

# **An Improvement of the Application of Blaise CAWI in Verifying Systems of CFPS**

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## **Abstract**

Instant listening recording function was used in our recording verification questionnaire of the verification system in 2014. It is similar to the ACASI's convenient recording loading, but also facilitates the inspectors not have to pick the recording which need to listen. It saved much time.

Our verification questionnaire gets fixed recording fields. After CARI extracted audio file and the recording fields is loaded in the verification questionnaire, inspectors can listen to the recording for verification when they meet such fixed fields.

But we also encountered a number of problems in ACASI, such as multiple recording file generated by the CARI for a single field, so that we're not sure which to load is the correct and effective recording file.

## **1. Background**

Chinese Family Panel Studies (CFPS) is aimed at three levels data collection, including individuals, families and communities. The project studies the changes of society, economy, population, education and health, which is reflected by the collected data. It is a key social science project that serves academic research and policy decision supporting. The first phrase of the survey is 12 years (2008-2020). CFPS is early funded by phrase || of 985 plan of the Ministry of Education, beginning preparations in 2005, setting up an institution in 2006. In 2007, preliminary work completed, including two test surveys, 140 families totally, in Beijing, Hebei, Shanghai, and the questionnaire tools basically mature. Exploratory survey in 2008 in Beijing, Shanghai, Guangdong, expanded scale to 2400 families. Tool testing follow-up survey in 2009 in Beijing, Shanghai, Guangdong, tested the stability and reliability of CAPI technology, real-time management techniques for survey process, real-time technical support system for survey process, real-time data quality monitoring techniques. In 2010, the survey all over China (Tibet, Qinghai, Xinjiang, Ningxia, Inner Mongolia, Hainan, Hong Kong, Macao and Taiwan are not listed) was formally implemented, the scale was up to 16,000 families, and a follow-up survey was implemented annually.

Every year from 2010, field surveys are being conducted from March to July, data is being cleaned up from August to October, and from November to February of next year, provide the cleaned data for the teachers and students in Peking University and partner universities, write the key indicators report "China Report", which is published by Peking

University Press. The key indicators report and data is published to public in March. [1]

There are 4 kinds of questionnaire in CFPS, including community, family, adult and child questionnaire. The community questionnaire is used to obtain the household residence of the basic environmental information; family questionnaire is used to obtain family economic, demographic status information; adult and child questionnaire is used to obtain the individual social, economic, educational and health information.

## 2. The insufficiency of traditional verification

In order to ensure the quality of data, and to learn about supervise the interview process, the project group needs to record the interview process. For the recording of the interview process, the verification team have dedicated personnel for verification in order to ensure the quality of survey. Therefore, the project group will prepare the verification questionnaire to verify and supervise interview process. The result of verification is among alternative answers, subjective answers, jumping with shortcut, questioning incomplete, not meeting the meaning, and detailed-questioning insufficiently.

Traditional methods of verification are applying Blaise CAWI. The inspector answers to the survey questions of verification, and at the same time open the audio playing program to verify recording situations. When the inspector listen to the record audio, he or she should search by module, by sample number in advance. As shown in Figure 1, the original verification system search for recording audio. This approach requires a lot of manual intervention. It is also prone to problems that sample does not match.



Figure 1

## 3. The solution

According to the previously described problems, according to ACASI design ideas, ISSS proposes appropriate solutions. Its general scheme is to integrate the verification questionnaire of CAWI with audio playing program's capabilities.

In 2014, the verification questionnaires implement the scheme that recording audio files will play automatically when the inspector verifying. Firstly, embed the recording audio file in every verification question. Secondly, applying the new HTML5 element on the page, the system automatically plays the recording audio file. It help verifiers saving find the time to find the exact recording audio file, which greatly saves the verification time. It improves the efficiency of the verification.

The detailed steps are as following:

1. Define a variable to store the path of the recording audio file. For example, as shown in Figure 1, the file path is combined with other three variables: interviewerid, countryid and sampleid, and is assigned to the variable FamilyLY.

```
FamilyLY:='HTTP://10.8.8.73/WAVFiles/'+interviewerid+'/'+countryid+'/'+ SampleID
```

**Figure 1. Define a variable for path.**

2. Define a variable to store the name of the recording audio file. As shown in Figure2, it is the combined with sample ID and question ID.

```
XA101a:= SampleID+'SECA.TA1'
```

**Figure 2. Define a variable for name**

3. Embed the recording audio file path and name in the verification questions. As shown in Figure 3, the variables as defined in step 1 step 2 are assigned to the property src, the height and width is set according to the player layout. This is the application of a new HTML5 element: audio. The element can define the sound, such as music or other audio streams. Its properties are introduced in Table 1.

```
A101a(A101a)"@BA101a@B 访员是否提问了请您确认 ^preload.fmiwtime_last 调查时您家是否有以下
人员? ^preload.FML 一题相关内容? @/(题号 : TA1 录音名 : SECA.TA1)
@/@/@#<audio controls autoplay>
<source src=""^FamilyLY/^XA101a.wma"" type=""audio/mpeg"">
<embed height=""50"" width=""100"" autoplay=""false"" autostart=""false"" src=""^FamilyLY/^XA101a.wma"">
</audio>@# ":TContinue
```

**Figure 3. Embed an audio file to a question**

**Table 1. Properties of element audio**

Name	Value	Description
autoplay	autoplay	Audio plays automatically.

controls	controls	Display the playing controls.
loop	loop	Audio plays in loop.
muted	muted	Audio will be muted.
preload	preload	Audio will be preloaded when the page is loaded. And it will be ignored when autoplay property is set to autoplay.
src	url	Audio URL path.

4. After the completion of these three steps, and the published verification questionnaires will see as shown in Figure 4.

In addition, as a question because many times to be asked will produce multiple recording audio files, and all these audio files need to be heard, it is not convenient. So we developed an audio merger program with C#. The program can automatically find all recording audio files of a question, and then all these files are combined into a single audio file. Finally the combined audio files are embedded in the verification questionnaire.

After a series of improvements, with the ACASI mode is used, the audio files are embedded directly in to the question of verification. When a verification questionnaire is processing, the audio files plays automatically. It saves time, increases efficiency, changes audio verification mode.

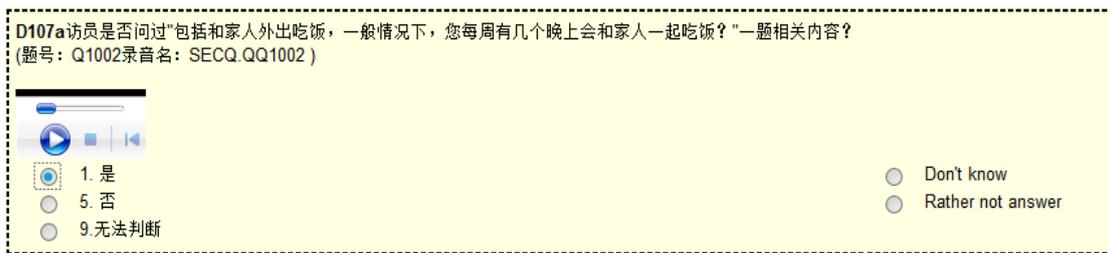


Figure 4. Verification sample page

## 4. Summary

ISSS Peking University applied ACASI idea in CFPS verification in 2014, integrated the audio file into the verification questionnaire. The practice has proved that this method in 2014, has played a significant role in the verification process. Inspectors are no longer used to find

audio files, can focus on verifying each problem, improve the efficiency of the verification, and improve the quality of verification, actively and effectively promote the development of verification.