

COLLECTING YOUR OWN DATA: IMPROVING DATA QUALITY THROUGH QUALTRICS SURVEY DESIGN

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Overview

- What is Qualtrics?
 - Walkthrough and Orientation
 - Introduction to Data Quality and Total Survey Error (TSE)
 - Measurement Error due to Respondents
 - Measurement Error due to Questionnaire Design
- Can Qualtrics help lead to better data quality?



What is Qualtrics?

- A powerful software for collecting and analyzing data
 - Allows users to build and distribute surveys, analyze responses, and create reports
 - Point and click interface, without having to install software
 - Most common in the business world (e.g., market research, customer satisfaction, product testing); its use is increasing in education research



What is Qualtrics?

- It's viewed as a “fancy software,” but is it actually useful for improving data quality?
- This presentation will show that Qualtrics is one mechanism or option for collecting better data and improving data quality
 - Other options: paper and pencil, OMR software, other online survey platforms (surveyMonkey, google forms, REDcap etc.)



Obtaining a Qualtrics Account

- **Free Trial Account** – Go to www.Qualtrics.com and click the Free Account button.
 - A trial account does not have a time limit but you are limited to 1 active survey and 100 responses total
- **“Regular” (Paid) Account** – You can pay for an individual Qualtrics account
 - Very pricey – there are different types/levels of accounts
- **University or Business affiliated account**
 - All the functionality of a paid account
 - <https://sbsrc.unl.edu/qualtrics-registration>
 - <https://www.qualtrics.com/academic-solutions/university-of-nebraska-lincoln-college-of-business-administration/>



Free Account vs. University Account

Free Account

- Limited to 1 active survey at any given time
- Limited to 100 responses allowed across all surveys
- Limited to 10 outgoing emails allowed
- No custom code (many options in rich content editor and look & feel are unavailable)
- No access to specialty question types
- No data exports or project sharing

University Based Account (UNL CEHS)

- Unlimited active surveys
- Unlimited responses allowed
- Unlimited outgoing emails
- Unlimited use of custom code, specialty questions and data exports

How do I obtain a University Account?

<https://sbsrc.unl.edu/qualtrics-registration>

<https://www.qualtrics.com/academic-solutions/university-of-nebraska-lincoln-college-of-business-administration/>



Interface

- This is the home screen after logging in
- Contacts, Library, Help, and Account Settings
- Folders

The screenshot displays the Qualtrics user interface. At the top, the navigation menu includes 'Projects', 'Contacts', 'Library', and 'Help', with 'Projects' circled in red. A red arrow points to the 'Projects' link. The left sidebar, also outlined in red, lists various folders: 'All Projects' (81), 'Shared with Me' (5), 'Uncategorized' (1), '4-H' (10), '4H Final' (12), 'ATV Aware' (3), 'Click2Science' (15), 'CYFS' (4), 'ELO' (13), 'MTSS' (2), 'Other' (7), 'Schachter' (5), 'TAPP' (7), and 'Water GAPS' (2). The 'CYFS' folder is highlighted. The main content area shows a table of projects under the 'CYFS' folder, sorted by 'Last Modified'. The table has columns for 'Type', 'Project Name', 'Status', 'Last Modified', 'Responses', and 'Actions'. Four projects are listed, all with a status of 'Active'. A context menu is open over the 'CYFS Post Award Survey' project, showing options like 'Close', 'Collaborate', 'Rename Project', 'Copy Project', 'Edit Survey', 'Preview Survey', 'Translate Survey', 'Distribute Survey', 'Data & Analysis', 'View Reports', and 'Delete Project'. A search bar and a 'Create Project' button are visible at the top right of the main area.

| Type | Project Name | Status | Last Modified | Responses | Actions |
|-------|------------------------------------|----------|---------------|-----------|---------|
| ★ (R) | CYFS Post Grant/Pre-Award Survey | ● Active | Sep 25, 2017 | 18 | ⌵ |
| ★ (R) | Extension Feedback Survey | ● Active | Sep 15, 2017 | 220 | ⌵ |
| ★ (R) | Methodology Topics Interest Survey | ● Active | Apr 27, 2017 | | |
| ★ (R) | CYFS Post Award Survey | ● Active | Apr 4, 2017 | | |



Survey Tab

- This is what you see when you are creating/editing surveys
- Look & Feel, Survey Flow, Survey Options, Tools, and Collaborate

QQPM

Projects Contacts Library Help

Survey Actions Distributions Data & Analysis Reports

Look & Feel Survey Flow Survey Options Tools Collaborate

Preview Survey Search

QQPM

Default Question Block Block Options

Q4 **QQPM Seminar Presentation**

Q3 What is the best comedy television show?

- Parks and Recreation
- The office
- Modern family

Import Questions From... Create a New Question

Add Block

Change Question Type

Text / Graphic

Choices

0 Edit Multiple

Automatic Choices

Type

Text

Graphic

File

Validation Type

None

Custom Validation

Actions

- Add Page Break
- Add Display Logic
- Add Skip Logic
- Copy Question
- Move Question
- Add Note
- Preview Question



DATA QUALITY & TOTAL SURVEY ERROR (TSE)



Data Quality

Data quality – an umbrella concept that covers the three main sources affecting the validity and reliability of survey data (Blasius & Thiessen, 2012)

1. **The respondent behaviors** – response quality, including their verbal skills, their ability to retrieve the information requested, and satisficing behaviors
2. **The study architecture** – elements of the survey design, including mode, length, number and format of response options, complexity of language
3. The institutional practices of the data collection agencies – the adequacy of interviewer training, appropriateness of the sampling design, and data entry monitoring procedures



Data Quality

The ability to draw correct conclusions or insights from survey data depends on the **quality of the data**

Goal 1: The survey needs to be easy for respondents to provide valid, reliable, and accurate answers to each question

Goal 2: The survey should minimize the difficulty of administering the survey – making the questions and survey as easy as possible to complete

→ **Qualtrics** is one mechanism/option for creating and collecting survey data, and its use can help improve the quality of the data collected



Total Survey Error (TSE)

- **Total Survey Error (TSE)** is one example of a framework to improve the data quality of a survey
 - The accumulation of all errors that may arise in the design, collection, processing, and analysis of survey data. A **survey error** is defined as “the deviation of a survey response from its underlying true value.” (Biemer, 2010)
- **Goal is to minimize TSE** - Making the correct design decisions requires simultaneously:
 - Considering many quality and cost factors
 - Choosing the combination of design features and parameters that minimizes the TSE within all the specified constraints

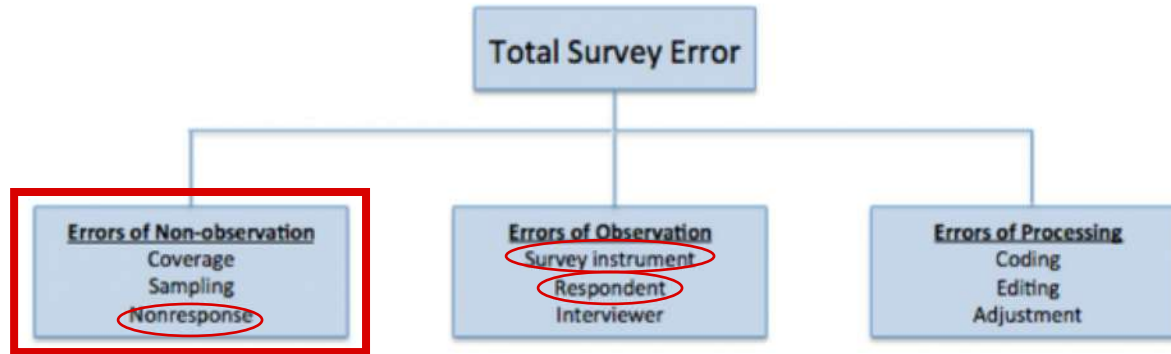


Total Survey Error (TSE)

- Survey errors can be classified into three broad categories:
 - **Errors of non-observation** – related to selecting respondents for a survey (coverage, sampling, **non-response**)
 - **Errors of observation or measurement** – response accuracy issues (**survey instrument, respondent, interviewer, mode**)
 - **Errors of processing** – errors that occur in processing and analyzing the survey data (coding, editing, adjustment)



Total Survey Error (TSE)



Errors of Non-Observation

- **Errors of non-observation** – errors related to selecting respondents for a survey
 - Coverage errors - occurs when some members of a population are excluded from the sample frame used for the study
 - Sampling errors - the degree to which a survey statistic differs from its “true” value due to the fact that the survey was conducted among one of many possible survey samples
 - **Non-response errors** - when data are not collected on either entire respondents or individual survey questions



Errors of Non-Observation: Coverage & Sampling

- Qualtrics offers *some* limited help with coverage and sampling (via distribution tab), but they are all non-probability methods
 - Email notifications
 - Survey questions coming directly in the e-mail
 - Postcard invitations with a link/QR code
 - Post to social media sites
 - Purchase panel respondents
- [\(https://www.qualtrics.com/online-sample/\)](https://www.qualtrics.com/online-sample/)



Errors of Non-Observation: Non-Response Error

- **Non-response error** - general source of error encompassing both unit and item non-response.
 - **Unit non-response** - when a sampled unit (e.g., household, farm, establishment) does not respond to any part of a questionnaire (e.g., a household that refuses to participate in a face-to-face survey, a mailed survey questionnaire that is never returned)
 - **Item non-response** - when the survey is only partially completed because an interview was prematurely terminated or some items that should have been answered were left blank



Errors of Non-Observation: Non-Response Error

- There are several safeguards in Qualtrics to help guard against forms of non-response error
 - Question validation
 - Probing 'don't know' responses
 - Automated e-mails



Question Validation

- Request or force a response
- Can also do content validation for text entry boxes (must be numbers, letters etc.)

QQPMS

Default Question Block

Block Options

Q4

QQPMS Seminar Presentation

Q6

What is your favorite comedy television show?

The Office

Parks and Recreation

Modern Family

Other:

Q5

Do you anticipate any challenges over the course of the next year?

Name:

Click to write Scale point 1

Click to write Scale point 2

Click to write Scale point 3

Change Question Type

Multiple Choice

Choices

4 Edit Multiple

Automatic Choices

Answers

Single Answer

Multiple Answer

Position

Vertical

Horizontal

Validation Options

Force Response

Request Response

Custom Validation

QQPMS Seminar Presentation

What is your favorite comedy television show?

The Office

Parks and Recreation

Modern Family

Other:

Response Requested

There is 1 unanswered question on this page. Would you like to continue?

Continue Without Answering

Answer the Question

Please answer this question.

What is your favorite comedy television show?

The Office

Parks and Recreation

Modern Family

Other:



'Don't Know' Response Options

- In most cases, the 'don't know' response option should be used judiciously, since it becomes an easy out for respondents who are unwilling to think about/commit to an answer (Nolinske, 1998), and is a form of missing data
 - To counter the possible missing data and the ability of respondents to take the easy way out, contingency items or questions can be used for those who select the 'don't know' response (Babbie, 1998)
 - Contingency items can be set up in Qualtrics by using **skip** or **display logic**



'Don't Know' Response Options: Skip and Display Logic

- Very useful tools to control what questions each respondent sees
- If lots of logic involved, use **Survey Flow**

Change Question Type

Multiple Choice

Choices

4 Edit Multiple

Automatic Choices

Answers

Single Answer

Multiple Answer

More...

Position

Vertical

Horizontal

More...

Validation Options

Request Response

Validation Type

None

Custom Validation

Actions

Add Page Break

Add Display Logic

Add Skip Logic

Copy Question

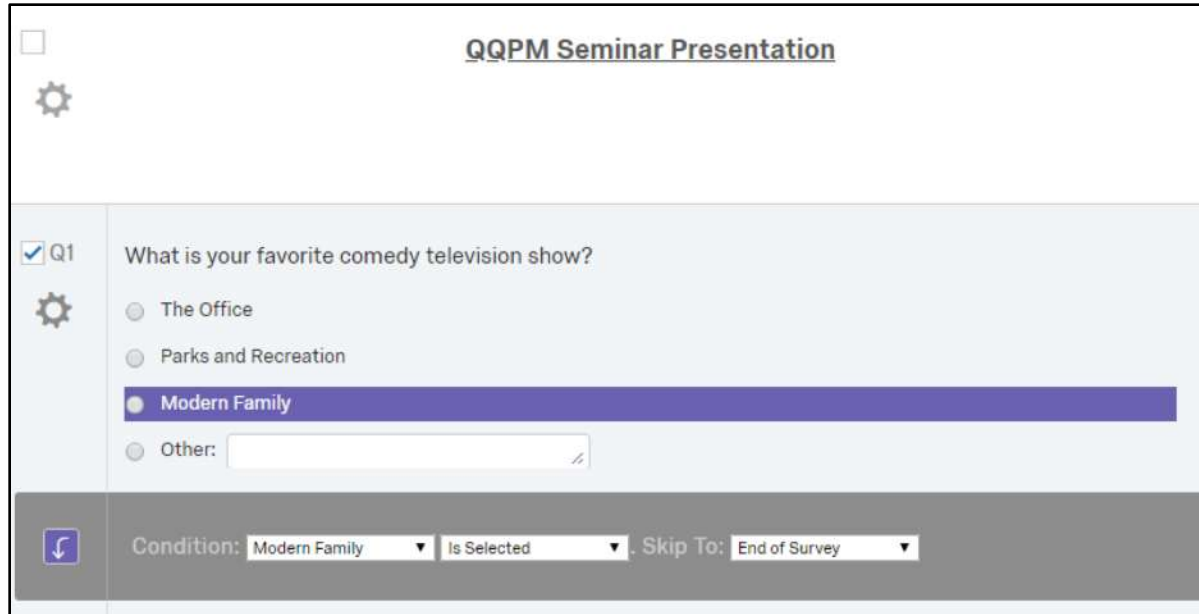
Move Question

Add Note

Preview Question



'Don't Know' Response Options: Skip Logic



The screenshot shows a survey interface for a presentation titled "QQPM Seminar Presentation". It features a question Q1: "What is your favorite comedy television show?". The question has three radio button options: "The Office", "Parks and Recreation", and "Modern Family". The "Modern Family" option is selected and highlighted with a blue bar. Below the options is an "Other:" field with a text input and a slash icon. At the bottom, a skip logic configuration bar shows: "Condition: Modern Family" (dropdown), "Is Selected" (dropdown), and "Skip To: End of Survey" (dropdown).

- If *option* is selected, will skip ahead until specified point

'Don't Know' Response Options: Display Logic

- Will only display the question if certain conditions are met (answer choices, device type, quotas, etc.)

The screenshot shows a survey editor interface. A question titled "Q1 What is your favorite comedy television show?" is visible in the background. A dialog box titled "Display Logic (Please explain why you don't know what your favorite comedy television show is:)" is overlaid on the question. The dialog box contains the text "Display this Question only if the following condition is met:" followed by a dropdown menu showing "Q1 What is your f... television show?", a dropdown menu showing "Don't know", and a dropdown menu showing "Is Selected". There are red and green minus/plus icons to the right of the dropdowns. At the bottom of the dialog box, there is a checkbox labeled "In Page" which is checked, and a green "Save" button with a checkmark. A "Close" button is also visible. The background interface shows a list of answer choices for the question: "The Office", "Parks", "Modern", "Other", and "x Do". There is also a "Page Break" indicator at the bottom of the editor.



Errors of Non-Observation: Non-Response Error

- There are several safeguards in Qualtrics to help guard against forms of non-response error
 - Question validation
 - Probing 'don't know' responses
 - Automated e-mails



Distributions Tab

QQPM

Projects Contacts Library Help

Survey Actions **Distributions** Data & Analysis Reports

Pause Response Collection

Distribution Summary

Anonymous Link

Emails

Personal Links

Social Media

Offline App

QR Code

Purchase Respondents

Anonymous Survey Link

A reusable link that can be pasted into emails or onto a website, and is unable to track identifying information of respondents.

https://unleducation.az1.qualtrics.com/jfe/form/SV_3OY8vxe7GmMzU6F

Link Text

QQPM Seminar Survey

HTML

```
<a target=_blank href=https://unleducation.az1.qualtrics.com/jfe/form/SV_3O
```

QQPM Seminar Survey



Automated Email Distributions

- Automated e-mails can be set up to contact lists
- Can then send e-mail reminders for those who have not yet completed the survey, and send thank you messages

The image shows two screenshots related to email automation. The top screenshot is a 'Compose Email' window with the following details:

- To:** Jared Stevens - jstevens0010@gmail.com
- From:** mapacademy@unl.edu (From Address), Map Academy (From Name), mapacademy@unl.edu (Reply-To Email)
- When:** Send Now
- Subject:** Please tell us about your Grant Submission Experience
- Message:** CYFS-Pre-Award-Survey-Firs... (with Save and Save As options)

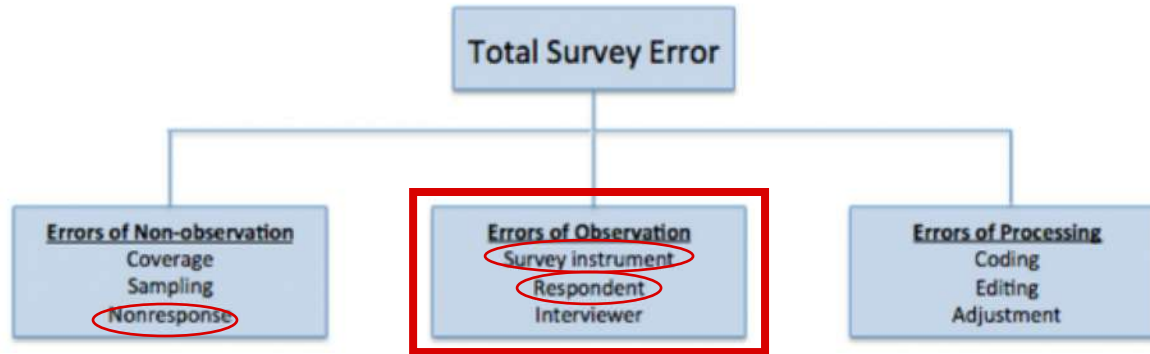
The bottom screenshot shows an email distribution summary with two entries:

- Entry 1:** Email to Contact List: Contact list for Oct, Nov, Dec (10). Sent On: 23 Jan 2019 12:18 PM CST. Status: 10 Emails Sent, 4 Surveys Started, 4 Surveys Finished. Includes a 'Show Details' link.
- Entry 2:** Reminder message to: Unfinished Respondents (7). Sent On: 30 Jan 2019 12:19 PM CST. Status: 7 Emails Sent. Includes a 'Show Details' link.

At the bottom of the summary are two green buttons: '+ Schedule Reminder...' and '+ Schedule Thank You...'. A 'Send Now' button is also visible on the right side of the summary.



Total Survey Error (TSE)



Errors of Observation

- Also called errors of measurement, typically defined as the difference between what respondents report when they answer a survey question and the true value of the attribute being measured
- Errors that may arise due to question wording, the order of questions and categories, the behavior of interviewers and respondents, data entry, and the mode of administration of a survey (AAPOR, 2001)



Errors of Observation

- Online surveys strongly affect errors of observation (measurement errors)
 - These errors are most often attributed to the social and cognitive process a respondent engages in while answering
 - For example, web respondents might be more prone to take cognitive short cuts (leading to more measurement error) or they might be more willing to disclose personal information (leading to less measurement error)
- Our job, as the survey creator, is to attempt to reduce these errors of measurement through sound survey design



Errors of Observation

- Observation error includes errors arising from
 - 1) Respondents
 - 2) Interviewers
 - 3) Survey/questionnaire
 - 4) Mode of the interview/survey
- Tourangeau, Conrad, & Cooper's (2013) book *The Science of Web Surveys* details errors of observation for web surveys and how to minimize them



MEASUREMENT ERRORS DUE TO RESPONDENTS



Respondent Errors

- Respondents may provide incorrect information in response to questions (deliberately or unintentionally)
 - Errors often occur during the cognitive response process respondents engage in when completing a survey



Cognitive Response Process (Tourangeau, 1984)

1. Comprehending the question and instructions
2. Retrieving specific memories or information
3. Making judgments - regarding the matching of the information to the question, and the completeness of that information
4. Formulating a response



Respondent Errors

- Respondent interaction with the survey instrument can result in several measurement errors
 - Certain demographic characteristics
 - Respondent's characteristics may interact with the topic of the survey to produce response effects
 - Context effects
 - Respondent's motivation
 - Fatigue and boredom



Respondent errors

- Respondent interaction with the survey instrument can result in several measurement errors
 - Respondents speeding through questions (answering too quickly)
 - Threat of satisficing
 - Acquiescence
 - Social desirability
 - Straightlining
 - Primacy & recency effects



Respondents answering too quickly

- Survey respondents may perform inattentive responding and speed through the questions, without actually reading the question
 - This behavior can *usually* be detected in Qualtrics by adding a ‘Timing’ Question
 - This detects how long respondents spend on a particular page
 - Can keep track of first & last click, page submit, and number of clicks
 - The timing question can also require participants to spend a certain amount of time on each page



Timing Question in Qualtrics

Static Content

- Descriptive Text

Standard Questions

- Multiple Choice
- Text Entry
- Rank Order

Specialty Questions

- Constant Sum
- Hot Spot
- Graphic Slider
- Net Promoter Score®
- Signature

Advanced

- Timing**
- File Upload
- Captcha Verification

Replace From Library

- Question Library

Change Question Type

Timing

Enable submit after (seconds)

0

Auto-advance after (seconds)

0

Show Timer

Actions

- Add Page Break
- Add Display Logic
- Add Skip Logic
- Copy Question
- Move Question
- Add Note
- Preview Question

| Timing - First Click | Timing-Last Click | Timing-Page Submit | Timing-Click Count |
|----------------------|-------------------|--------------------|--------------------|
| 6.11 | 9.51 | 10.21 | 7 |
| 7.45 | 8.53 | 13.71 | 9 |
| 7.02 | 10.21 | 10.97 | 7 |
| 2.09 | 9.78 | 12.31 | 13 |
| 4.33 | 16.64 | 17.85 | 13 |
| 0.52 | 1.13 | 1.54 | 3 |
| 3.78 | 8.99 | 13.21 | 14 |
| 5.06 | 13.52 | 15.82 | 17 |



Threat of Satisficing

- Satisficing – when respondents devote less-than-optimal effort to answering survey questions (includes acquiescence and social desirability bias, straightlining, and primacy and recency effects)
- Factors that affect satisficing:
 - Task difficulty
 - Respondent ability (low ability respondents more likely to engage in satisficing behavior; Krosnick, 1991)
 - Respondent motivation
- Is often referred to as the “respondent’s problem” but poor survey design can result in more satisficing behaviors



Acquiescence Bias

- Acquiescence bias – respondents tending to agree with suggestions or questions
 - Most common with Likert scales, yes/no, and True/False questions
- **Suggestions** = avoid using generic response scales and use scales that are specific to the subject of the question; try using both positively and negatively worded items; avoid using matrices



Social Desirability Bias

- Social desirability bias – tendency of survey respondents to answer questions in a manner that will be viewed favorably by others
 - Can result in over-reporting good behavior or under-reporting bad or undesirable behavior
- **Suggestions** = avoid using matrices; try using both positively and negatively worded items; begin survey with a confidentiality statement; implement a social desirability scale (i.e. the Marlowe-Crowne Social Desirability Scale, 1960)



Straightlining

- Straightlining – when respondents provide the same answer for a number of survey questions
 - Often a result of respondents not reading the question/statement and just simply clicking/filling in answer choices in a straightline
- **Suggestions** = avoid using matrices; use the timing question; use construct-specific scales; ask one question per page if very concerned (found in the Look & Feel - General tab)



Primacy & Recency Effects

- Primacy effect – tendency for respondents to select options at the beginning of a set of categories
 - Recency effect – tendency for respondents to select options at the end of the scale
- **Suggestions** = Qualtrics allows for response options to be randomized, one way to help with primacy and recency effects; if the response option is a scale, randomizing the order in which the scale is presented can help



Response Option Randomization

The screenshot displays a survey editor interface. At the top, a question is visible: "What is your favorite comedy television show?". Below the question, a settings menu is open, listing various options such as "Add Display Logic...", "Carry Forward Choices...", "Add Skip Logic...", "Add JavaScript...", "Add Default Choices...", "Add Note...", "Scoring...", "Recode Values...", "Randomization..." (highlighted with a red oval), and "Add Choice Group".

The "Choice Randomization" dialog box is open, showing the following options:

- No Randomization
- Randomize the order of all choices
- Present only of total choices
- Advanced Randomization [Set Up Advanced Randomization](#)

At the bottom of the dialog box, there are "Close" and "Save" buttons.



Errors of Observation

- Observation error includes errors arising from
 - 1) Respondents
 - 2) Interviewers
 - 3) Survey/questionnaire
 - 4) Mode of the interview/survey
- Tourangeau's et al. (2013) book *The Science of Web Surveys* details errors of observation for web surveys and how to minimize them



MEASUREMENT ERRORS DUE TO THE QUESTIONNAIRE



The Survey/Questionnaire

- The visual features of web surveys are likely to have more impact on the respondents and their answers than the visual features of traditional paper questionnaires (Tourangeau, Conrad, & Cooper, 2013)
- The survey/questionnaire can be a major source of error if it is poorly designed



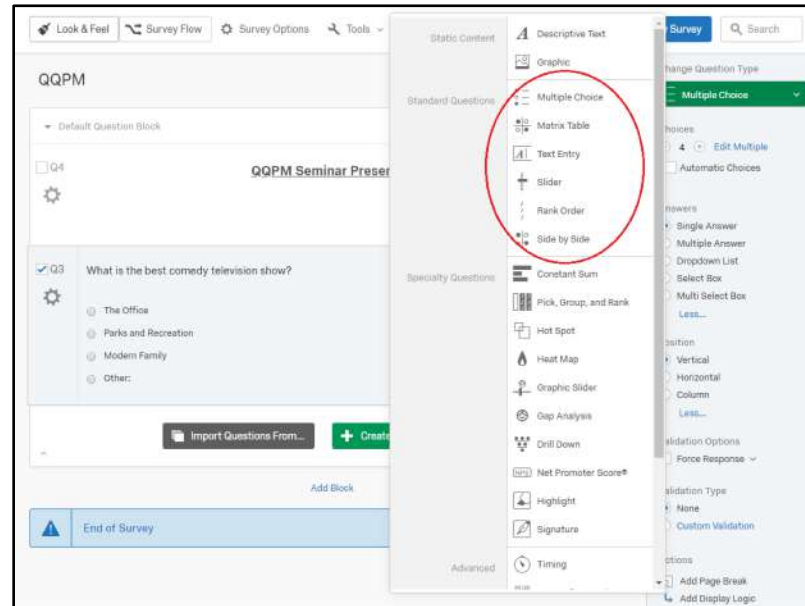
Measurement Errors Due to the Questionnaire

- Specification problems
- Question format and wording
- Question and survey length
- Order of questions
- Response options
 - Neutral categories
 - None of the above or not applicable
 - Mark all that apply vs. Yes/No questions
 - Labeling and scale options
- Look and feel of a survey
 - Background/foreground color
 - Typeface and font size
 - Selective emphasis
 - Page layout and alignment
 - Alignment/spacing of response options
 - Navigation conventions



Question format

- Important to utilize the correct question type for the construct you are trying to measure
- Qualtrics allows for a variety of question types in both open and closed question formats
- ‘Standard’ question types
 - Multiple Choice
 - Matrix Tables
 - Text Entry
 - Slider
 - Rank Order



Multiple Choice Questions

- Single/multiple answer, dropdown list, or select box
- Can edit positioning of response options (vertical or horizontal) and add columns
- Also allows for text entry

QQPM

Survey Actions Distributions Data & Analysis Reports

Look & Feel Survey Flow Survey Options Tools Collaborate

Preview Survey Search

QQPM

Default Question Block Block Options

Q4 QQPM Seminar Presentation

Q3 What is the best comedy television show?

The Office

Parks and Recreation

Modern Family

Other:

Please provide your contact information:

Change Question Type

Multiple Choice

Choices

4 Edit Multiple

Automatic Choices

Answers

Single Answer

Multiple Answer

Dropdown List

Select Box

Multi Select Box

Less...

Position

Vertical

Horizontal

Column

Less...

Q1 What is your favorite comedy television show?

The Office

Parks and Recreation

Modern Family

Other:

Allow Text Entry

Text Entry Size



Matrix Tables

- A grid used to display data in a structured format
- Helpful if you have similar questions with the same response scale, but research has shown using them in web surveys leads to inattentive responding (Dillman, Smyth, & Christian, 2009)



You have unlocked your survey. When you have finished editing, please [lock](#) your survey again.

Matrix Table

Default Question Block Block Options

Q2 ⚙️ 📄 How important are the following elements in an after school program for your child?

| | Very important | Somewhat important | Not that important |
|-------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|
| How important is it that they help your child with their homework? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| How important is it that they tutor your child in specific subjects? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| How important is it that they provide active and engaged learning activities? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| How important is it that your child can be with their friends? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| How important is it that your child have a healthy snack? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| How important is it that your child get physical activity? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| How important is the cost? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q3 ⚙️ How much do you currently pay for after school care?

- Nothing
- Less than \$20 per week
- \$20 - \$29 per week
- \$30 - \$39 per week
- \$40 - \$49 per week
- More than \$50 per week

Page Break

Statements
- 7 +
 Automatic Statements

Scale Points
- 3 +
 Automatic Scale Points

Labels
- 0 +

Matrix Type
 Likert
 Bipolar
[More...](#)

Answers
 Single Answer
 Multiple Answer
 Dropdown List
 Drag and Drop

Options
 Mobile Friendly
 Transpose Table
 Position Text Above
 Repeat Headers
 Add White Space

Validation Options
 Force Response

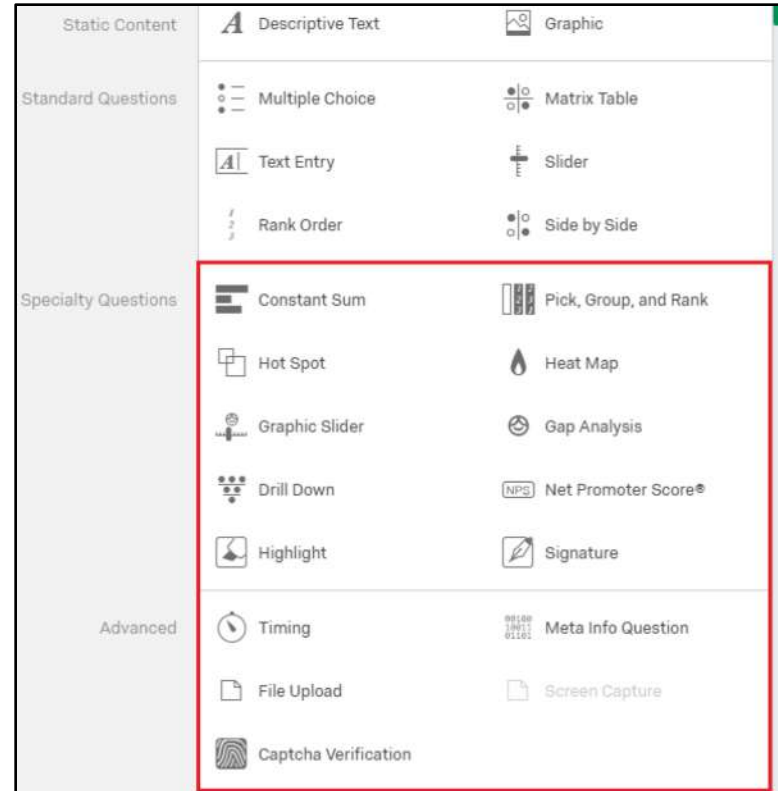
Text Entry

- Single line, multi line, or essay text box; form and password
- Validation (i.e. min/max length, no numbers, only numbers etc.)

The screenshot displays the QQPM (Question and Answer) configuration interface. The main area shows a question titled "QQPM Seminar Presentation" with a gear icon for settings. Below it, a question "Do you anticipate any challenges over the course of the next year?" is shown with a large text entry field. A red circle highlights a small pencil icon in the bottom right corner of this text field. On the right side, a "Change Question Type" dropdown menu is open, showing "Text Entry" as the selected option. Below this, the "Text Type" section includes radio buttons for "Single Line", "Multi Line", "Essay Text Box" (which is selected), "Form", and "Password". The "Validation Options" section has a checkbox for "Force Response". The "Validation Type" section includes radio buttons for "None" (selected), "Minimum Length", "Maximum Length", "Character Range", and "Custom Validation".

Specialty/Advanced Question Types

- Pick, Group, Rank (sorting)
- Drill down
- Signature (helpful for IRB)
- **Timing (hidden to participants)**
- Meta Info (hidden, will capture basic info like operating system and browser)



I won't cover these in detail, but for more information, you can go to: <https://www.qualtrics.com/support/survey-platform/survey-module/editing-questions/question-types-guide/question-types-overview/>

Measurement Errors Due to the Questionnaire

- Specification problems
- Question format and wording
- Question and survey length
- Order of questions
- Response options
 - Neutral categories
 - None of the above or not applicable
 - Mark all that apply vs. Yes/No questions
 - Labeling and scale options
- Look and feel of a survey
 - Background/foreground color
 - Typeface and font size
 - Selective emphasis
 - Page layout and alignment
 - Alignment/spacing of response options
 - Navigation conventions



Question and Survey Length

- The length of the question, as well as the **length of the survey**, can have a profound effect on measurement error
- Several functions in Qualtrics can help with the **survey length**
 - **Skip/display logic** – only displaying questions that are relevant to the respondent
 - **Progress bar** – does not help with the length of the survey, but the choice to include a progress bar or not is very important (found in Look & Feel – general tab)
 - Research has shown that including a progress bar is preferred for short surveys; may be counterproductive for long surveys (Yan, Conrad, Tourangeau, & Couper, 2010)



Order of questions

- The order questions appear on a survey can effect measurement error
 - Context effects - process in which prior questions affect responses to later questions in surveys
 - Where to place demographic information?
 - Research on this is conflicted

→ **Question randomization** in Qualtrics



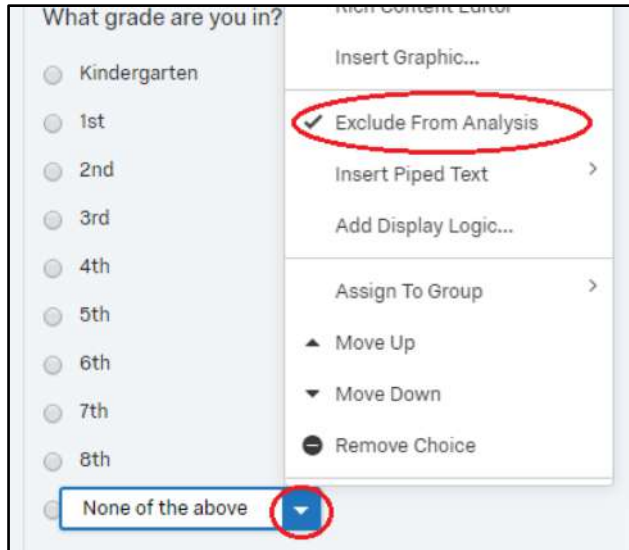
The image shows a screenshot of the Qualtrics interface. On the left, a 'Block Options' dropdown menu is open, listing various actions such as 'View Block...', 'View Block In Survey Flow...', 'Collapse Questions...', 'Lock Block...', 'Question Randomization...', 'Loop &...', 'Next/Pr...', 'Move Bl...', 'Add Blo...', 'Copy Bl...', 'Copy Qu...', and 'Delete Block...'. The 'Question Randomization...' option is circled in red. On the right, a 'Question Randomization' dialog box is displayed. It contains a warning: 'There are timing questions in this block. Enabling Question Randomization may invalidate your timing question results.' Below this, there are three radio button options: 'No Randomization' (selected), 'Randomize the order of all questions', and 'Present only [] of total questions'. There is also an option for 'Advanced Randomization' with a link to 'Set Up Advanced Randomization'. A note at the bottom states: 'Note: Enabling Question Randomization will ignore page breaks, questions per page, skip logic and override question order.' At the bottom right of the dialog box, there are 'Close' and 'Save' buttons.

Response Options

- There are several built-in options in Qualtrics to assist with response options
 - None of the above or not applicable
 - Mark all that apply vs. Yes/No questions
 - Labeling and scale of response options



Response Options: None of the Above or N/A



- None of the above or not applicable
 - Including answer choices like 'None of the above' or 'Not applicable' will automatically trigger an option excluding that answer choice from data exports and reports
 - You can change this setting easily by hitting the blue arrow next to the response option
- Can also add question validation (Are you sure this question is not applicable to you) or text entry (i.e. Please explain:_____)

Response Options: Mark All That Apply vs. Yes/No Questions

- Respondents are instructed to select as many of the response options as are perceived to apply
- Research has shown that ‘Mark all that apply’ questions are less than optimal (Lavrakas, 2008)
 - This question type is sensitive to primacy/recency effects and/or satisficing and burden avoidance (i.e. respondent selects the first few that apply to them and then move on)
 - Often, it is preferred to use a Yes/No response scale for each response option, as it requires participants to mark a response (yes or no) for each option



Response Options: Mark All That Apply vs. Yes/No Questions

- Yes/No format – respondents are asked to evaluate each forced choice response option individually (yes or no) before moving on to the next
 - Research has shown there is a higher average number of response options selected per respondent in forced choice format (Smyth, Dillman, Christian, & Stern, 2006)



Q19

Please select the following comedy TV shows that you enjoy.

- The Office
- Parks and Recreation
- Modern Family
- Arrested Development
- Big Bang Theory
- Friends



Q20

Do you enjoy the following TV shows?

| | Yes | No |
|-----------------------------------------------|-----------------------|-----------------------|
| <input type="checkbox"/> The Office | <input type="radio"/> | <input type="radio"/> |
| <input type="checkbox"/> Parks and Recreation | <input type="radio"/> | <input type="radio"/> |
| <input type="checkbox"/> Modern Family | <input type="radio"/> | <input type="radio"/> |
| <input type="checkbox"/> Arrested Development | <input type="radio"/> | <input type="radio"/> |
| <input type="checkbox"/> Big Bang Theory | <input type="radio"/> | <input type="radio"/> |
| <input type="checkbox"/> Friends | <input type="radio"/> | <input type="radio"/> |

Response Options: Labeling and Scale Options

- Research has shown respondents are often unclear about the meaning of response options and that they often rely on visual cues in deciding what the options mean (Schwarz, 1996)
 - For example, the numbers attached to the response scale (-5 to 5 vs. 0 to 10) affects respondents' answers by shaping their understanding of the scale
 - Additionally, the visual representation of the response options may affect their relative popularity (horizontal vs. vertical, order of the Likert scale, etc.)
 - All of this is customizable in Qualtrics (i.e. can add both a scale *and* labels, can edit the positioning of options)



Measurement Errors due to the Questionnaire

- Specification problems
- Question format and wording
- Question and survey length
- Order of questions
- Response options
 - Neutral categories
 - None of the above or not applicable
 - Mark all that apply vs. Yes/No questions
 - Labeling and scale options
- Look and feel of a survey
 - Background/foreground color
 - Typeface and font size
 - Selective emphasis
 - Page layout and alignment
 - Alignment/spacing of response options
 - Navigation conventions



Look and Feel

- The look and feel of a survey can affect its measurement error
 - **Choice of background/foreground** – affects legibility and readability (use plain color backgrounds or extremely subtle background patterns)
 - **Typeface and font size** – another design issue that may affect readability of the survey and the quality of responses
 - **Selective emphasis** – can use bold, underline, capitalization, color, etc. (help with survey design and navigation)
 - **Page layout and alignment** – headers serve as branding or orienting function, directions, reminders for survey elements, links for additional info



Look & Feel in Qualtrics

The screenshot shows the Qualtrics Look & Feel editor interface. At the top, there is a navigation bar with tabs for 'Survey', 'Actions', 'Distributions', 'Data & Analysis', and 'Reports'. Below this, a secondary navigation bar includes 'Look & Feel' (highlighted with a red circle), 'Survey Flow', 'Survey Options', 'Tools', and 'Collaborate'. A 'Preview Survey' button is visible on the right. The main content area is titled 'QQPM' and shows a 'Default Question Block' with the text 'QQPM Seminar Presentation'. Below this, there are two questions: 'Q1: What is your favorite comedy television show?' and 'Q2: Why is Parks and Recreation your favorite TV show?'. The right sidebar contains settings for 'Text Entry', including 'Text Type' (Single Line, Multi Line, Essay Text Box, Form, Password) and 'Validation Options' (Force Response, Validation Type: None, Minimum Length, Maximum Length, Character Range, Custom Validation).

- Theme
- Layout
- General
- Style
- Motion
- Logo
- Background



Look & Feel in Qualtrics

- Theme
 - 1 preset UNL theme
 - Option to have a blank design and customize it yourself
 - Layout
 - Flat, modern, and classic
- Shows preview of survey on desktop and tablet



A screenshot of the Qualtrics 'Look and Feel' configuration interface. The interface is divided into several sections. On the left is a navigation menu with categories: Theme (UNL Education), Layout, General, Style, Motion, Logo, and Background. Below the menu are buttons for 'Restore Defaults', 'Provide feedback', and 'Need help?'. The main area is titled 'Look and Feel' and contains three theme preview cards: 'Flat', 'Modern', and 'Classic'. Each card shows a sample question: 'Overall, how satisfied are you with this product?' with radio button options for 'Extremely satisfied', 'Neither satisfied nor dissatisfied', and 'Extremely dissatisfied'. The 'Flat' card has a blue checkmark. The 'Modern' card has 'None' selected in a dropdown. The 'Classic' card has 'None' selected in a dropdown. On the right side of the interface, there is a preview of the survey in a desktop view. A red circle highlights a toggle switch in the top right corner of the preview area, which allows switching between desktop and tablet views. A red arrow points from the 'Shows preview of survey on desktop and tablet' text to this toggle switch. The top right of the interface shows a dropdown menu for 'Sample Survey'.

Look & Feel – General

- Next & Previous button text
- Progress bar
- Questions per page
- Header & Footer



Look and Feel

| | |
|----------------------------------|---------------------------------------------------------------|
| | General |
| Theme UNL Education | Next Button Text <input type="text" value=">>"/> |
| Layout | Previous Button Text <input type="text" value="<<"/> |
| General | Progress Bar <input type="text" value="None"/> |
| Style | Progress Bar Position <input type="text" value="Top"/> |
| Motion | Questions Per Page <input type="text"/> |
| Logo | Header <input type="text"/> |
| Background | Footer <input type="text"/> |
| Restore Defaults | edit |
| Provide feedback | edit |
| Need help? | edit |

Look & Feel – Style

- Change font style and color for the entire survey
- Ability to add custom CSS for fancier features and personalization (need programming knowledge of CSS)
- Add page transitions and auto focus of the questions
- Add logos and change the background (color or photo)





Click to write the question text

Click to write Choice 1

Click to write Choice 2

Click to write Choice 3

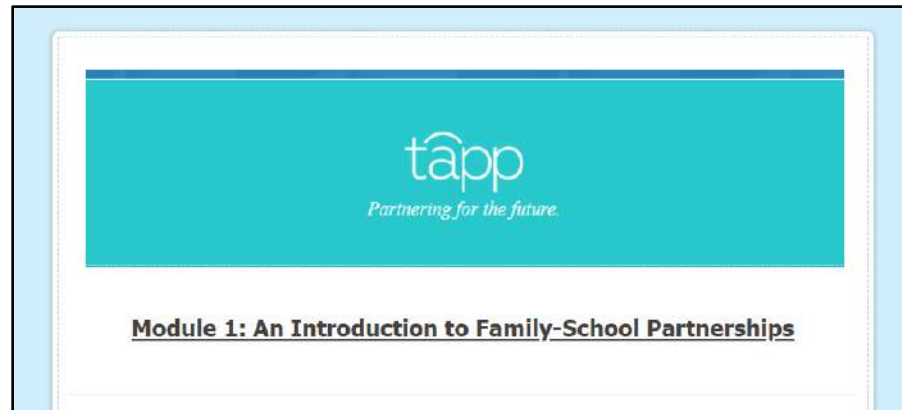


Nebraska Center for Research on Children, Youth, Families and Schools
College of Education and Human Sciences

218 Mabel Lee Hall
Lincoln, NE 68503-0225

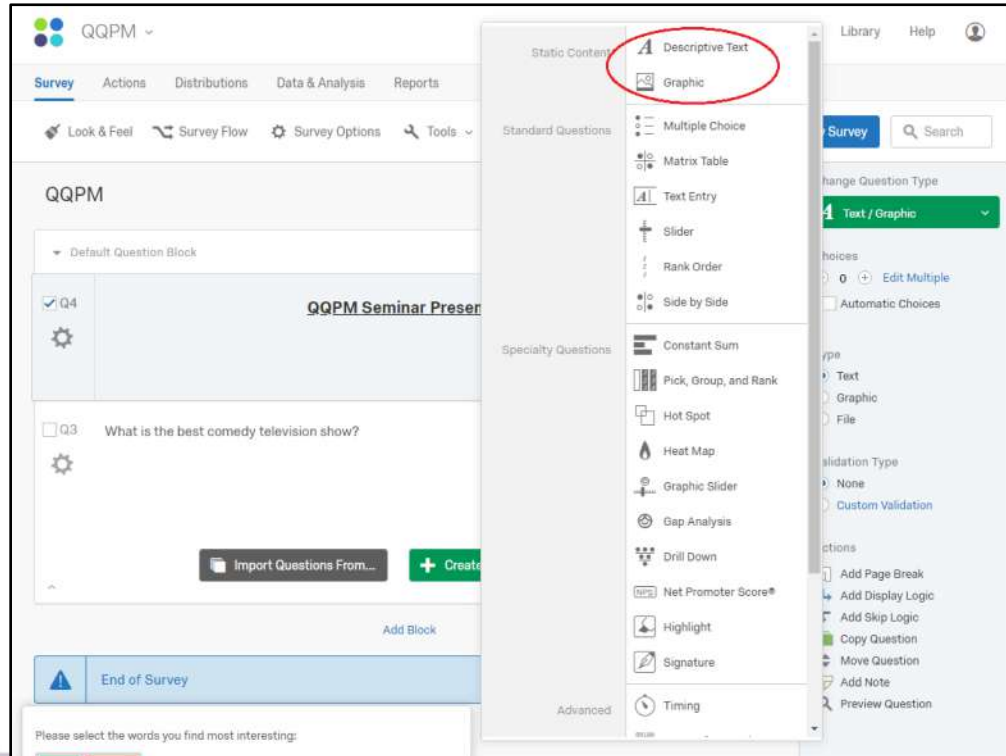
NSG Przem S. Paul Research Center at Whitlair School
Lincoln, NE 68503-0958

cyfs.unl.edu



Look & Feel - Static Content

- Descriptive text and graphics can be used to help provide selective emphasis, assist with page layout, or help navigate the survey
- You can also edit the text/color, format, and add graphics using the **rich content editor**

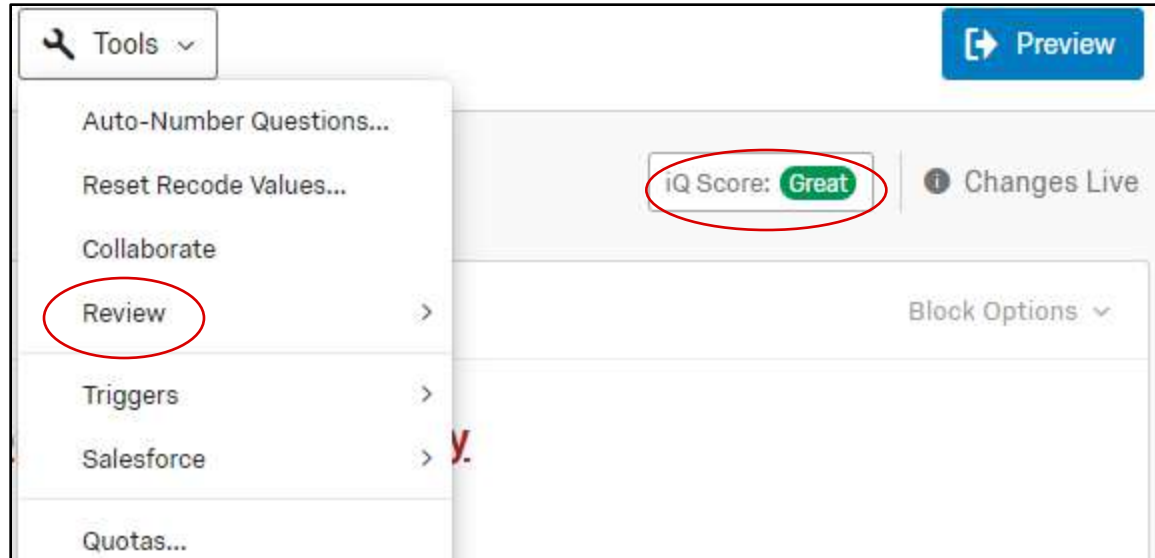


Look & Feel - Editing Descriptive Text

The screenshot displays the QQP (Quality Questionnaire Platform) interface. The main window is titled 'Look & Feel' and shows a survey question titled 'QQPM Seminar Presentation'. The question is currently in the 'Rich Content Editor' mode, which is highlighted with a red circle. The editor toolbar includes options for 'Rich Content Editor...', 'Piped Text...', 'Remove Formatting', 'HTML View', and 'Normal View'. The text 'QQPM Seminar Presentation' is displayed in the editor. A red circle highlights the 'Rich Content Editor...' button. An inset window shows the rich content editor toolbar with a color palette highlighted by a red circle. The color palette is titled 'Automatic' and contains a grid of color swatches. The text 'QQPM Seminar Pr' is visible in the editor window.

Survey Review

- The final helpful thing that Qualtrics provides is a **Survey Review: iQ Score** (a relatively new function)
 - Found in the tools tab, or just below the survey preview button



Survey Review

Can help with:

- Grammar
- Question wording
- Navigation
- Display logic
- Minimal use of matrix tables
- Optimized for mobile, etc.



ExpertReview

POWERED BY IQ

We found **2** ways to improve your survey.

Great
OVERALL SCORE

Severe **1**

Moderate **1**

Minor **0**

Suggestion **0**

Passed **10**

5 QUESTIONS

Questions Contain Grammatical Conjunctions **Methodology** **Severe**

Grammatical conjunctions like "and" or "or" in a question can result in questions that are double-barreled, meaning they ask more than one question but only allow a single answer. We've detected a potential double-barreled question that could invalidate the responses. Instead of combining two questions using "and" or "or," we recommend asking two separate questions.

[Learn More](#)

> Questions (5)

6 TEXT BOXES
GOAL 3

Number of Text Entry Boxes **Methodology** **Moderate**

Writing text takes a comparatively large amount of mental energy for respondents. Once a survey has more than 3 open-text boxes we find that on average completion rates begin to decline and respondents start writing a lot less text in their responses. You may want to make sure that you need this many open-text response questions in your survey before fielding it.

[Learn More](#)

Summary & Conclusion

- Qualtrics is a powerful software for collecting and analyzing data that can help minimize *some* forms of errors in surveys, including non-response errors and errors of measurement (e.g., errors due to the respondents and errors due to the survey instrument)
- As with all research, it is important to understand the goals of the research/evaluation project
- Making the correct design decisions requires:
 - Simultaneously considering quality and cost factors
 - Choosing the combination of design features and parameters that minimizes the TSE within all the specified constraints



Helpful Qualtrics Resources

Support links:

<https://www.qualtrics.com/support/>

<https://www.qualtrics.com/support/survey-platform/getting-started/survey-platform-overview/>

<https://www.qualtrics.com/support/survey-platform/faqs/survey/>

<https://www.qualtrics.com/ebooks-guides/qualtrics-handbook-of-question-design/>

<https://www.ndsu.edu/gdc/wp-content/pdf/qualtrics-step-by-step-manual.pdf>



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THANK YOU!

QUESTIONS?



Other Helpful Qualtrics Information



Question Options

- Page breaks
 - Preset between blocks
- Moving/Copying questions

The screenshot displays a survey editor interface. The main area shows a question block titled "QQPM Seminar Presentation" with a question ID of Q4. Below it, a question ID of Q6 is shown with the text "What is your favorite comedy television show?" and several radio button options: "The Office", "Parks and Recreation", "Modern Family", and "Other: [text input]". A red box highlights a "Page Break" option between the question blocks. Below the question blocks, there are buttons for "Import Questions From..." and "Create a New Question". At the bottom, there is an "Add Block" button and a blue bar with "End of Survey" and "Survey Termination Options...".

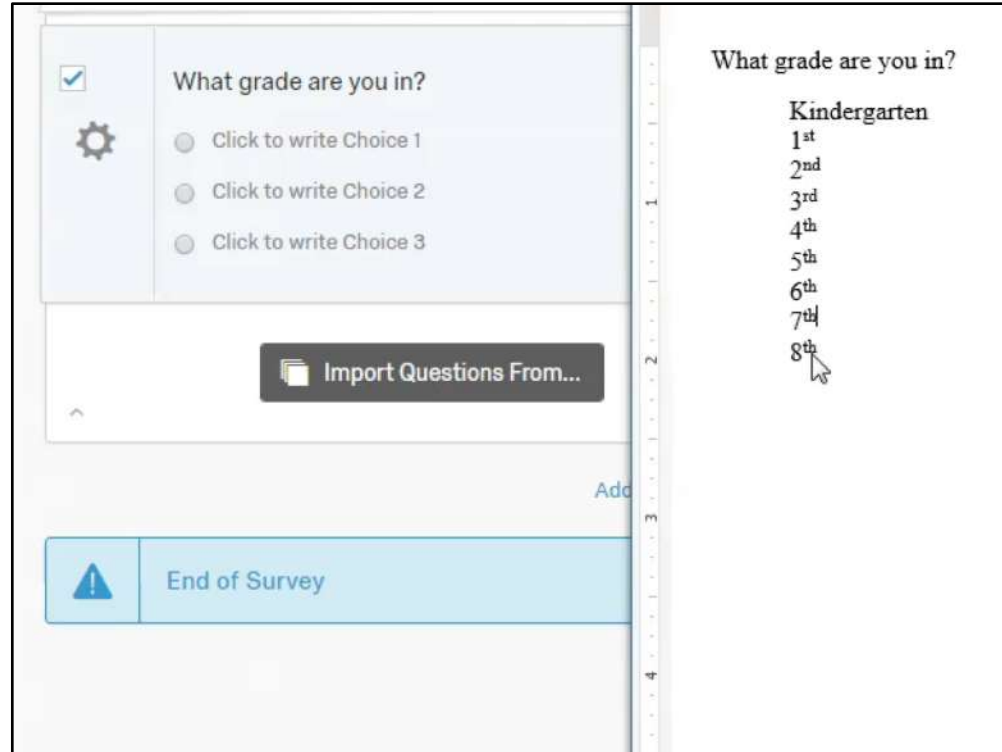
The right sidebar contains several sections:

- Choices:** 4 (Edit Multiple), Automatic Choices (unchecked)
- Answers:** Single Answer (selected), Multiple Answer, More...
- Position:** Vertical (selected), Horizontal, More...
- Validation Options:** Request Response (checked)
- Validation Type:** None (selected), Custom Validation
- Actions:** Add Page Break (circled in red), Add Display Logic, Add Skip Logic, Copy Question (circled in red), Move Question, Add Note, Preview Question



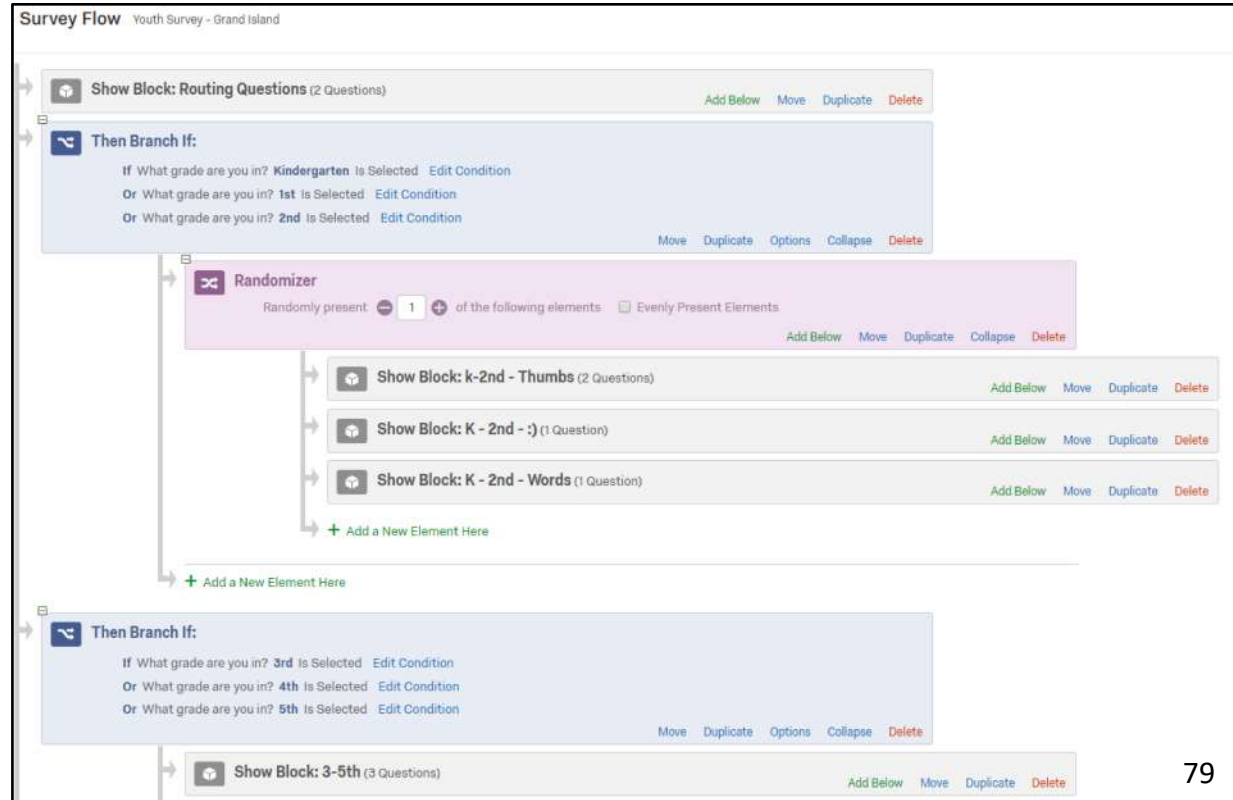
Helpful tips for Questions

- You can import questions from a Word or Excel document – but the documents have to be in a specific format
- Qualtrics makes it very easy to copy/paste (especially if there is no formatting)



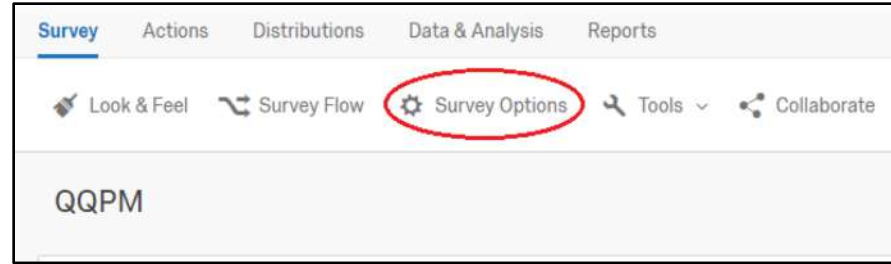
Survey Flow

- A 'block-level' view of your survey
- Customize what respondents see in the survey
- Can add branching, randomizing, embedded data



Survey Options

- Survey Experience
 - Save & continue
 - Back button
- Survey Protection
 - Password to enter survey, preventing people from taking survey more than once
- Survey Termination



Survey Options

Survey Experience

- Back Button.** Enable respondents to change their responses.
- Save and Continue.** Allow respondents to save and continue later.
- Show Question Numbers.** Great for previews. For participants, try a [Progress Bar](#) instead.
- Use Custom Survey Validation Messages...**

Survey Language: The language the survey is written in.

Survey Title: This text will appear in the browser as the window or tab title.

Meta Description: Search engines and social media services use this description.

Survey Protection

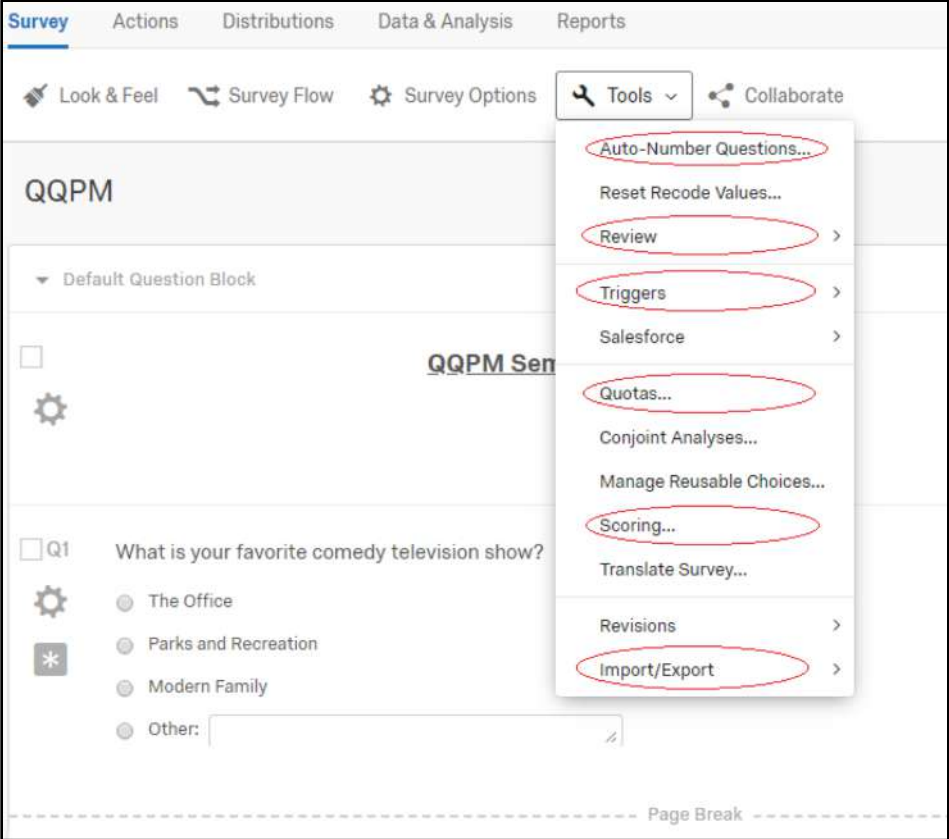
- Open Access.** Allow anyone to take this survey.
- By Invitation Only.** Prevent people from taking the survey using an anonymous survey link.

- Password Protection.** This password must be entered to take this survey:
- Prevent Ballot Box Stuffing.** Keep people from taking this survey more than once.
- HTTP Referer Verification.** The user must come from this URL to take the survey:
- Prevent Indexing.** A tag will be added to the survey to prevent search engines from indexing it.
- Secure Participants' Files.** Files uploaded as responses can only be viewed by users with permission to view responses.
- Survey Expiration.** The survey will only be available for a specified date range.



Tools

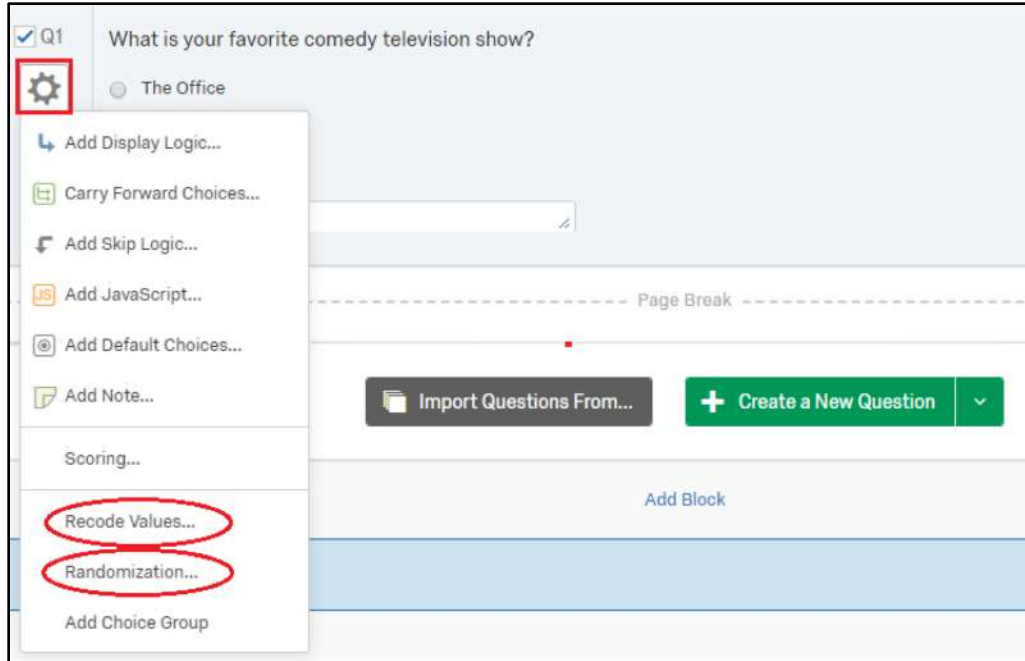
- Auto-number questions
- Review (spell check)
- Triggers (email, contact list etc.)
- Quotas
- Scoring
- Import/Export



The screenshot displays a survey tool interface with a top navigation bar containing 'Survey', 'Actions', 'Distributions', 'Data & Analysis', and 'Reports'. Below this is a secondary bar with 'Look & Feel', 'Survey Flow', 'Survey Options', 'Tools', and 'Collaborate'. The 'Tools' dropdown menu is open, listing several options: 'Auto-Number Questions...', 'Reset Recode Values...', 'Review', 'Triggers', 'Salesforce', 'Quotas...', 'Conjoint Analyses...', 'Manage Reusable Choices...', 'Scoring...', 'Translate Survey...', 'Revisions', and 'Import/Export'. The background shows a survey question titled 'What is your favorite comedy television show?' with radio button options: 'The Office', 'Parks and Recreation', 'Modern Family', and 'Other:'. A 'Page Break' indicator is visible at the bottom of the survey content area.



Other options



The screenshot shows a question editor interface. At the top, there is a question titled "What is your favorite comedy television show?" with a radio button selected for "The Office". A gear icon in the top left corner is highlighted with a red box, and a dropdown menu is open below it. The menu contains several options: "Add Display Logic...", "Carry Forward Choices...", "Add Skip Logic...", "Add JavaScript...", "Add Default Choices...", "Add Note...", "Scoring...", "Recode Values..." (circled in red), "Randomization..." (circled in red), and "Add Choice Group". Below the menu, there are buttons for "Import Questions From..." and "Create a New Question" (with a dropdown arrow). A dashed line labeled "Page Break" is visible in the background. At the bottom of the editor, there is a blue bar with the text "Add Block".

- Add javascript
- Recoding values*
- Randomization (randomly orders answer choices to respondents, or present an x number of total choices)



Recoding Values

- Very important when exporting data (to reduce errors of processing)
- Helpful to think about what you want your exported data to look like (for analysis)
- Default coding is 1 for the first option, 2 for the 2nd option and so on

Recode Values

Recode Values Variable Naming

| | | |
|----|---------|---------|
| 1 | Yes | Yes |
| 0 | Neutral | Neutral |
| -1 | No | No |

Data & Analysis Tab

- Some 'Analysis' in Qualtrics
 - Crosstabs, Weighting, Text analysis
- Can add filters for the data (M/F, those who answered yes to a question etc.)

4-H Common Measure

Projects Contacts Library Help

Survey Actions Distributions **Data & Analysis** Reports

Data Text Cross Tabs Weighting

Add Filter

Recorded Responses 368
Responses in Progress 0

With Selected Page 8 of 19 Export & Import Edit Tools

| | Recorded Date | C23 - Tell us about your favorite community service project. | D11 - Why are you involved in 4-H? | Consent - 4-H Pilot Youth Assent Information Thank you for your interest in par... | PIUN1 - How many years of 4-H have you completed? | PIUN2 - Is 4-H a place where the adults care about you? | PIUN3n - Is 4-H a place where you feel left out? | Actions |
|--------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------|--------------------------------------------------|---------|
| <input type="checkbox"/> | Nov 27, 2016 5:06 PM | My favorite community service project is simply volunteering at local soup kitchens. It's a great time for friends to get together and give | I love my community. | Yes, I accept these conditions | 5 or more years | Yes | No | |

Exporting Data


- Export in CSV, TSV, XML, or SPSS formats
 - CSV export creates 3 header columns and several unnecessary fields
 - SPSS = easy, clean export
- Can choose which variables/fields to download



Download Data Table

[Use Legacy Exporter](#)

CSV TSV XML SPSS User Submitted Files

 Comma separated values

This is a .csv file that can be imported into other programs. Each value in the response is separated by a comma and each response is separated by a newline character. If your responses contain special characters and you will open this export in Microsoft Excel we recommend using the TSV export. Qualtrics CSV exports use UTF-8 encoding, which Excel will not open correctly by default. [Learn More](#)

Download all fields

Use numeric values
 Use choice text

Compress data as .zip file
 Use commas for decimals
 Remove line breaks
 Recode seen but unanswered questions as -99
 Export viewing order data for randomized surveys
 Split multi-value fields into columns
 Use internal IDs in header

[Fewer Options](#) [Close](#) [Download](#)

Reports Tab

4-H Common Measure

Projects Contacts Library Help

Survey Actions Distributions Data & Analysis **Reports**

Results Reports

Report: **Default Report** Add Filter

Share Report

- PDF Document
- Word Document
- PowerPoint Slides
- CSV (Comma Separated)
- Export Raw Data
- Download Previous Exports...
- Manage Public Report...
- Schedule Report Email...

Add Report Breakout

Search Questions

+ Create Custom Page

PIUN1 - How many years of 4-H have you completed?

PIUN2 - Is 4-H a place where the adults care about you?

PIUN3n - Is 4-H a place where you feel left out?

PIUN4 - Is 4-H a place where others like you?

PIUN5 - Is 4-H a place where you feel safe?

PIUN6 - Is 4-H a place where you get to figure things out for yourself?

PIUN1 - How many years of 4-H have you completed?

| Category | Count |
|------------------|-------|
| Less than 1 year | ~5 |
| 1 year | ~5 |
| 2 year | ~5 |
| 3 years | ~5 |
| 4 years | ~5 |
| 5 or more years | ~165 |
| I'm not in 4-H | ~5 |



Reports - Visuals

- Several visual options for data
 - Bar charts, stat tables, pie charts, breakdown bar etc.
- Can filter out responses, hide certain questions
- Can set to automate reports (each week, month)
- Export in PDF, Word, Powerpoint, CSV

