevant to the full questionnaire. The first was a record of ‘Global standards decisions’ and focused on layout, the second was a document which was produced primarily for the Design Coordinators who were creating specifications for the Blaise programmers (these documents are discussed in greater detail in part 5 of this section (Ash, R (2018))

**Figure 2. The design process**



## 2. Accommodating existing protocol and survey design

The HRS study design requires understanding household and family structure and collecting data accordingly. Protocols have been developed that relied upon system structure and tools overseen by the Interviewer. We needed to translate these protocols so that they could be handled within the web self-completion mode. Some examples of these specific protocol or features are listed below.

- **Shared preload** - Preload within the household is shared for a couple and is dynamically updated for the second person being interviewed in the household according to complex rules. Sharing preload means we have rules about when the partner of the first respondents, in a coupled household, can begin their interview. These rules mean concurrent completion is not an option and until introducing the web mode, we could rely on the Interviewer to control these access rules.

- **‘Flipping rules’** - Relationships are stored in the preload as they were collected last wave - i.e. if Bob was the first R to be interviewed then all relationships in the household are recorded as relationships to him. The flipping rules ensure that the preloaded relationships are presented appropriately for the first R who is interviewed - so if Bob's spouse, Mary, was interviewed first, all relationships would be presented for her e.g. Bob is Mary's spouse, Bill is Mary's son - rather than Mary being Bob's Spouse and Bill being Bob's son.
- **Spawning rules** - Original sample members are followed and interviewed every wave, regardless of whether they stay married/partnered to one another. If the original sample member gets remarried/repartnered (or married/partnered, if previously single), we also will conduct an interview with his or her new spouse/partner (aka non-original sample member). A sample line for the new spouse/partner will be added automatically in SurveyTrak (the sample management system). Pre-mixed mode, we asked the interviewer to ensure that they completed at least Section A of the existing respondent's interview, this would then trigger a new line will be created automatically in SurveyTrak .
- **Respondent type** - The study seeks information on both individual and couple levels. In single respondent households, the respondent is asked all sections of the questionnaire. In couple households, however, each respondent may receive a different set of questions. Questions referring to couple-level information (such as family structure (family), housing, or income (financial) need only be asked of one person. The burden of what otherwise might be a lengthy interview is consequently split between the two people in a couple household. The importance of keeping the same reporter for each wave of a panel study lies in the comparability of the data, which aids in accurately assessing the measures of observed change. The process of changing the assignment of family or financial questions to a respondent is initiated by the interviewer – a new process of checking the assignment was appropriate was necessary for the web mode.

The HRS interview is long - telephone interviewers are on average, 100 minutes and face to face enhanced (including the collection of anthropometric measures and bio specimen collection) are an average of 140 minutes. Converting the entire HRS questionnaire (24 sections) took over four years to complete. The systematic conversion process, which was imposed early in the conversion process, helped make the process as efficient as possible.