

Assessing Computer- Assisted Interviewing Software

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Background

Terminology

ACASI (Audio Computer-Assisted Self Interview) :

Respondents complete an interview (or a portion of an interview) by themselves. Questions, responses and instructions are presented on a computer screen (usually a laptop) and the respondent can answer using a mouse, keyboard or touch-sensitive screen. The questions are read aloud (usually through headphones) so that the effect of literacy level is minimized.

CAPI (Computer-Assisted Personal Interview) :

The interview is administered on a computer (usually a laptop), but an interviewer reads the questions, responses and instructions, assisting the respondent with the completion of the interview.

HAPI (Handheld-Assisted Personal Interview) :

This modality is much like CAPI, except the interview is administered with a handheld computing device (a.k.a. handheld, Personal Digital Assistant / PDA, Palm® Pilot, etc.)

The Center for HIV Identification, Prevention, and Treatment Services (CHIPTS) is expanding to accommodate a wider variety of domestic and international research projects. In the past eight years, the Center has engaged in a mixture of Computer-Assisted Personal Interview (CAPI) and Audio Computer-Assisted Self Interview (ACASI) for its assessment needs, using Questionnaire Development System (QDS™, Nova Research, Bethesda, MD) as its platform.

QDS™ has enabled the Center to design and program interviews, administer interviews and manage data, with many useful features not found in other software. However, new projects demand new assessment solutions, including Handheld-Assisted Personal Interviewing (HAPI), Web-based interviews, the ability to develop interviews in non-Western languages (e.g., Chinese, Thai), greater design features, and additional features for customization, testing and navigation. The most recent release of QDS™ contains a HAPI module, and Nova Research is in the process of developing a Web-based assessment software; however, the Center was eager to explore additional assessment software that could serve as an adjunct to QDS™.

Our ideal software would have ACASI capabilities to enable confidential administration of sensitive questions to participants of all levels of literacy. In addition, the software would have additional features not contained in QDS™, particularly inclusion of non-Western languages, greater flexibility in interview design, and the ability to administer interviews in a variety of modalities that utilize emerging technologies.

Based on these considerations, CHIPTS completed an assessment of currently available computer-assisted interviewing software. This assessment was developed as a resource for Center investigators and collaborators that may be considering the use of this technology in mounting a research project. The goal of our review was to compare the functionality of the software from the vantage point of a research center that conducts intervention trials that include multiple data collection points where participants are asked to share sensitive information.

We applied a pragmatic approach to assessing ten software packages, using information available on the Internet, publicly available demonstration versions of software, and in some cases, by contacting the software vendors. Eleven criteria were used to assess each software program and served as the basis for the overall rating. The following are the summary of our assessment and a description of the criteria used to compare software programs.

Please note that our assessment of these software programs can only be viewed as preliminary and impressionistic. Given that our review of these software programs is based on publicly available information and/or free demonstration versions of the programs, CHIPTS cannot guarantee the accuracy of our ratings and does not present this assessment as an endorsement of any specific software program.



Assessment Criteria

Many criteria were considered in assessing the software. Each application was rated on a three-point scale where possible:

- 😊 = The feature is available and appears to work well
- 😐 = The feature is available but appears to have some deficiencies
- 😞 = The feature is not available or does not appear to work well
- ? = Unable to assess the feature, given limited information

Overall ratings used the same scale - the software was rated on whether it had all the features necessary to meet the Center's needs.

The criteria shown in the table are:

Assessment interface

- **Customizable:** can use a variety of colors, images and fonts to improve presentation
- **Robust / crash-proof:** the robustness of software was difficult to test without using for an extended period, unless it crashed

Navigation with interviews

- Ability to move back and forward in an interview; also ability to see progress status and jump back to a previous section

Testing capabilities

- Simple testing includes verifying that variable references were correct; more advanced testing would include ability to simulate multiple scenarios, flow-chart skip patterns

Calculated variables

- String, numeric, date/time, statistical functions, etc., available

Language support

- Can easily switch between languages; non-Western character support

ACASI capabilities

- **Built-in software:** text-to-speech function packaged with software, eliminating the need for making voice recordings
- **Combined ACASI and CAPI:** can switch within a single interview

Programming interface

- **Simple programming interface/language:** easy to learn; easy to use when programming interview
- **Skip patterns:** questions can be skipped based on previous responses
- **Edit checks:** skip back based on logic of responses
- **No limits on length/size of assessment**

Response types

- **All types of questions:** can handle single choice, multiple choice, dates, text, etc.
- **Text fills:** substituting previous responses in wording of subsequent questions/responses
- **Types of missing responses:** “don't know,” “skipped,” “not applicable,” “refused”
- **Can hide “refused” button:** to minimize non-response, refused button can only be activated by interviewer
- **Checkboxes, push buttons, text boxes, horizontal/vertical scales, multiple data fields** are supported

Data format

- **Easily export data:** ease of exporting to SAS®, SPSS®, and other formats
- **Handle missing data values appropriately**
- **Manage multiple interview versions:** handling edits to an instrument appropriately

Outputting assessments

- Printable copy of the codebook
- Printable version of the interview
- CAPI/ACASI interviews
- Web-based version of interview
- Handheld version of interview

Price

- <\$1500 is considered inexpensive; >\$4000 is considered expensive for a Center-wide license

Criteria of interest that were not assessed include:

- Security: encryption, passwords
- Training required to learn software
- Randomization functions
- Testing the level of participant engagement
- Voice quality of text-to-voice software
- Editing features in programming module
- Interviewer probes
- Printed document format (headers, indices, etc.)



SOFTWARE

QDS™

ACASI32

Entryware Pro™

BLAISE®

Assessment interface	☺	☹	☺	☺
Customizable (color, images, fonts)	☺	☹	☺	☺
Robust / crash-proof	☺	☹	?	?
Navigation with interviews	☺	☹	☺	☺
Testing capabilities	☺	☹	☺	☺
Calculated variables	☺	☺	☺	☺
Language support	☺	☹	☺	☺
ACASI capabilities	☺	☺	☹	☺
Built-in software	☺	☺	☹	☺
Combined ACASI and CAPI	☺	☹	☹	☺
Programming interface	☺	☹	☺	☺
Simple programming interface/language	☺	☹	☺	☹
Skip patterns	☺	☹	☺	☺
Edit checks	☺	☹	☺	☺
No limits on length/size of assessment	☺	☺	☺	☺
Response types	☺	☹	☺	☺
All types of questions	☺	☹	☺	☺
Can do text fills	☺	☹	?	☺
Types of missing responses	☺	☺	☺	☺
Can hide “refused” button	☺	☹	?	?
Checkboxes	☺	☹	☺	☺
Push buttons	☺	☹	☺	☺
Text boxes	☺	☺	☺	☺
Horizontal/vertical scales	☺	☹	☺	☺
Multiple data fields	☹	☺	☹	☺
Data format	☺	☺	☺	☺
Easily export data	☺	☺	☺	☺
Handle missing data values appropriately	☺	☺	☺	☺
Manage multiple interview versions	☺	?	?	?
Outputting assessments	☺	☹	?	?
Printable copy of the codebook	☺	☹	?	☺
Printable version of the interview	☺	☹	?	☺
CAPI/ACASI interviews	☺	☺	☹	☺
Web-based version of interview	☺	☹	☹	?
Handheld version of interview	☺	☹	☺	?
Price	☺	☺	☺	☹

Overall	☺	☹	☹	☺
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Comments	Handles most necessary features adequately	Not at all useful; poorly developed product	Only developed for handheld devices; no ACASI	Extremely powerful; handles most features well; expensive
<small>Note: Product names may be trademarks of their respective companies.</small>				

Conclusions

Our assessment of computer-assisted interviewing software drew the following conclusions:

- Both BLAISE® and CASES have more features than QDST™ - both can handle non-Western characters and have more features for designing interviews with respect to design, navigation, function calculation and flow.
- However, the prices of BLAISE® and CASES are approximately double the price of QDST™, depending on the number of users. In addition, BLAISE® and CASES contain programming languages that would require training for a programmer to become proficient in interview development (additional features generally mean more complexity).
- We have yet to test the text-to-voice engines for BLAISE® and CASES so are unaware of their ACASI capabilities, and the text-to-voice engine for BLAISE® is packaged as a separate module.
- While response buttons and boxes are more standard in appearance in BLAISE® and CASES than QDST™, the design of QDST™ is suited to administering interviews to participants exhibiting a wide range of literacy and computer proficiency levels. Additionally, only QDST™ had the ability to hide a “Refuse to answer” button, which minimizes non-response in ACASI interviews.
- Currently there are no suitable ACASI applications that also contain a Web module. Snap® Survey was the best software we found for Web-based interviewing. It has a good interface, both for programming and interviewing and can support non-Western characters.
- Although it would not provide ACASI interviews, Snap® Survey may be a viable alternative for international and small-scale projects that do not require ACASI.

CHIPTS will continue to explore assessment software that facilitates improved survey features. In our endeavors, we hope to build partnerships with other research centers and software developers.



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