

# Using Blaise 5 for CAPI

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Blaise 5 has been engineered for data collection on the web (CAWI), reflecting the general trend in survey research. However, many organizations have deep, ongoing investments in CAPI fieldwork using Blaise for data collection. These organizations have made a human investment by training hundreds or thousands of field data collectors to use Blaise applications, and they may additionally have several Blaise data collection efforts underway on specific projects.

For example, in one study, there were two distinct requirements:

- A smaller sample was to be questioned by interviewers supplied by the client. These very experienced interviewers were trained in the use of the keyboard. Keyboard CAPI was a client requirement for this sample.
- A much larger sample consisted of respondents who answered the same set of questions by themselves via the web, using web browsers or (in some circumstances) mobile devices.

The CAPI sample used Blaise 4.8 and the CAWI sample used a web interviewing tool. Blaise 4.8 and the web tool used different types of database.

## 1. CHALLENGE: USE OF KEYBOARD IN CAPI

One key challenge facing long-term projects currently using Blaise 4 for CAPI data collection is how to address the use of the keyboard. The default Blaise 5 screen presentation relies on a pointing device: generally interviewers or respondents will use a mouse or similar device, or will touch the screen with finger or stylus in order to interact with the Blaise 5 application. Organizations may spend significant time developing the look and placement of the Next and Back buttons so interviewers and respondents can locate and use them more naturally. However, the field data collectors on CAPI projects have generally been trained to use the keyboard to record answers and move to the next screen. This is done for several reasons:

- Field data collectors on CAPI projects have generally been trained to use the keyboard to record answers and move to the next screen.
- Many field data collectors have extensive experience with keyboard-based systems
- Pointing tools may change from one laptop or tablet to another, but keyboard look and layout remain fairly standard
- Field data collectors are generally hired for their interpersonal skills and ability to collect data of the highest possible quality, rather for than their computer skills
- There is a strong sense that the higher efficiency of keyboard data collections leads to greater effectiveness, by allowing field data collectors to focus on a quality interaction with the respondent.
- There is a strong sense that keyboard data collection is more efficient for field data collectors. For example: pressing “1” and “Enter” three times on successive screens is simpler than locating and pressing the Next button on three successive screens.
- There is a strong sense that the higher efficiency of keyboard data collections leads to greater effectiveness, by allowing field data collectors to focus on a quality interaction with the respondent.

Organizations or projects deciding which version of Blaise to use for large field projects have a choice. If they use Blaise 5 and accept the default Blaise 5 screen look and feel, they will need to retrain their staff to use the new, web-oriented screens and move away from established practice. If they choose to stay with Blaise 4.8, they can preserve their investment in keyboard data collection, but they cannot move forward with new features and techniques in Blaise.

However, this does not mean that the choice is between CAPI (Blaise 4.8) and CAWI (Blaise 5) because Blaise 5 is flexible enough to accommodate both modes on the same survey. The flexibility comes courtesy of the Blaise 5 resource database (the blrd file) and other layout tools (such as the layout editor in the control centre).

It is possible to configure Blaise 5 to approximate the CAPI look and feel of Blaise 4.8 (which is what interviewers often know best). The Blaise 5 resource database has example templates that can be modified to replicate the CAPI look-and-feel until a time that experienced interviewers can embrace new approaches.

Hopefully, interviewers will soon be able to progress with the CAWI interface.

## **2. ONE SOLUTION: CONFIGURE BLAISE 5 TO RESEMBLE BLAISE 4 CAPI**

However, it is possible to configure Blaise 5 to approximate the CAPI look and feel of Blaise 4.

- For a categorical question, the key elements not present in Blaise 5 by default are:
  - Each category needs an explicit number, usually starting with 1, such as “1. YES”.
  - The screen needs an input field to record the response, rather than pressing a radio button
- The behavior of the input field and radio buttons should mimic Blaise 4:
  - when the user enters a “1” in the input field, the system should show option 1 as selected;
  - when the user selects a category using the radio button, the value “1” should replace whatever is currently in the input field.

To demonstrate how various question types might look in a Blaise 5 CAPI application that retains the ability to use the keyboard, we developed an example application – CapiCawi – for a variety of question types. DK/RF responses are triggered by the F5/F6 keys which are defined in the resource database.

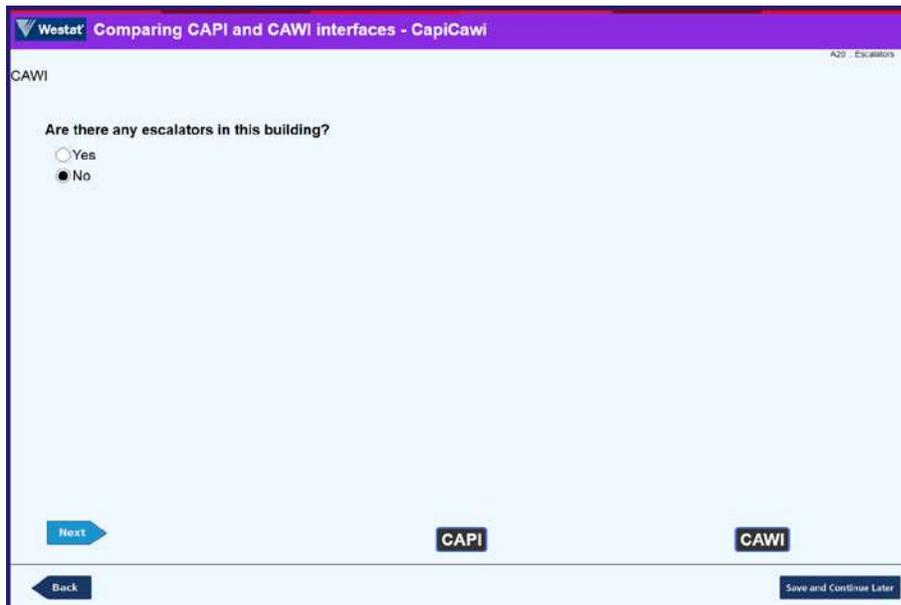
- CapiCawi uses several questions from the Commercial Building Energy Consumption Study (CBECS), chosen to represent different question types.
- CBECS collects energy consumption and expenditures data from US commercial buildings.

To allow us to move between CAPI and web modes, for the same question, CAPI and CAWI buttons are on every screen in CapiCawi. When using CapiCawi, even in CAPI mode, it is easier to select the CAWI button using a pointer than trying to navigate using the keyboard.

### 3. AN EXAMPLE SCREEN

We will give some CAWI and CAPI screens to compare functionality, remembering that in CapiCawi the Blaise 5 codebase is the same. We start with a Yes/No question.

#### Yes/No question in CAWI



The screenshot displays a web-based survey interface. At the top, a purple header bar contains the text 'Westat Comparing CAPI and CAWI interfaces - CapiCawi' and 'A20 - Escalators'. Below the header, the text 'CAWI' is visible in the top left corner. The main content area contains the question 'Are there any escalators in this building?' followed by two radio button options: 'Yes' (unselected) and 'No' (selected). At the bottom of the screen, there is a navigation bar with five buttons: 'Next' (with a right-pointing arrow), 'Back' (with a left-pointing arrow), 'CAPI', 'CAWI', and 'Save and Continue Later'.

The CAWI version has little information on the screen: just the question, responses and navigation buttons.

## Yes/No question in CAPI

The screenshot shows the CAPI interface for the question "Are there any escalators in this building?". At the top, there is a purple header with the Westat logo and the text "Comparing CAPI and CAWI interfaces - CapiCawi". Below the header, the question is displayed. There are two radio buttons: "1 Yes" (unselected) and "2 No" (selected). Below the question, there is a "Select a value" section with four input fields: "Floor-to-ceiling height" (with a placeholder "Enter a number" and a "DontKnow" indicator), "Elevators" (with the value "1"), "Number of elevators" (with the value "1"), and "Escalators" (with the value "2"). At the bottom, there are navigation buttons: "Next" (blue arrow), "Back" (blue arrow), "CAPI" (black button), "CAWI" (black button), and "Save and Continue Later" (black button).

In the CAPI mode there is a radio button and a number next to each response, an instruction at the bottom of the “Info” pane, and an input field with label in the “Answer” pane.

The interviewer can see answers to other questions.

IN CAPI, the Info and Answer panes were simulated using settings in the resource database to resemble these screen areas in Blaise 4.

If the user presses a radio button, the corresponding response category number appears in the input field at the bottom.

Conversely, when the user enters a value in the input field, the appropriate radio button becomes selected.

Using the F5/F6 function keys toggles a DontKnow/Refusal indicator to the right of the question answer in CAPI mode. The treatment of special answers (DK/RF, etc) in CAWI is usually by means of buttons or check boxes.

## 4. FURTHER SCREENS

The following screens show the same question in both modes, where the differences are controlled by the resource database and layout tools in the control centre.

## Categorical question in CAWI

Westat Comparing CAPI and CAWI interfaces - CapiCawi A7 - Square feet category

CAWI

We understand that it may be difficult to give an exact figure for square footage. Please select which category best describes the total gross square footage in this building. There are examples provided to help you estimate.

- 1,000 square feet or less  
*(1,000 square feet is approximately 2 times the size of a two car garage)*
- 1,001 to 5,000 square feet  
*(Example: fast food restaurant)*
- 5,001 to 10,000 square feet  
*(Example: sit-down style chain restaurant)*
- 10,001 to 25,000 square feet  
*(Example: one or two screen movie theater)*
- 25,001 to 50,000 square feet  
*(Example: supermarket)*
- 50,001 to 100,000 square feet  
*(Example: large discount or home improvement store)*
- 100,001 to 200,000 square feet  
*(Example: 3-level department store)*
- 200,001 to 500,000 square feet  
*(Example: professional basketball arena)*
- 500,001 to 1 million square feet  
*(Example: convention center)*
- Over 1 million square feet  
*(Example: skyscraper)*

Next CAPI CAWI

Back Save and Continue Later

This is a familiar style of Blaise 5 screen.

## Categorical question in CAPI

Westat Comparing CAPI and CAWI interfaces - CapiCawi

We understand that it may be difficult to give an exact figure for square footage. Please select which category best describes the total gross square footage in this building. There are examples provided to help you estimate.

<input type="radio"/> 1 1,000 square feet or less <i>(1,000 square feet is approximately 2 times the size of a two car garage)</i>	<input type="radio"/> 6 50,001 to 100,000 square feet <i>(Example: large discount or home improvement store)</i>
<input type="radio"/> 2 1,001 to 5,000 square feet <i>(Example: fast food restaurant)</i>	<input type="radio"/> 7 100,001 to 200,000 square feet <i>(Example: 3-level department store)</i>
<input checked="" type="radio"/> 3 5,001 to 10,000 square feet <i>(Example: sit-down style chain restaurant)</i>	<input type="radio"/> 8 200,001 to 500,000 square feet <i>(Example: professional basketball arena)</i>
<input type="radio"/> 4 10,001 to 25,000 square feet <i>(Example: one or two screen movie theater)</i>	<input type="radio"/> 9 500,001 to 1 million square feet <i>(Example: convention center)</i>
<input type="radio"/> 5 25,001 to 50,000 square feet <i>(Example: supermarket)</i>	<input type="radio"/> 10 Over 1 million square feet <i>(Example: skyscraper)</i>

Select a value

Square feet category

Next CAPI CAWI

Back Save and Continue Later

There are many categories, arranged in 2 columns.

If the interviewer types in a number outside the code limits, an automatic message is generated:

Select a value

**Square feet category**

Enter a valid code

### Categorical question with images in CAWI

The screenshot shows a web-based survey interface titled "Comparing CAPI and CAWI interfaces - CapiCawi". The question asks the user to select the shape that most resembles a building's footprint. The interface includes a "Next" button, a "Back" button, and a "Save and Continue Later" button. The question is presented in a CAWI format with visual icons for each shape option.

Westat Comparing CAPI and CAWI interfaces - CapiCawi

A13 - Building shape

CAWI

Please select which of these shapes most resembles the floorplan of this building at ground level. This is sometimes called the "footprint" of the building.

Square

Wide rectangle

Narrow rectangle

Rectangle or square with an interior courtyard

"H" shaped

"U" shaped

"E" shaped

"T" shaped

"L" shaped

"+" or cross shaped

Other shape

Next

CAPI

CAWI

Back

Save and Continue Later

In face-to-face interviews we can use "show cards" but in web interviews we have to show images.

## Categorical question with images in CAPI

Westat Comparing CAPI and CAWI interfaces - CapiCawi

Please select which of these shapes most resembles the floorplan of this building at ground level. This is sometimes called the "footprint" of the building.

1  Square

2  Wide rectangle

3  Narrow rectangle

4  Rectangle or square with an interior courtyard

5  "H" shaped

6  "U" shaped

7  "E" shaped

8  "T" shaped

9  "L" shaped

10  "+" or cross shaped

11  Other shape

Select a value

Roof tilt

Building shape

Percent exterior glass

Next CAPI CAWI

Back Save and Continue Later

If we use show cards, we can still have visual reminders of what is on a card, so that it is easier for interviewers to interpret content.<sup>1</sup>

The three questions listed in the input area are all image questions.

## Select-all question in CAWI

Westat Comparing CAPI and CAWI interfaces - CapiCawi

CAWI

Please select which types of renovations have been done since 2000.

Select all that apply.

Cosmetic improvements (interior or exterior)  
*(Examples: new paint, siding, furniture, wallpaper, carpeting)*

Addition or annex

Reduction of enclosed floorspace  
*(Example: demolition of unused wing of building)*

Interior wall re-configuration  
*(Example: individual offices turned into area for cubicles)*

Roof replacement

Window replacement

HVAC equipment upgrade  
*(includes hot water heaters)*

Lighting upgrade

Plumbing system upgrade

Electrical upgrade

Insulation upgrade

Fire, safety, or security upgrade

Structural upgrade  
*(Examples: foundation upgrade, seismic upgrade)*

Other. Please describe the other type of renovation.

Next CAPI CAWI

Back Save and Continue Later

Select-all (code-all-that-apply, or SET) are standard questions in CAWI, as shown here.

<sup>1</sup> See "Some uses of Roles in Blaise 5" (G J Boris Allan, IBUC 2018) on changing question texts to reflect differences between interviewer-administered and self-administered questionnaires.

## Select-all question in CAPI

Westat Comparing CAPI and CAWI interfaces - CapiCawi

Please select which types of renovations have been done since 2000.

Select all that apply.

<input checked="" type="checkbox"/> 1 Cosmetic improvements (interior or exterior) <small>(Examples: new paint, siding, furniture, wallpaper, carpeting)</small>	<input type="checkbox"/> 8 Lighting upgrade
<input type="checkbox"/> 2 Addition or annex	<input checked="" type="checkbox"/> 9 Plumbing system upgrade
<input type="checkbox"/> 3 Reduction of enclosed floorspace <small>(Example: demolition of unused wing of building)</small>	<input type="checkbox"/> 10 Electrical upgrade
<input type="checkbox"/> 4 Interior wall re-configuration <small>(Example: individual offices turned into area for cubicles)</small>	<input type="checkbox"/> 11 Insulation upgrade
<input type="checkbox"/> 5 Roof replacement	<input checked="" type="checkbox"/> 12 Fire, safety, or security upgrade
<input type="checkbox"/> 6 Window replacement	<input type="checkbox"/> 13 Structural upgrade <small>(Examples: foundation upgrade, seismic upgrade)</small>
<input type="checkbox"/> 7 HVAC equipment upgrade <small>(Includes hot water heaters)</small>	<input type="checkbox"/> 14 Other. Please describe the other type of renovation.

Select all values that apply

What renovations

Next CAPI CAWI

Back Save and Continue Later

Notice the standard Blaise 4.8 notation for multiple selections from a select-all list of categories “1-9-12”.

## Continuous number question with explicit DK in CAWI

Westat Comparing CAPI and CAWI interfaces - CapiCawi

CAWI

What is the gross or total square footage of all the space in this building both finished and unfinished, including basements, hallways, lobbies, stairways, elevator shafts, and indoor parking levels?

square feet

I don't know

Next CAPI CAWI

Back Save and Continue Later

This shows a standard number text box, with a “units” specifier, and an explicit DK. Normally all non-response values are hidden when a question appears for the first time, or it has a response value. The requirement is that, for this question, the DK is always shown.

## Continuous number question with DK in CAPI

Westat Comparing CAPI and CAWI interfaces - CapiCawi

CAPI

What is the gross or total square footage of all the space in this building both finished and unfinished, including basements, hallways, lobbies, stairways, elevator shafts, and indoor parking levels?

Enter a numeric value between 1 and 999999999.

Square feet  square feet DontKnow

Next CAPI CAWI

Back Save and Continue Later

With CAPI we have an interviewer who can probe, and so there is no need to show the explicit DK. If the answer is truly DK, then we need some way to show this clearly. Using the F5 function key (project-dependent) shows a clear indication of “DontKnow”.

## A large enumeration question as a drop-down list in CAWI

Westat Comparing CAPI and CAWI interfaces - CapiCawi

CAWI

AD - Zip code

State:

- FL - FLORIDA
- FL - FLORIDA
- GA - GEORGIA
- HI - HAWAII
- ID - IDAHO
- IL - ILLINOIS
- IN - INDIANA
- IA - IOWA
- KS - KANSAS
- KY - KENTUCKY
- LA - LOUISIANA
- ME - MAINE
- MD - MARYLAND

Next CAPI CAWI

Back Save and Continue Later

Collecting state information can be performed in many ways. It was decided that, for the envisaged web audience, selecting from a list of states was best accomplished using the DropDownList template for an enumerated type.

## A large enumeration question as a category list in CAPI

Westat Comparing CAPI and CAWI interfaces - CapiCawi

State:

<input type="radio"/> 1 AL - ALABAMA	<input type="radio"/> 14 IL - ILLINOIS	<input type="radio"/> 27 MT - MONTANA	<input type="radio"/> 40 RI - RHODE ISLAND
<input type="radio"/> 2 AK - ALASKA	<input type="radio"/> 15 IN - INDIANA	<input type="radio"/> 28 NE - NEBRASKA	<input type="radio"/> 41 SC - SOUTH CAROLINA
<input type="radio"/> 3 AZ - ARIZONA	<input type="radio"/> 16 IA - IOWA	<input type="radio"/> 29 NH - NEW HAMPSHIRE	<input type="radio"/> 42 SD - SOUTH DAKOTA
<input type="radio"/> 4 AR - ARKANSAS	<input type="radio"/> 17 KS - KANSAS	<input type="radio"/> 30 NJ - NEW JERSEY	<input type="radio"/> 43 TN - TENNESSEE
<input type="radio"/> 5 CA - CALIFORNIA	<input type="radio"/> 18 KY - KENTUCKY	<input type="radio"/> 31 NM - NEW MEXICO	<input type="radio"/> 44 TX - TEXAS
<input type="radio"/> 6 CO - COLORADO	<input type="radio"/> 19 LA - LOUISIANA	<input type="radio"/> 32 NY - NEW YORK	<input type="radio"/> 45 UT - UTAH
<input type="radio"/> 7 CT - CONNECTICUT	<input type="radio"/> 20 ME - MAINE	<input type="radio"/> 33 NV - NEVADA	<input type="radio"/> 46 VT - VERMONT
<input type="radio"/> 8 DE - DELAWARE	<input type="radio"/> 21 MD - MARYLAND	<input type="radio"/> 34 NC - NORTH CAROLINA	<input type="radio"/> 47 VA - VIRGINIA
<input type="radio"/> 9 DC - DISTRICT OF COLUMBIA	<input type="radio"/> 22 MA - MASSACHUSETTS	<input type="radio"/> 35 ND - NORTH DAKOTA	<input type="radio"/> 48 WA - WASHINGTON
<input checked="" type="radio"/> 10 FL - FLORIDA	<input type="radio"/> 23 MI - MICHIGAN	<input type="radio"/> 36 OH - OHIO	<input type="radio"/> 49 WI - WISCONSIN
<input type="radio"/> 11 GA - GEORGIA	<input type="radio"/> 24 MN - MINNESOTA	<input type="radio"/> 37 OK - OKLAHOMA	<input type="radio"/> 50 WV - WEST VIRGINIA
<input type="radio"/> 12 HI - HAWAII	<input type="radio"/> 25 MS - MISSISSIPPI	<input type="radio"/> 38 OR - OREGON	<input type="radio"/> 51 WY - WYOMING
<input type="radio"/> 13 ID - IDAHO	<input type="radio"/> 26 MO - MISSOURI	<input type="radio"/> 39 PA - PENNSYLVANIA	

Select a value

State

Next CAPI CAWI

Back Save and Continue Later

Selecting a state from an alphabetical list shown on a laptop, is much simpler and quicker than using a drop-down list. In CAWI, we cannot control the user device, and so a long alphabetical list would probably involve scrolling.

## 5. CONCLUSIONS

For legacy projects currently using Blaise 4 for data collection, there is no single correct answer about whether and when to make the transition to Blaise 5.

Every project context is different and may need to evaluate specific factors, such as the duration of the data collection, whether there are multiple modes, etc.

Eventually existing projects will migrate to Blaise 5, and new CAPI projects may wish to start in Blaise 5. However, by use of the resource database and control-centre layout tools, it is possible to preserve the ability to use the keyboard as the primary data entry mechanism in Blaise 5 – if desired - and that may be of paramount importance for some studies.