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ADVANCED TECHNIQUES AND TECHNOLOGIES IN ONLINE RESEARCH

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During the past 10 years, online survey methods have produced the most revolutionary changes in survey research ever experienced. Technological developments in Internet survey software have enabled personalized and dynamic surveys at a level of sophistication never before possible. In addition, campaign management software has emerged to accurately track, profile, and monitor respondent history and progress—all at a cost savings over previous methods. Faster servers, data warehouses, and more advanced algorithms have joined to produce a new generation of online survey software that pushes the frontiers of survey research.

This chapter is a discussion of current and emerging online technologies and research techniques that will expand the capability and use of survey research. Initially, we discuss the management of the research process, with particular emphasis on controlling and streamlining that process. We then focus on the management issues of optimizing the use of research data, including questions about how to integrate, provide access to, and control this information. We next focus on advances in the actual questionnaire development process and present new questions and data collection types that interact with the respondent to increase realism and involvement. Developments in question flow,

logic, and randomization are then discussed as methods of increasing control of field experiments. Once we have provided a view of the types of questions and methods that can be used in data collection, we proceed to a discussion of the use of online survey tools as a point of data integration and customer relationship management. Finally, we discuss criteria for evaluating online survey tools and the need for management control of enterprise survey solutions.

ORGANIZING AN ONLINE QUESTIONNAIRE

Building and organizing online questionnaires is based on five fundamental building blocks. The researcher who understands these building blocks will produce questionnaires that are better organized and of superior functionality. This is the case, regardless of whether it is a simple survey of only a few multiple-choice questions or the most advanced survey that contains a broad range of database and logic features. These building blocks are as follows:

- Selecting the question type
- Mapping out the logic and flow
- Identifying question blocks
- Specifying randomization
- Defining response sets

(Note that we have not considered all the important issues of defining the construct to be measured and the wording of questions; for more insight into these areas, see Smith & Albaum, 2005.)

A TAXONOMY OF QUESTION TYPES

Online questionnaire development is as much an art as a science. And just as the artist has a palette with different colors from which to choose, the researcher has a variety of different question formats that will produce an accurate picture of the construct being measured.

Question types are the most basic block in building a questionnaire. The correct question type must be available to support the measurement of the construct. It is worth stating that irrespective of the question type available, badly

formed questions and inappropriate answer options will result in bad information that skews business decisions.

Table 8.1 identifies the standard question types and answer formats used in most research questionnaires. The images show some examples of the more advanced question types that are emerging and as a result of online/Internet delivery of surveys.

Also available, and made possible by the online delivery of surveys, are a variety of specialty question-and-answer scales designed to keep respondent interest by making the question more interactive. Three of these question types are especially interesting to researchers:

- *Sliders*: Questions that use dynamic graphics to depict answers. These graphics change as the position of the sliding bar changes. The smiling faces slider in Table 8.1 changes the shape of the smile as the scale position is moved. Other sliders might include dials/gauges that display both changing numeric values and moving dials or gauges. Yet other sliders, called emoticons, use actual pictures of human faces to display emotions ranging from extreme dissatisfaction to delight.





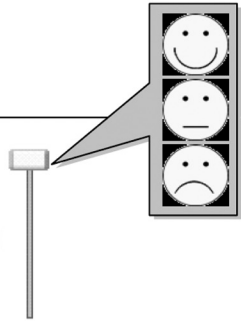

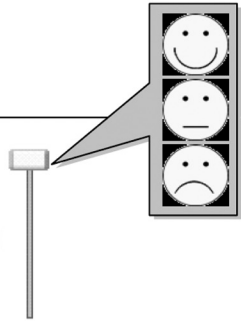

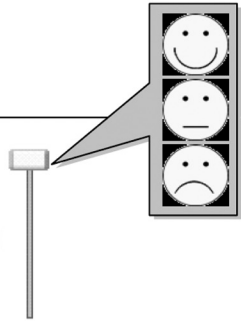
- *Pick and Rank*: “From the following list of 12 cars, select the 4 you are most likely to purchase . . . then rank them in order of likelihood of purchase.” Again, using a computer-based graphics interface, icons or text boxes may be selected and reordered easily with the click of a mouse.

- *Card Sort*: Similar to pick and rank, card sort tasks require respondents to order words, statements, graphics, or concept descriptions according to some dimension based on preference, similarity, or dissimilarity. Card sorts have long been the mainstay of multidimensional scaling and full-profile conjoint data collection tasks. With interactive computer questioning, a whole variety of graphic or point-and-click methods are possible to collect these data. Indeed, we may even complete questions involving complex combinations of tasks, such as pick-sort-rank, which would have respondents pick and sort items into buckets they have created and named and then rank the items within the buckets.

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Table 8.1 Sample Question and Answer Types

| Single Choice: Select 1/ n —pick 1 | | | | |
|---|---|---|---|--|
| <p>The respondent is given a list of n options and is required to choose one option only. This is operationally the same as the Integer Rating scale, where the respondent is asked to select an appropriate rating from a linear scale of 1 to n that matches the description on the screen (for example, 1 for <i>completely disagree</i> to 5 for <i>completely agree</i>).</p> <p>Attributes:</p> <ul style="list-style-type: none"> • Radio button (single-option selection). Used for selecting categories, Likert scales, semantic differential. • Sliders use a drag button that changes the image as it moves down the scale. • Data are recorded as integer numbers (1, 2, 3 or could be recoded as -1, 0, +1 for the faces scale). <p>Example:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Which credit card do you most prefer?</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="radio"/>  </div> <div style="text-align: center;"> <input type="radio"/>  </div> <div style="text-align: center;"> <input type="radio"/>  </div> </div> </div> <p>Example:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px; vertical-align: top;"> <p>Overall, how satisfied are you with the Hummer you purchased on June 14th, 2005 from the Miller GMC/Hummer Dealership?</p> </td> <td style="text-align: center; padding: 5px;">  </td> <td style="text-align: center; padding: 5px;">  </td> </tr> </table> </div> | | <p>Overall, how satisfied are you with the Hummer you purchased on June 14th, 2005 from the Miller GMC/Hummer Dealership?</p> |  |  |
| <p>Overall, how satisfied are you with the Hummer you purchased on June 14th, 2005 from the Miller GMC/Hummer Dealership?</p> |  |  | | |
| Multiple Integer Ratings (Matrix Table) | | | | |
| <p>This question type is identical to an integer scale question except that multiple questions (classified as “options”) can appear on a single screen. Each question is answered and recorded separately.</p> <p>Attributes:</p> <ul style="list-style-type: none"> • Radio button (single-option selection for each row). • Used for selecting integer scale, Likert scale, and semantic differential. • Data are recorded as integer values (1–10, 1–5, 1–7 for the examples below). | | | | |

Example:**Integer Scale**

| Please indicate the degree to which you agree or disagree with the following statements: | | | | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Offering Roasted Potato Wedges will... | | | | | | | | | |
| Completely disagree | | | | | | | | | Completely agree |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ...increase the visual appeal of certain entrees. | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ...allow me to increase the price of certain entrees. | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ...increase patronage at my restaurant | | | | | | | | | |

Likert

| How unique are the following concepts? | | | | |
|--|----------------------------|----------------------------|------------------------|-----------------------------|
| Not at all new and different | Slightly new and different | Somewhat new and different | Very new and different | Extremely new and different |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Roasted Potato Wedges | | | | |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Baby Potato Puffs | | | | |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Heavenly Hash Browns | | | | |




Semantic Differential

| Please select a point on each scale that indicates your perception of the following statements: | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Would you say that Roasted Potato Wedges are... | | | | | | |
| Appealing | | | | | | Unappealing |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Healthy | | | | | | |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Tasty | | | | | | |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Tasteless | | | | | | |

(Continued)

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Table 8.1 (Continued)

| Combination Questions | | | | |
|--|---|---|---|---|
| Combination questions include side-by-side questions that may be used to collect a variety of different types of information. | | | | |
| Attributes: | | | | |
| <ul style="list-style-type: none"> • Matrix question of items. • Each item may have the same or a different associated verbal answer scale. • Data are recorded as integer values (1–5 for the scale and 0–1 for the checkbox). | | | | |
| Example: | | | | |
| Please tell us about your plans for your next vacation to France. | | | | |
| When making your trip to France, how desirable would it be to visit each of the following cities? |  |  |  | What best explains this rating? |
| Bordeaux | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> Vineyards <input type="checkbox"/> Food/Wine <input type="checkbox"/> Quiet Relaxation <input type="checkbox"/> Outdoor Recreation |
| Cannes | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> Town Shopping <input type="checkbox"/> Food/Wine <input type="checkbox"/> Tourist Attractions <input type="checkbox"/> Sun Bathing |
| Grenoble | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> Mountains <input type="checkbox"/> Food/Wine <input type="checkbox"/> Shopping <input type="checkbox"/> Hiking / Skiing |
| Marseille | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> Sea Port <input type="checkbox"/> Food/Wine <input type="checkbox"/> Tourist Attractions <input type="checkbox"/> Beach |
| Paris | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> Beautiful City <input type="checkbox"/> Food/Wine <input type="checkbox"/> Museums <input type="checkbox"/> Monuments Rivers |

Multiple Choice: Select k/n —pick k

The respondent selects from a set of n options but this time chooses up to k options (k/n).

Attributes:

- Checkbox (pick all that apply or pick k/n): item checklists.
- Data are recorded as 0, 1 for the options not selected or selected.

Example:

Which of the following destinations in Greece are of most interest to you?

- Athens
- Delphi
- Mykonos
- Thessaloniki

Rank k/n —rank

In this question, the respondent selects from n options and is asked to rank the top k ($k \bullet n$).

Attributes:

- Multiple formats depending on technology, including select and order or numeric input.
- Data are recorded as ordinal rank-order values 1, 2, 3 . . .

Example:

Please rank the following cars in order of preference to you.
Top is most preferred and bottom is least preferred.

A screenshot of a ranking interface. At the top, a text box contains the instruction: "Please rank the following cars in order of preference to you. Top is most preferred and bottom is least preferred." Below this is a scrollable list of car brands: Acura, BMW, Chevrolet, Dodge, Ford, GMC, Honda, Infinity, and Toyota. On the left and right sides of the list are vertical bars containing up and down arrow buttons for navigation.

Pick and Rank: Pick $k1/n$ and Rank $k2/k1$ and Pick, Bucket, and Rank**Pick and Rank:**

This question type is similar to pick k , but in addition to picking $k1$ objects from a list of n objects, the respondent is then asked to rank $k2$ of those objects selected.

Pick, Bucket, and Rank:

This question type is similar to the pick k question, but in addition to picking k objects from a list of n objects, the respondent may be asked to perform a variety of other tasks. For example, the respondent may be asked to place (usually drag and drop) each object selected into one of M buckets that are either predefined or M user defined. The objects may also be ranked within each bucket. This question type is often used in concept tests to identify brand concepts that fit into categories, such as usage occasions, with the brand concepts ranked by preference or likelihood of use.

Attributes:

- Multiple formats depending on technology, including drag and drop; list item select and reorder; or checkbox and numeric input 0, 1 option selection, ordinal rank numbers 1, 2, 3 . . .
- A sequencing of multiple choice: select kn —pick k that is followed by the rank k/n —rank questions shown above.
- Data are collected as integer values, the range of which depends on the question type.

(Continued)

Table 8.1 (Continued)

Example:

Please group the following beverages according to when you most often consumer them and then rank them according to your frequency of consumption

The screenshot shows a survey interface with three main sections:

- Items:** A list of beverage categories, with "Fruit Flavored Soft" visible at the top.
- After Excercising:** A list of beverage types: "Bottled Water", "Fruit Juice Drinks", and "Energy Drinks". To the right of this list are three buttons: an up arrow (A), a delete button (X), and a down arrow (V).
- When Home Alone:** A list of beverage types: "Cola Soft Drinks", "Lemon Lime, 7-Up", and "Fresh or Fresh Fro". To the right of this list are three buttons: an up arrow (A), a delete button (X), and a down arrow (V).

Continuous Rating

This is similar to integer rating, except that the response is real.

Attributes:

- Sliding scales, text input interval—ratio data
- Data are collected as interval data (0.0–100, \$48.59, etc.).

Online implementations of these techniques are more visually interesting for the respondent and perhaps make it easier to complete the requested task and respond. However, the psychometric properties of interactive online scales have not been evaluated, meaning that while ease of response may be increased, the relative increase (or decrease) in validity and response reliability that come from these scales is yet to be measured and reported.

Increasing Survey Realism Interest and Respondent Involvement

Online survey technology has the ability to increase respondent involvement through “piped” text and multimedia elements, such as graphics, audio, and video animation. This

is a key advancement because color, sound, personalization, and motion can heighten realism and interest in the survey task, as well as the product, service, or concept being investigated.

“Piping”

Dynamic surveys adapt to the respondent through piping. Piping generally refers to the movement of text, graphic, or numeric data from one point in the survey to another. This “piped” information is typically provided by the respondent but could be pulled from external databases. For example, if the respondent is evaluating a given brand, factual data about a product category, information about the category leaders, or even information about the respondent could be piped from a database to

allow the respondent to make more accurate relative comparisons.

In the simple example found in Figure 8.1, two pieces of information are piped based on the respondent's answers to previous questions. The first is the type of car the respondent owns, a "Hummer," which is piped from a previously answered multiple-choice question. The second is the respondent's answer to an earlier, open-ended text question about dissatisfaction with his or her car, where the respondent typed, "The sticker shock at the gas pump is something to behold." By moving this information forward, the survey is dynamically updated to provide context

and detail to the current question about recommendations for the manufacturer.

Other uses of piping include concept or logo tests where respondents select a company logo or other concept-related graphic. This graphic would then follow the respondent to the next question, either as part of the question text or possible answer choice, as shown in Figure 8.2.

At the advanced end of the spectrum, personal data for a given respondent may be read from a database, such as customer relationship management (CRM), and then piped into questions or answers within the questionnaire, as shown in Figure 8.3.

Figure 8.1 Text Piping Example

Figure 8.2 Graphic Piping Example

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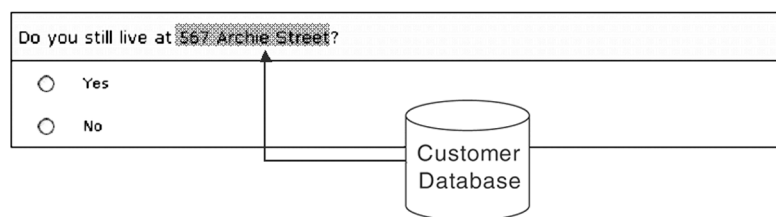


Figure 8.3 Database Piping Example

When using text piping, the researcher must carefully consider what message is given, to whom, and where:

- Who provides the content to be piped?
 - The researcher
 - The respondent
 - Both the researcher and respondent
- What content is to be piped?
 - Text only
 - Graphics only
 - Text and graphics
- What is the source of the piped content?
 - From question text defined by the researcher
 - From answer text selected by the respondent
 - From programmed text that is piped as a result of an answer selected by the respondent
 - From open-ended text input by the respondent
 - From a mailing list field
 - From data fields in an embedded database of reference information
- What is the destination of the piped content?
 - To a question
 - To a single answer or a set of answers

Graphics

Graphics increase interest and provide realism to a survey. For example, corporate logos at the top of the survey provide identity and authenticity to the questionnaire. Graphics can

also be used to provide an exact, unambiguous view of products and brands in concept tests. The increased understanding of graphic visualizations over text descriptions cannot be questioned. However, research reporting response rates, completion rates, and time to completion have not been reported under today's broadband Internet environment.

Audio

Traditionally, research into multimedia creatives was difficult and limited to focus group settings, which are time-consuming and costly. This has changed with the emergence of online survey delivery. Songs, commercials, legal arguments, and other verbal, melody, or tone-based treatments can now be easily, quickly, and successfully integrated into online surveys for concept testing.

Video and Interactive Flash

Video files, like audio files, are now easily added to surveys to test media campaigns or introduce and richly describe product concepts. One important consideration in including multimedia files is the size and bandwidth constraints faced by respondents. While currently a concern, the accelerated adoption of high-speed Internet will continue to reduce this bandwidth constraint (see Figure 8.4).

Flash

Flash technology (a product of Macromedia) allows for highly compressed static or animated graphics. Flash also contains a programming language that can be used to develop integrated



Figure 8.4 Animation Graphic With Question

programs and graphics such as games. While this technology has not found its way into mainstream market research, it is used on many entertainment Web sites and is worthy of consideration for highly technical and youth market segments who are accustomed to this high-involvement graphics approach.

SURVEY LOGIC, FLOW, AND RANDOMIZATION

Advanced research and statistically sound quota sampling requires dynamic surveys with questions and question sequences that adapt based on a respondent's answers. Online survey delivery has revolutionized questionnaire design by enabling skilled researchers to quickly build surveys with embedded logic and complex questions flows that are truly adaptive. Unlike paper-based or interview-based questionnaires, these "smart surveys" have the ability to perform on-the-fly analysis and to incorporate and influence that analysis based on outside and previously collected data, such as the responses to a set of similar questions, answered by the respondent 3 years before.

Embedded Logic

Linear Skip Logic

Skip patterns are defined as a linear skip from one question to another question and are based on an answer to a specific question provided by the respondent. For example, in a question asking about three product concepts, the respondent who indicates that she or he is a nonuser of a product subcategory (energy drinks) is skipped past questions about that specific product or brand and directly to consumption questions for the general product class (casual beverages).

Survey- and System-Wide Boolean Logic for Compound Branching

Survey-wide branching, like linear skip logic, is used to skip questions but does so based on a complex sequence of conditions. Suppose that a respondent meets all of the conditions of being a member of our target demographic segment. She is identified as "female," "between 18 and 34," "married," and has "one or more children." With branching, the intersection of these identifying characteristics is the point where we change survey flow and question logic.

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System-wide Boolean logic is only available in the most advanced of online research tools. It enables a survey to branch based on (a) answers from multiple questions within the survey; (b) outside variables nonspecific to the respondent, such as a randomly assigned experimental group; (c) a respondent's profile and previous survey response history (i.e., if the respondent answered "B" to Question 31 on last year's customer satisfaction survey); and (d) known information about the respondent stored within databases, such as CRM systems. Figure 8.5 contrasts these approaches.

It is important to note that most online survey software does not provide even basic branching capabilities. When an online research solution is not powerful enough to handle single or multiple compound branching conditions, rudimentary branching can sometimes be created with a lot of thought and the rigorous use of linear skip logic combined with the correct sequencing and repetition of questions.

Looping and Merged Text

Looping and merged text is used to reduce the length and complexity of a survey that asks repetitive evaluation questions over and over again for different use applications or brands. Much like the mail merge feature in popular word-processing applications, it allows the researcher to use a single set of k questions and loop through them rather than using a linear sequence of repeated questions.

For example, suppose that the task requires the respondent to select from a list of 150 programs, those that were used by his or her organization. Three questions are asked about each program used. Rather than building a linear survey of 600 questions, the researcher would build only 4 questions ("select from the 150 programs those you have used" and the 3 evaluation questions). The looping would be used in conjunction with piping (described above) to provide the program names, and the online survey system would automatically save the data separately for each loop. With looping, this becomes a much less intimidating questionnaire to build and for the respondent to complete.

A third, more advanced example of looping and text merge is where looping is based on a

researcher-defined set of criteria, rather than those selected by the respondent. This might be a set of products, brand names, usage occasions, or individuals (employee evaluations). This pre-defined information would be entered as a list within an embedded data set and used to direct looping evaluations. If we followed the previous three-question example, no products would be selected, but instead, a set of products would be defined by the researcher for evaluation. The text would be piped and merged into the sequence of three questions and would be automatically repeated for each product evaluated. This approach could be used to evaluate products, brand names, usage occasions, individuals, or any other list of interest.

Looping and Merge Text to Reduce Question Density. Paper-and-pencil surveys frequently use three-dimensional matrices containing multiple questions, arranged across the rows and columns of the matrix. Question density is sometimes thought to be a way to (a) get more information from respondents and (b) create a psychologically shorter survey. However, question density may also reduce data quality and completion rates for the survey.

Extraction

Extraction is used to move all answer items/choices from one question to a later question. It, too, can be used to extract only those k items that are selected from a list of n options to a later question for further questioning about those items. Often, extraction options exist that will maintain item order (or maintain the same random order) or disregard order as the respondent-selected choices are carried forward for further detailing/drill downs. Extraction is particularly useful where the respondent has the option to add an "other" item about which the researcher would like to gain additional information.

Quota Fulfillment

Quota fulfillment combines logic and branching to ensure that a sufficient sample is obtained. Quotas typically work by testing the size of sample groups (defined by answer

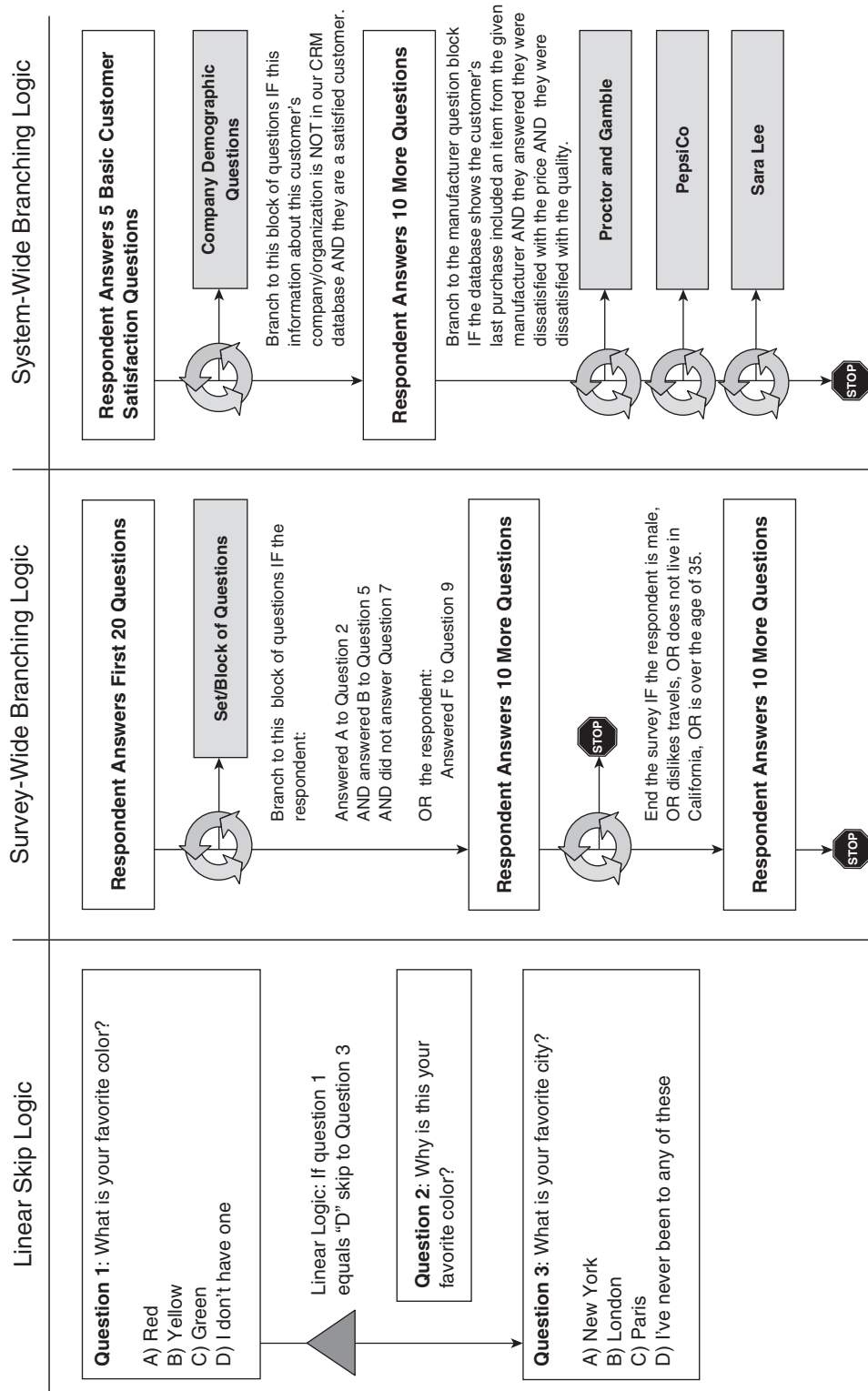


Figure 8.5 Linear Skip Logic Versus Boolean Logic and Compound

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categories within a given question) against target numbers. Where experimental designs are used, quotas may be created to avoid over-sampling of some groups at the expense of an insufficient number in other groups.

Randomization of Question Blocks and Surveys

Randomization techniques are used to control for order bias in the presentation of answers to the respondent. In new product concept tests and other advanced measurement situations, choice options, blocks of questions, or blocks and questions within blocks may be appropriately used and randomized to control for order bias. In this section, we consider randomization of choice options, questions, blocks of questions, and questionnaires.

Randomization of Choice Options

Randomization of choice options is a powerful tool to reduce order bias in responses. Many different approaches to randomization are possible. The following are often used in online research and experimental designs.

- Complete randomization of all choice options
- Complete randomization of choice options and nonrandomization of “other” or text input options
- Partial randomization of choice options, where specific answers (such as the item of interest) are held in a fixed position, and all other answers are randomly ordered

Question Blocks

A question block is a cohesive group of questions. All questions in a given questionnaire may be contained in a single question block or may be split into multiple question blocks. Question blocks are developed so that a block may be given special instructions that apply only to questions within the block. Questions within blocks may be arranged in a fixed order, random order, or partial random order that holds some questions in a fixed position while randomizing the order of other questions. Likewise, the blocks themselves could be manipulated for

presentation: (a) A block of questions could be displayed based on choice previously made by a respondent (evaluate a block of brand-specific questions if the respondents indicated they were familiar with the brand), (b) the blocks could be randomly presented or held in a fixed position while randomizing the order of other blocks, and (c) blocks could be repeated in a looping pattern with piped text that describes the purchase situation or usage occasion under which the block of questions is now to be considered.

Randomization of Questions and Blocks of Questions

Randomization of questions is used when the random presentation of questions is more important than presentation order and context of the questions. While questions must often conform to a given order, blocks of questions (each block, for example, containing questions about different brands) do not. In these situations, randomization of questions within a block or randomization of blocks of questions is a valuable option. Question and block randomization are often used in concept testing and in the development of experimental designs.

Randomization of Questionnaires

Occasionally, experimental treatments are so extensive that a completely different questionnaire is required for each treatment. In such cases, the questionnaires are prepared and randomly assigned to the respondents.

THE ONLINE PANEL AS A NATURAL EXPERIMENTAL DESIGN

Online panels are becoming the method of choice for conducting online research, including experiments. A panel is a sample of representative units such as individuals, households, firms, or governments that regularly complete surveys. Panels often track the panelists' reported changes in many personal or environmental variables affecting purchase decisions. The ability to conduct time-series and cross-sectional research designs is inherent in the panel. Panelists can receive repeated (or follow-up)

surveys at multiple points in time (time series of surveys) or a single survey that is part of a one-time cross-sectional study.

Controlled Experimental Designs Using Panels

Researchers who want to conduct an experimental design often use online panels as a timely alternative to costly field studies. Panelists can evaluate new product designs, different levels of promotion, new campaign themes, price changes, or a combination of two or more of these variables. For example,

- Online pretesting: Online panel members view pictures of new products along with advertisements to gauge probable response.
- Online, simulated test markets: Online panel members are asked to react to a new-product concept in an online evaluation environment.
- Panel management for actual product tests: Online panel members are used to select participants for actual product tests.

Test units for marketing experiments can be broadly classified as involving “respondents,” “attributes,” and “market activities.” Each class of units presents its own set of challenges for the experimenter. In cases where “respondents” are the test units (e.g., product usage, advertising copy themes, package tests), the researcher must contend with such things as method bias, respondent conditioning (especially in paid panels), and panel dropouts. Online panels can further frustrate these challenges.

The online panel, like any other component of the research process, is not without its limitations and need for experimental control. In experiments where the test units are “attributes” (e.g., price, coupons, point-of-purchase displays), the researcher must address the realism of the online design, as well as other factors such as contamination of the data by local store influences and so on. In experiments emphasizing market activities, the problems of measurement and control become the most difficult of all. Seldom can market effects be partitioned without sales promotion and pricing overlap—especially for online panels. Furthermore, there is a danger that the effects of such treatments

as advertising and sales promotion are not appropriately measured. The following are further examples that illustrate the use of online technology in conducting experiments.

Example 1

A recent online brand logo experiment evaluated three different brand logo styles, each having three alternative variations (transparent background, red background, red-bordered background). The full factorial experiment required 27 different treatments, each of which were evaluated to account for differences in overall preference, attribute attributions, and so on.

Example 2

Sometimes a laboratory-type experiment may serve the needs of the marketer. For example, a manufacturer of processed potato products recently conducted online panel-lab experiments to test new breakfast products (e.g., potato-egg burritos, pancakes, French toast, hash browns).

Members of an institutional food manager panel were recruited online, and corporate profile information was recorded. A balanced panel of potential respondents was chosen by food industry subsegment. Each panel member agreed to receive a FedEx package of selected frozen products for preparation in the kitchen at his or her institution. After evaluating the products, panel members responded online to a variety of questions, including product attribute evaluations, preference, and intention to purchase (demand estimation) given different price points per serving.

The limitations of experimental designs in controlling statistical validity, internal validity, construct validity, and external validity apply equally when they are used with panel data and online research.

Response Sets

A new element in online survey research and design is the concept of response sets. Response sets are the equivalent of buckets into which respondents are grouped. Response sets

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effectively transition the respondent within and between surveys. The integration of relational databases with online survey technology makes possible more expansive data analysis and tracking using response sets.

For example, we can define response sets as including (a) respondents or respondent groups (market segments) within an individual survey, (b) respondent groups that extend across multiple measurement periods (time series), and (c) respondent groups for which the individual responses extend across multiple questionnaires distributed at different times and even addressing totally different topics and questions. We may therefore consider response set as follows:

- At the extreme, as a size of $n = 1$, that focuses exclusively on the individual respondent
- As a means of identifying different segments within a given survey response database, such as demographics and performance-based segments
- Subgroups that exist across different surveys using the same questionnaire
- Subgroups that exist within the same survey and respondents because the survey is administered at multiple points in time
- Subgroups that exist across separate questionnaires, where the questionnaires may be totally different but were completed by the same set of respondents (time-series analysis)

The following example describes the use of subgroups in a three-part study. The questionnaire is used in a baseline study, followed by an observation period with survey, and then by a follow-up survey some time later:

The U.S. Army is concerned about the financial maturity and well-being of soldiers. A survey tracking several subgroups and measuring levels of consumer debt was conducted. Upon entering AIT (Advanced Individual Training), soldiers complete a baseline financial assessment survey that reports their financial obligations and resources. Soldiers then receive a training course on financial planning and management. At the conclusion of the course, a second evaluation of financial attitudes and plans for spending and saving is made. Every 6 months thereafter, a follow-up evaluation is made. At each point of evaluation, financial

spending patterns are evaluated, including the family and personal savings and debt history, as well as current types and amounts of debt.

Several subgroups are of interest and have been identified for this study. They include demographic, military classification, and time from training cohort groups. Each subgroup exists across surveys and even includes a control group that did not take the training course. Subgroups are used to define the analysis patterns for the data.

ONLINE SURVEYS AND CRM DATA INTEGRATION

Real-Time Surveys That Access the Data Warehouse

The future of online survey research is all about immediate access to information. Online survey research information should simultaneously reflect what we already know, what we do not know, and what we desire to know. Duplication of information is expensive and wastes the time of respondent, researcher, and client.

State-of-the-art corporate research will soon require the integration of all available data for a given respondent so that the current survey and research reflects only the information that is needed, being verified, or studied for change. In truth, those who can access this information from a well-organized and user-friendly data warehouses are a big step ahead.

Current research technology allows surveys to be driven by multiple points of information, including the following:

- Single answers from the respondent within the current survey (linear logic)
- Multiple answer conditions that are met by the respondent within the current survey (branching)
- Respondent answers from previously completed questionnaires (survey library database)
- Respondent descriptors or other information contained or not contained in the CRM database (data embedded by the researcher and data table databases such as baseline or industry average data)

Online survey software should not only have a wide variety of question types and features such as question blocks, logic, inflow, randomization, and the ability to track and organize respondents into response sets, but should also generate questions dynamically based on what the researcher already knows about the respondent through the data warehouse.

Source: Stuart Orgill, Director of Sales for Qualtrics Labs, personal interview on the capabilities of online survey software, June 2005.

At the top of the food chain for online survey software, we find the dynamic capability to generate database-driven surveys that incorporate customer, panel, or other respondent data. This option of dynamically integrating customer information into the survey flow and questioning process opens a new dimension of online survey research. Such a survey system requires, first and foremost, access to an integrated data warehouse. Respondent data must be reflected in and even used to direct the sequence of questions that the respondent should and should not be asked.

Consider the following examples that range from basic to advanced.

Example Level 1: Static Information Review and Updating

Respondents are guided through a survey to view personal information about their particular account or information needs. The survey is populated with information previously entered by the respondent and becomes a verification and update mechanism that enables the respondent to enter new information when the old information is out of date.

Example Level 2: Dynamic Question Content

A customer is filling out a “customer feedback questionnaire.” The customer is a heavy user of your product but reports he or she recently had a negative experience. The dynamic integration of CRM data into the questionnaire allows for key points in the service experience, including the salesperson’s name, to be replayed and presented for an in-depth drill-down to give greater insight into the customer experience and problem.

Example Level 3: Dynamic Question Flow Based on Information in the Data Warehouse

One online travel booking company has implemented customer feedback systems that send surveys to recently returning travelers. Traveler surveys are generated based on system data about when they returned from their trip. A survey invitation is sent within 48 hours of their return. The information from the data warehouse is integrated into the survey to selectively direct the respondent to view questions about flight bookings, car rental bookings, cruise bookings, and hotel bookings. If the travel booking did not include a car rental, the section on car rentals will not be included. However, if the respondent rented a car, questions are added and are customized using the customer’s information. For example, “Mr. Jones, you rented a car from January 10 to January 15, 2006, in Boston, Massachusetts. Please tell us about your service experience with your rental car agency.”

These and other examples abound and show the many applications for dynamic questions based on CRM or other information that tailor the questions for the individual customer, thereby making the survey more interesting and eliminating questions that are not pertinent to that respondent.

Survey research is no longer constrained to provide a static view of the world in general or of individual customers. Information integration is the key to involving the customer and maximizing the value received from the research effort. The examples have shown that all available respondent information should be available to provide content to and even direct the sequence of questions to which the customer responds.

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SURVEY DELIVERY

Surveys can be delivered to a variety of different points for respondent interaction, including Web site surveys (links, pop-up, pop-under, embedded html pages), WAP (wireless PDA/phone) surveys, and e-mail surveys with complete embedded surveys and e-mail surveys with survey links. While it is beyond the scope of our discussion to detail the implementation of Web site survey pages, survey links, and pop-up/pop-under surveys, we will briefly discuss the capabilities and use of e-mail campaign management tools in the delivery of e-mail survey invitations.

E-Mail Campaign Management

Campaign management software is responsible for monitoring and tracking the various parts of the survey research effort and a key driver of online survey research. An effective campaign manager should have the ability to track every set of survey invitations that is distributed, including the message sent and the time and date sent; identify those who received the message and who that did not; flag bad addresses; process unsubscribe requests; and give updates on the real-time progress of the campaign.

The campaign manager should also be able to draw from a library of invitation letters and merge respondent information into the invitation. The invitations could then be sent as prenotification letters of an impending survey invitation, followed by the survey itself, and then follow up with second invitations to nonresponders.

DYNAMIC ONLINE TOOLS FOR
DATA ANALYSIS AND REPORT WRITING

Online analysis tools and report writers are two distinct parts of online research. While online data analysis is a standard part of online research tools, online report writers are less prevalent. These tools must be comprehensive enough to generate reports and data analyses with a single mouse click yet be smart and flexible enough to meet the exact needs of the professional market researcher drilling down in

the analysis of a complex construct. The ability to integrate online data analysis into online report writing software reduces time and cost and generally makes the research process much easier.

The requirements of integrating data collection, analysis, and report writing are demanding, even for the most powerful of survey and data collection engines. However, progress is being made. Online survey research engines will include data analysis report writing engines capable of the following:

- Single-click access to top-line summary reports with frequency tabulations and charts for all variables included in the questionnaire

- The ability to generate custom reports by inserting text sections that narrate the findings of each question

- The ability to specify the appropriate types of chart or graph that should be shown for a specific question in the report

- The ability to specify the cross-tabulations having the appropriate banners and stubs for a specific section of the report

- The ability to do more advanced data analysis such as correlations and tests of means, with appropriate graphics

- The ability to simultaneously develop multiple reports targeted at different management groups

- The ability to integrate across multiple subreports into a master report (or vice versa)

- Parallel data collection, report creation, and dynamic updating of results so that reports can be prepared in parallel with data collection and questionnaire preparation tasks

- Smart analysis to include results (question, table, or chart) if the results are statistically significant

- The ability to publish and post reports in PDF or Web format for general corporate consumption

This is the point where the researcher's wish list for future developments seems to be endless. For example, online survey software is currently not well integrated with statistical software. However, in the future, it is not unreasonable to

expect a fully integrated survey system that has the backend statistical analysis sophistication of an SPSS or SAS. Similarly, recently developed FLASH applications permit integration of data analysis and report writing protocols. These tools produce dynamic point-and-click analyses that drill down through pivot tables of data and show charts, graphs, and additional statistical analysis.

At a minimum, current online survey software should include the ability to do tabulation, cross-tabulation, analysis of means (including *t* test of independent and pooled samples), one-way analysis of variance and multifactor ANOVA, and correlation and regression analysis. More heroic solutions, which are targeted to very specific and small marketing audiences, may include the ability to design and implement online full-profile, adaptive, and choice-based conjoint analysis that specifically includes the ability to

Develop the research design (fractional factorial, *d*-optimal, etc.)

Develop, implement, and sequence the required questions

Segment the data, weight respondent data, and conduct analysis to derive average utilities

Simulate market segments of interest

Again, survey software is currently not well integrated with statistical software. This will change in the near future as statistical tools migrate toward providing data collection tools and survey software migrates toward more complete suites of data analysis tools. All of this should be integrated into the survey reporting engine.

SPECIALTY APPLICATIONS IN ONLINE RESEARCH

Specialty applications in online research could be viewed as one of two varieties: those that are integrated into a research system and those that are developed in their own right as stand-alone systems. Specifically, stand-alone systems separate rather than integrate the data collection, the

data, the model, the analysis, the report writing, and the integrated user interface. Stand-alone specialty applications rely on the researcher's ability to move from application to application, selecting the best of breed for the task at hand and doing so in relative ease either on the desktop or through the Internet. Below is a discussion of four specialty research applications, all of which are applications that could be either integrated or "decoupled."

Management Notification Triggers for Whistle-Blower and Sales Generation

Internet messaging and e-mail notifications of events are becoming commonplace in the business world. It should therefore not be surprising that survey software providers are also moving forward with e-mail notification features. Current notification systems provide triggers for whistle-blowing or information and events notification services. Notification triggers are used by human resource (HR) departments, information technology (IT) system managers, and brokerage firms to transmit event and calendar data. This same trigger technology may be applied to surveys and used to generate notifications ranging from survey completion, to sales leads, to dissatisfied customer alerts, or to whistle-blower notifications.

As an example, a survey-based notification system for lead generation would allow a sales force to always be aware of the new prospect—no matter where a salesperson is located. Sales leads are the lifelines of many corporations, and organizations are often paralyzed by unproductive leads and spend significant time trying to sift through their leads to find those that have the highest potential. The combination of a prospect qualifier survey and a notification system for tracking highly qualified leads is but one example of the emerging use of online research tools.

Survey triggers may also provide timely information in today's litigation-prone society, where legal threats face most corporations. Internal and external issues, such as corporate malfeasance, bias, harassment, and discrimination, have increased the need for instantaneous feedback and notification systems. Executives with the need to know, including legal and HR

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designates, should receive immediate communication from those who have observed or been a part of the problems with the corporation or its products and services.

Another application of trigger survey systems is for six sigma and “voice of the customer initiatives” that require continual feedback, evaluation processes, and trend monitoring to steer the organization on an ever-productive course. Trigger-capable online survey systems may be used to instantly

Send full surveys

Send summary data on the survey

Be triggered by completion of the full survey

Be triggered by completion of a specific question

Be triggered upon specific response conditions (single- or multiple-response conditions)

Be sent to online databases: a personal online sales database that can be accessed worldwide

Be sent to corporate e-mail accounts

Be sent to cell phones or computers as a text message, instant message, or e-mail

Conjoint Analysis

Online conjoint analysis is a natural addition to online survey research technology when the researcher is interested in the measurement of psychological judgments (such as consumer preference or acceptability) or perceived similarities or differences between choice alternatives.

- Concept testing and predicting the profitability and/or market share for proposed new product concepts given the current offering of competitors. This would also include evaluation of our strategies for introducing a new product. Specifically, should a new product be introduced, and if so, what is the optimal attribute level configuration for this new product? Furthermore, should pricing or other attributes of our current products be modified in response to the competition?

- Competitive reaction measurement focusing on redirecting the impact of new competitor products on profits or market share if we make no change in our competitive position

- Market dynamics estimation, including predicting customer switch rates either from our current products to new products we offer (cannibalism) or from our competitors' products to our new products (draw)

- Concept testing and response rate evaluation by segments, including predicting the differential response of Items 1–3 by key market segments purchasing our product

- Predicting the impact of situational variables on customer preference

- Predicting the differential response to alternative advertising strategies and/or advertising themes

- Predicting the customer response to alternative pricing strategies, specific price levels, and proposed price changes

- Predicting customer and competitive response to distribution strategies studying such diverse problems as determining the optimal channel of distribution, number or type of outlets, vendor selection, or salesperson quotas.

The continual advances in computer technology have resulted in servers that are capable of not only developing the designs necessary for conducting conjoint analysis online but also dynamically changing the choice options presented to the respondent based on responses to previous questions.

Conjoint analysis involves a large variety of alternative methodologies that are useful for solving alternative problems of different scope and complexity. These methods have associated with them such factors as the choice of the type of stimulus construction (two-factor trade-off, full profile, fractional factorial profile, choice sets), the type of data collected (attribute trade-off, product-attribute profiles, product-attribute choice sets), the type of model implemented (compensatory, noncompensatory, part-worth, vector, ideal point, hybrid), the measurement scale (paired comparisons, rating, ranking, constant sum, choice), estimation procedure (heuristic, nonmetric regression, metric regression, hybrid, logit, Bayesian, choice based), and the type of simulation analysis to be conducted (maximum utility, average utility, LOGIT).

It is beyond our scope to discuss these methods in detail. However, it is noteworthy that online conjoint analysis systems, including design, question generation, data collection, analysis, and simulation, are becoming more widely available. These online implementations include trade-off, full-profile, hybrid, and choice-based conjoint models.

Virtual Shopping Simulators

Online and laboratory-based virtual shopping simulators allow shoppers to visually “walk” down store aisles, select products and rotate them to view product information, and then purchase products. These computer-based simulators can even allow shoppers to speed their shopping experience by filtering the products to be displayed. Based on their shopping requirements, respondents can shop from a “shopping list” or even for a list of ingredients required for a given meal or menu or contained in a recipe. This technology records a variety of purchase process metrics, including number of items examined, time spent, and cross-product shopping activities.

Virtual shopping simulators are an effective means of providing context into the consumer’s choice environment. Simulation of the physical store provides that added dimension required for more realistic in-store measures of the customers’ reactions to new products, product assortments, prices, packaging, and merchandising.

Online Qualitative Research

Web-based qualitative research is bringing marketers closer to the customer. Many Web sites are now introducing survey technology to measure customer satisfaction, motivations, and preferences; to track activities and time spent on the Web site; and to interact more effectively with the customers to meet their needs and wants.

Research companies are increasingly looking to the Internet as an online tool to facilitate qualitative research and discussions with customers. Online bulletin boards and focus groups provide approaches for interviewing respondents in a discussion format and are being adopted more

frequently by researchers because it is easier to recruit hard-to-reach individuals such as physicians, executives, singles, people with high incomes, the well educated, and even teens.

In this section, we consider the use of online bulletin boards and focus groups as alternatives to traditional methodologies where participants are assembled in a central location to discuss their views and experiences relevant to the topic of interest.

Online Bulletin Boards

Bulletin board technology has been available for a number of years but has been modified in format for more effective use in conducting marketing research. The bulletin boards found on many Web sites allow users to register and then participate in nonmoderated discussions of topics of interest to participants of the bulletin board. When bulletin boards are used for marketing research, moderators become involved to direct discussions and to obtain targeted feedback from participants. When properly controlled, the procedure includes recruiting individuals to participate in the bulletin board discussion and then providing them with password information so that they can enter a password-protected Web page. Participants are scheduled for a specific time of day so that they may participate with other individuals recruited for the discussion. Individuals log on, read the information pertaining to the discussion, and respond either to listed questions or to those posed by the moderator. Where a list of questions is prepared, the participants are often free to respond at their convenience.

Bulletin boards may be thought of as appearing midway on a continuum that extends between in-depth personal interviews and group-based focus groups. Discussions can be facilitated by involving all participants and allowing them to interact among themselves, with the moderator posing questions and asking for follow-up responses. Alternatively, most bulletin board software provides the option to conduct interviews where the respondent’s replies are masked or hidden from the other participants. Bulletin boards provide for in-depth responses where respondents answer specific questions after reflection on their own experiences.

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These responses may be the basis for the dynamic synergism that results from interaction with an online group, or the researcher may choose to structure the discussion so that individual responses are not shared with the group. Either way, the major advantages of online bulletin boards lie in the flexibility they offer participants and researchers:

Participants can be recruited from a broad geographic area.

Participants are able to provide feedback at their own convenience.

Participants are able to spend the time that they require to provide thoughtful comments and perspectives.

Participants are allowed to start and stop their participation so that they can carry out other activities, including those requested by the bulletin board moderator, such as trying or experimenting with suggested products.

Online Focus Groups

Focus groups (in general) provide qualitative insights into products and concepts through discussions and interaction directed at clarifying ambiguity and establishing a dialogue between the participants about the topics to be discussed. Online focus groups are gaining popularity as a method of saving time and money. They easily bring together respondents and observers in disperse locations through virtual facilities with waiting rooms, client backrooms, and focus group rooms.

Like traditional focus groups, each online focus group has a very distinctive interactive climate since each individual participating in the group brings a personality, a communication style, and a level of involvement that provides direction and intensity to the group. In-person focus groups have the advantage of being able to incorporate nonverbal behavior as well as taste, smell, sight, sound, and touch into the setting. It is the responsibility of the moderator to draw out individuals who are reluctant to participate, are shy, or have little desire to participate. This is not always an easy task when focus groups are conducted online.

However, online focus groups offer several advantages:

- Flexibility of scheduling and format
- Convenience of office or home access
- Geographic dispersal of participants for a more representative or more targeted group of participants
- Availability of technologies such as streaming video for presenting points of discussion and concepts to participants
- Remote and on-demand access for the client from any place in the world

Through the use of broadband and desktop cameras, focus groups and their customer interactions can be broadcast so that clients and researchers do not have to physically attend focus group activities. Streaming media provides the flexibility to watch events, jump through specific discussions, and extract video segments for use in e-mail attachments or in advertisements and testimonials. Clients may use focus group data to reinforce points of discussion in decision making and in marketing.

When moderating online focus groups, moderators do not have the advantage of reading an individual's body language. In online research, it is more difficult to pick up on nonverbal components of a respondent's answers. For example, do respondents hesitate? Do they type confused answers? Do they have trouble providing answers? Online moderators must consider comment length, frequency, and relevance, as well as frequency and appropriateness of emoticon use and whether they dominate, draw in, or alienate other participants.

Online focus groups begin with screening and assembling the group. Every online group, like those conducted offline, requires the use of screeners, recruiters, and facilities. Established panels, compiled online lists, targeted Web sites, or client-provided lists are used to make the initial recruitment contact or to obtain e-mail addresses.

Invited participants receive invitations with passwords and session instructions. Participants log on to the Web site in advance to guarantee technology compatibility. The online groups are presented in advance with full-sentence questions.

Depending on the complexity of the study, respondents receive 30 to 45 well-prepared questions. Follow-up probing and questions may be directed at either an individual respondent or the entire group.

Moderating online groups requires someone adept at developing relationships in the online world. The moderator is responsible for helping respondents feel that they are a valuable part of the group.

It is easy to understand that critics of online focus groups might have reservations about holding online rather than face-to-face focus groups. As with traditional focus groups, the goal is to make the moderator transparent to the interaction taking place. Results will depend on the expertise of the individual moderating the group. Knowledge, experience in managing group interactions, comfort with the technology, and creativity are the critical elements in a successful online focus group. To the degree that online participants are realistic and balanced in their views and at the same time visionary in applications and insightful in motivations, the focus group promises to be a success.

The typical screener study for focus groups, including those online, includes questions aimed at identifying expressive and visionary individuals. The following are examples of screener questions with which the respondent is asked to agree or disagree:

I like to use my imagination.

I always need to know all the facts before I'll consider something.

I enjoy puzzles and word games and I like to figure out how to do things.

I really don't like new ways of doing things; I think the tried-and-true works best.

I am comfortable expressing my thoughts and feelings to others even if we just met.

I'm shy and quiet in the company of people I don't know, and I tend to let them do most of the talking.

In this example, the first, third, and fifth items are key indicators of success and would

generally mean that prospective participants would be qualified. Agreement with the second, fourth, and sixth items would generally disqualify prospective participants.

The final result of the focus group research is not merely the set of transcripts but an analysis that identifies the themes and insights that have been uncovered. It is a contextual analysis of the transcripts, including language choice, that provides the tone and emotional content of the message. Careful analysis of words in context produces interpretations far more meaningful than simple emotions. One interesting focus group study found that passengers of cruise lines focused on the core ideas of escape and fantasy, wanting to take a vacation that was out of the ordinary. They expressed a desire to escape from the ordinary and try something different but to accompany that escape with good food and service. Certainly, romance is part of this image. Are online focus group participants able to verbalize concepts such as these? Certainly, and they can verbalize them very effectively.

The technology for online focus groups continues to evolve. Their suitability continues to broaden as more and more people become Internet savvy. Hard-to-reach professionals, teens, seniors, and specialty markets such as those who are homebound or otherwise unable to participate in centrally located focus groups all can be enthusiastic participants in online focus groups. Growth in online focus groups, as with all online research methodologies, will mirror growth in Internet adoption rates, e-commerce, and development of graphical interfaces. These qualitative research methods can provide a more holistic and understanding profile of the consumer information than can be obtained through quantitative research.

INTEGRATION AND CONTROL OF ENTERPRISE RESEARCH

The complete integration of all data sources provides more control of the survey building, data collection, CRM integration, respondent tracking, and data analysis functions, especially within the corporate environment. Managerially,

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the many points requiring control within the research process are a reflection of the diverse requirements of the research process, the research environment, and the researcher's creativity, which demands new approaches to data collection and survey building. Effective management of the research process is a key to success for today's researcher and is especially important within the enterprise research environment.

While the independent or academic researcher may view each research project as an independent event, with the research process as simply flowing from start to completion, this process takes on a totally different dimension in the corporate research environment. Here, many research projects are simultaneously conducted, and dependencies and opportunities for synergies exist. Furthermore, today's research is about information—how to aggregate and take advantage of multiple sources of information that tell more about customers and markets.

Many corporations struggle with controlling their research and survey development efforts. This challenge is akin to the management of cross-functional teams, rather than functional silos, and there are benefits and risks associated with managing interdependencies between research projects.

With next-generation survey solutions, managers within corporations will be better able to more accurately control the process across projects, share information, and monitor productivity and quality. The control of the cross-functional research process requires the following:

- Controlling the right to create new information, including the right to build and control survey content
- Controlling customer alienation by defining who has the right to send surveys to customers
- Increasing efficiency of the research process and improving organizational insight by sharing surveys
- Sharing collateral material such as graphics and results
- Creating workgroups where surveys of common interest may be developed, tested, and distributed
- Allowing distributed control of each of the above activities

Control, productivity, efficiency, and quality are all critical in the coordination effort.

Next-generation survey technology will also enhance the way organizations create, organize, and share research information and resources. In so doing, they are enabling better knowledge management within the organization and a more consistent customer/research experience for respondents outside the organization.

Those responsible for the research process are concerned about the information collection and survey-building process but should also be involved in designing a variety of shared libraries used in their corporate survey environment. These libraries may contain current and historical data relevant to the respondent and survey-building efforts (see Figure 8.6), including the following:

- Question libraries: system, corporate, department, and individual researcher
- Survey libraries: system, corporate, department, and individual researcher
- Graphics libraries: system, corporate, department, and individual researcher
- Survey invitation/message libraries: corporate, department, and individual researcher
- Embedded databases: for dynamic question and data piping
- Embedded data tables: containing baseline, spreadsheet, or data from other sources that are to be used in formulating questions, answers, or data analysis tables, charts, and graphs
- Database/e-mail list libraries of potential respondents
- Real-time data from the respondent's current survey while he or she is still taking the survey

The ability to easily use and integrate information from shared libraries of questions, questionnaires, graphics, and invitation/message libraries greatly enhances learning, creativity, productivity, and quality of research produced by the organization. Furthermore, it focuses the information-gathering task on the respondent. Access to respondent e-mail lists with associated respondent profiles also enhances the targeting of specific information needed by the researcher.

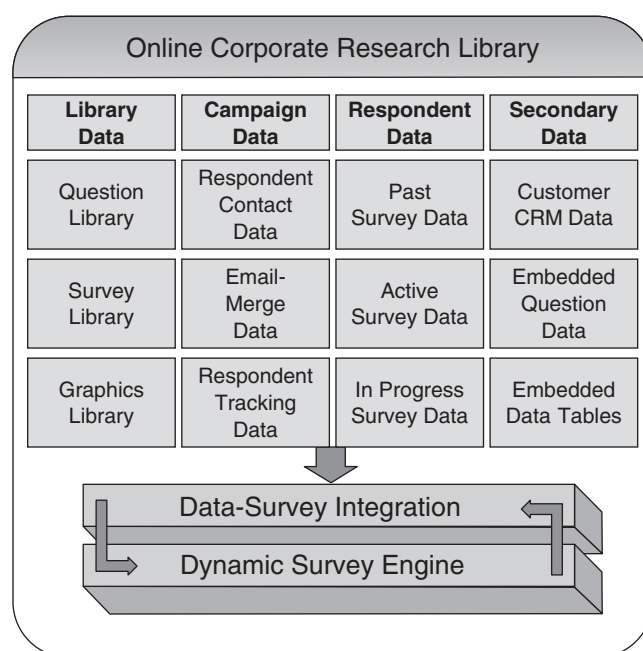


Figure 8.6 The Online Corporate Research Library

Controlling the Research Process

Cross-functional management within the survey process is a key requirement for enterprise survey solutions. Many corporations struggle with controlling and ensuring consistency of their survey efforts throughout the research process. Control, consistency, potential customer alienation, productivity, and quality must be addressed by managers responsible for the research process.

Consider a corporate example where several departments and divisions are using an online survey software tool. Researchers within each division and department are responsible for developing a survey. In addition, interns from a local university are assisting with the task, and managers are supervising these activities. Division managers are also involved to give approval for the final project.

Management may require that some individuals view the survey, but others have additional permissions to edit the survey. Still another set of permissions may give access to portions of

the CRM database. Others may have the specific rights to pull the trigger and deliver the survey to customers. Finally, specific individuals are given rights to access all survey results online, while others have online access only to top-line reports for a specific subset of the questions.

Management of the research process involves managing and controlling issues of ownership and permissions to develop, edit, view, copy, and use surveys. Similar management divisions may be assigned to survey distribution, analysis, and viewing of results.

While this description may seem overly detailed for this type of discussion, these features are important where the research process is efficiently controlled within divisions, departments, and workgroups (see Figure 8.7). Permissions and sharing of surveys, as well as access to collateral material such as graphics, invitation letters, mailing lists, and results, are essential to streamline and create efficiencies in today's corporate environment. The recognition of responsibility and access rights is common within a networking environment and likewise

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| Managing and Controlling the Survey Research Tool and Process | | |
|--|---|---|
| Account Permissions and Access Restrictions | | Account Capacity |
| Enable/Disable Account Control Account Access Allow to Create Surveys Allow to Share Surveys Allow to Access Mailer | | Total Allowed Surveys Total Allowed Active Surveys Total Allowed Responses Total Allowed Outgoing Mailings Total Allowed Graphics Storage (MB) |
| Survey Permissions and Restrictions | | Survey Capacity and Major Feature Controls |
| Delete, Edit, Copy, Activate Set Survey Options Create Result Sets Distribute Surveys View Survey Results Export Survey Data Print Survey Edit Survey Results Copy Survey Questions Delete Survey Questions Edit Survey Questions | Upload Survey Graphics Delete Survey Graphics Update Survey Graphics Edit Survey Flow Use Blocks, Skip Logic Use Conjoint Use Triggers Use Quotas Use Cross Tabs Use Advanced Reports Use Subgroup Analysis | Total Allowed Response Sets Per Survey Total Allowed Questions Per Survey Total Allowed Blocks Per Survey Total Allowed Branches Per Survey Total Allowed Conjoint Per Survey Total Allowed Quotas Per Survey Total Allowed Triggers Per Survey |
| Question Types | | Library Permissions and Restrictions |
| Descriptive Block Single Choice (radio button, horizontal, vertical, drop down) Multiple Choice (checkbox, horizontal, vertical, drop down) Sliding Scale (dials, emoticons) Matrix Questions (horizontal, vertical) Integer Scale (Likert) Integer Scale (semantic differential) Text Entry (various formats) Rank Order (input rank values, drag and drop) Pick k of n and Rank Pick, Create Buckets, Rank Constant Sum Attribute Evaluation-Importance Gap Side-by-Side Combinations Customizable Question Types Conjoint Analysis | | View Survey Library Copy Survey to Library Copy Survey From Library Delete Survey From Library View Question Library Copy Question to and From Library Delete Question From Library View Graphics Library Use Library Graphics Upload a Graphics File to the Library Update a Graphics File Within the Library Delete a Graphics File From the Library View and Use Mailing Lists Create Mailing Lists Edit Mailing Lists Delete Mailing Lists |

Figure 8.7 Managing and Controlling the Survey Research Tool and Process

has a place in the research environment. Such distinctions include control of survey ownership, the ability to view surveys, and the ability to edit and develop surveys. Similar divisions may be assigned to survey distribution, analysis, and viewing of results.

Online Survey Technology Evaluation

The final point of discussion in this chapter is to identify a comprehensive list of items for consideration in selecting enterprise and individual researcher-oriented survey research systems. While any list of items will change with technology advances and the growth of specific companies, a starting point for such an evaluation would include (a) the ability to manage the solution at an enterprise level, including user accounts, surveys, libraries, databases, and interfacing with the customer by surveying; (b) survey delivery options, including technology, branding, and delivery options; (c) survey creation capabilities, including advanced question types, piping, advanced logic, and the ability to embed database information; (d) support libraries, including libraries for questions, sample surveys, invitations, and graphics that may be shared with controlled access across and within departments; (e) CRM integration capabilities; (f) customizable survey templates and skins for a corporate look and feel; (g) respondent controls for save and continue, anti-ballot box stuffing, password protection, and security of information; and (h) analysis and results tools to produce professional reports and data that easily integrate into advanced statistical analysis tools.

SUMMARY

Online survey technology is an increasingly powerful and integrative tool for researchers who need to interface with the customer. This is especially true when customer data are integrated with CRM solutions to instantly produce a broader picture with deeper insights into customers and your business.

Managerially, customer-centered organizations are concerned about activities such as

- Monitoring changes in customers
- Obtaining information about preintroduction product performance and projected market acceptance
- Generating more detailed measures by controlling the market environment with field experiments
- Providing higher impact marketing campaigns that track market awareness, product performance, service quality, and customer satisfaction/loyalty
- Generating higher conversion rates for sales force leads and contacts
- Identifying which customers produce the highest margin
- Understanding the root causes of service problems
- Identifying market opportunities before competitors do

In this chapter, we have suggested that next-generation tools provide the way to more personalized and effective contact with the customer and better answers to managerial questions.

We have introduced an array of advanced online survey functionalities and tools that allow the researcher to create more visually interesting, involving, and realistic approaches to conducting research. We have also discussed advanced logic and flow capabilities that support the question creation process.

Advanced reporting structures were discussed as a means of reducing time in the preparation of dynamic real-time reports.

Specialty applications were then discussed that are often implemented as “stand-alone” applications, including triggers to notify and communicate events or conditions, conjoint analysis, simulations, and qualitative research.

Finally, as we look backward in time, we realize that it was only 50 years ago when the advent of the 10-digit phone system quickened the pace of developments in survey research. Looking at the current state of survey research, as discussed in this chapter, we can be amazed at the many broad capabilities and developments in online survey software and technologies.

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However, we also realize that these achievements have largely been developed in the past 10 years. What does the future hold? A safe projection would include integration of corporate applications and, for others, more advanced stand-alone systems that are used when supported by the data collection, data, and user interfaces. But certainly we will see more personalization, points of access, portability, realism, and, of

course, ease of use, reduced costs, and improved stability and performance.

REFERENCE

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