Disclosures

- The speaker has no relevant or commercial interest in any material presented in this lecture.
- This speaker is being support by Virtua.

Purposes

- To provide useful strategies to craft “great” questions for surveys.
- To foster awareness of current evidenced-based strategies to best illicit and maximize survey response rates using the Tailored Design Method.
SERVING UP SURVEYS: MAXIMIZE YOUR RESPONSE RATES

Association for Nursing Professional Development
2017 Annual Convention ~ New Orleans, LA

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Director of Continuing Education
Center for Learning - Virtua

Crafting great questions

On-line survey development

CRAFTING GREAT QUESTIONS

Part I
Chapter I
- Background
- Statement of the problem
- Purpose of the study
- Research Question
- Hypothesis
- Definition of terms
- Conceptual models
- Assumptions of study
- Significance of the study

Chapter II
- Review of literature

Chapter III
- Methodology
- Research design
- Sample and setting
- Instrumentation
- Protection of the rights of human subjects
- Data collection procedures
- Data analysis
- Delimitations

Survey response rates
- Online response rates can range from 20 to 47%

Sample size
- Minimum number of subjects
- Compute a priori power of analysis
  - Level of significance (.05)
  - Power (.80)
  - Effect size (.13)
Outcomes of statistical decision making

The researcher calculates a test statistic and decides that the null hypothesis is:

<table>
<thead>
<tr>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null accepted</td>
<td>Null rejected</td>
</tr>
<tr>
<td>Correct Decision</td>
<td>Type I error</td>
</tr>
<tr>
<td>Type II error</td>
<td>Correct decision</td>
</tr>
</tbody>
</table>

(The actual situation is that the null hypothesis is:)

(Polit & Beck, 2018)

Levels of measurement

Nominal

- Involves using numbers simply to categorize lists; no quantitative meaning
- Example: Gender
  - Male = 1, female = 2
  - Mode or median

Ordinal

- Ranks people on attributes
- Example: ADIs
  - Completely dependent = 1, Needs assistance = 2, Needs mechanical assistance = 3, and Completely independent = 4
  - Mode, median, mean, SD

Interval

- Occurs when researchers can rank people on attributes and specify distance between them (no absolute zero)
- Example: Temperatures
  - The difference between a temperature of 140 and 120 is equivalent to the difference between 120 and 100.
  - Mode, median, mean, and SD

Ratio

- Have a meaningful zero and provide information about the absolute magnitude of the attribute
- Example: Height and weight; time
  - Someone who weighs 200 pounds is twice as heavy as someone who weighs 100 pounds.
  - Mode, median, mean, SD, and coefficients of variations
Nominal questions

- What is your marital status?
  - Divorced
  - Married
  - Never married
  - Partnered
  - Separated
  - Widowed

Ordinal questions (scales)

- How likely are you to register for the 2018 ANPD Conference?
  - Very likely
  - Likely
  - Not very likely
  - Unlikely

<table>
<thead>
<tr>
<th>Unlikely</th>
<th>Not very likely</th>
<th>Likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Interval questions

- Do you think that all nurses who meet the requirements for certification should be encouraged to test when eligible?

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>


Ratio questions

➢ What was your weight range when you graduated from nursing school?

<table>
<thead>
<tr>
<th>Weight Range</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 to 125 lbs.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>126 to 150 lbs.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>151 to 200 lbs.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>201 to 250 lbs.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>251 to 300 lbs.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Crafting the great questions

➢ Three essentials:
  ▪ Willing to answer
  ▪ Respond to accurately
  ▪ Interpret in the way the researcher intends

First...write research question

➢ Concepts will flow from here
  ▪ Break it down
    ▪ Domains
      ▪ Subdomains

Qualitative vs. quantitative
Valid questions

- Skipped questions
- Erroneously answered
- Skewed results – unreliable responses

How to “Ace“ survey creations

- The survey must:
  - Be easy to read & understandable
  - Instructions are present
  - All possible responses are present
  - Limit personal information requested
  - Avoid/limit behaviors that are embarrassing or threatening
  - No double- or tripled barreled questions
  - Questions are technically accurate
  - Use simple and familiar words

The anatomy of the survey question

- Question stem
- Additional instructions, definition, or examples
  - “Select only one”
  - “Please round to the nearest whole number”
- Each question has spaces of choices
- Answer choices limit the available possibilities from which respondents can choose
  - “Very satisfied, somewhat satisfied, etc..."
Open-ended questions
- Allows the respondents to formulate their answers how they want
- Involves a blank space or box
- Used to collect rich, detailed information
- Numerical values
- Example:
  - Describe the time when you encountered your first patient death?

Open-ended questions
- More likely to skip
  - Mobile device
- If answered, only short response or response that doesn’t answer the question
- Code then analyze then interpret

Writing open-ended questions
- Descriptive
- Specify the type of response desired in the question stem
- Example:
  - In an average week, how many times are you assigned to Charge Nurse?
  - Some possible responses may be:
    - “Most of the time”
    - “Rarely”
    - “Mondays, Wednesdays, and Fridays”
  - In an average week, how many days are you assigned to Charge Nurse?
Avoid making respondents calculate sums

- Times, percentages that must sum a total, provide an automatic calculation tool
- Example: What percentage of time do you spend on the tasks during a typical 12 hour work day?

<table>
<thead>
<tr>
<th>Task</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>25%</td>
</tr>
<tr>
<td>Breaks</td>
<td>10%</td>
</tr>
<tr>
<td>Documentation</td>
<td>20%</td>
</tr>
<tr>
<td>Medication admin</td>
<td>20%</td>
</tr>
<tr>
<td>Rounding</td>
<td>10%</td>
</tr>
<tr>
<td>Washing hands</td>
<td>25%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>60%</strong></td>
</tr>
</tbody>
</table>

Nondirective probes

Q 1: What continuing education topics would you like to see offered next year?
Probe: Are there any others?

1) Non-directive or neutral
2) Type strongly impacts amount and type of information received
   - Are there any others vs. tell me more about that?

Close-ended questions

- List of categories to choose from
- Include both side choices
- Include all reasonable possible answers
  - “Don’t know”
  - “No opinion”
  - “Undecided”
  - Are they the most accurate or the easiest way out?
    - Consider whether or not these options should be provided for each question.
      - There is support for both sides.
Close-ended questions

- Mutually exclusive
  - No overlaps
  - Example: What was your average household income for 2016?

<table>
<thead>
<tr>
<th>Less than $10,000</th>
<th>Less than $20,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000 to $19,999</td>
<td>$20,000 to $29,999</td>
</tr>
<tr>
<td>$20,000 to $29,999</td>
<td></td>
</tr>
</tbody>
</table>

- Visual analog scale (slider scale)
  - Example: Overall, indicate how much pain are you experiencing at the present time?

- Ordinal scales presented either vertically or horizontally
  - Example: Which attribute is the most important when selecting new employment?

<table>
<thead>
<tr>
<th>D: Continuing education opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse: Patient ratios</td>
</tr>
<tr>
<td>Salary</td>
</tr>
<tr>
<td>Tuition reimbursement</td>
</tr>
</tbody>
</table>

Partially closed-ended question

- Hybrid of an open- and closed-ended question that includes an “other” response
- Example: Which area best describes your specialty area?
  - Behavioral Health
  - Critical Care (ICU or PCU)
  - Emergency Department
  - Home Care
  - Mother-Baby
  - Long Term Care
  - Pediatrics
  - Surgical Services
  - Other:
Close-ended questions

- Drop-down menu
  - Cannot view answers unless you click on the menu

- Example: Which option best describes your travel arrangements for attending ANPD 2017?
  - Click here

Consider using “logic”

Better

- Do you hold a national specialty certification?
  - Yes
    - (Here is the logic, if yes then go to question #__)
  - No
    - What preparation strategies did you use before taking your national certification exam? (Select all that apply)
      - Certification review course
      - No formal or informal strategies
      - Self study
      - Study partners
    - Advance to the next questions
Limit wording

- Due to the fact…………………………Because
- At this point in time………………………Now
- A small number of…………………………A few
- A considerable number of………………Many
- Small in size…………………………Small
- As the ability…………………………Can
- Ascertain the location of………………Locate
- Concerning the matter of………………If
- Make a decision…………………………Decide

Dillman, Smyth, Christian, 2014, p. 121

Yes and no questions

- Make sure “yes” means yes and “no” means no
- Avoid double negatives
- Example:
  - Should nurse directors NOT take patient-care assignments?“
    - Yes
    - No
      - Do you favor or oppose allowing nurse directors to take patient-care assignments?
        - Favor
        - Oppose

Only ask questions that you intend to change

- Avoid asking questions that you do NOT plan on acting upon
- When things are NOT changed, may be interpreted as you are not listening
  - Example:
    - Was the temperature satisfactory during your participation at the conference?
      - Yes
      - No
Avoid questions you already know the answer

- Avoid damaging the relationship with asking these types possible demographic questions
- Example:
  - What is your name?
  - Email address?
  - Etc...

Order question

- Group related questions that cover similar topics together
- Begin with questions likely to be salient to nearly all respondents and choose the first question carefully
- Place sensitive or potentially objectionable questions near the end of the questionnaire
- Ask questions about events in the order the events occurred
- Avoid unintended question order effects

Conduct a small pilot
ONLINE SURVEY DEVELOPMENT

Part II

Types of surveys

- Telephone questionnaires
- Mail questionnaires
- **Web questionnaires**
- Mixed-mode questionnaires

Web Questionnaires

- **Benefits**
  - Speed
  - Low cost
  - Large number of people

- **Barriers**
  - Mobile devices – smaller screens
  - Scan e-mails on phone – f/o later
Considerations

- Specific URL allows access (Identification code)
  - https://www.surveymonkey.com/r/ANPD2017

- QR codes (quick response code) – matrix barcode that can be scanned
  - http://www.qrstuff.com/

Evaluate the technological capabilities of the survey population

- Unfamiliarity with completing web surveys
- Lower education
- Slow speed of internet connection
- Require more instruction or even another mode of response
Survey display

- **Challenges**
  - Wide variation in how respondents might experience any given web survey
  - Multiple devices – varying screen size & range of memory
  - Constant release of updates & new plug ins
  - Personal customization of settings

Number of questions & arrangement

- **One question per page**
  - Responses saved each time “next”
  - Gives more control
  - Submitted responses are stored on server
    - Chose not to complete
    - Allows for more interactive capabilities
    - Branching to f/o questions

  *Most common format for web surveys*

Number of questions & arrangement

- **All questions on one page**
  - Approximates a paper survey
  - Can preview the entire questionnaire before answering
  - More informed decision about completing
  - Limitations
    - Scrolling may miss a question or sets of questions
    - Difficult to view on mobile device
    - Not submitted until end – potential to lose data
Number of questions & arrangement

- Multiple questions on one page
  - Used to group related questions
  - Used for questions that use a common scale format
  - Mobil devices – limit to three questions per page
  - Benefits
    - Reduces # of pages to scroll
    - Higher correlation among answers across the question

Do not include a graphical progress bar

Allow respondents to stop and complete at later time
GUIDELINES FOR WEB AND MOBILE SURVEY IMPLEMENTATION

- Establishes a connection between the surveyor and the participant
- E-mails difficult to personalize
  - Mass produced
- Appearance of name in subject line – Possible spam
- Write it for a business acquaintance
  - Legitimate and appropriate
- Bystander effect
  - Email address in their “To” field
    - Flagged as spam

Collect Paradata

Collected on each respondent for each question:
- How long it takes to answer each question
- Whether or how answers are changed
- Sequence of clicks made on each page
Incentives (↑ response rate by 4.2%)

- Options
  - Electronic gift certificates
  - Gift certificates
  - Money through PayPal

- Limitations
  - Redeeming incentives
  - Charges with PayPal
  - Time, effort, & knowledge
  - Additional costs
  - Lottery or prize drawing (not as effective as traditional cash or material incentives)
    - Receive immediately following completion – improved

- Cash incentive – most effective at increasing response rates in all survey modes

- Participants: College students
  - Increasing Apple iTunes from 2 songs to 4 songs (57% completed the survey)

Use of incentives

- Are incentives appropriate for your study?

- Can incentives exert undue influence on study participants?

Use multiple contacts and vary the message across them

- One of the most effective ways to increase response rates is to send multiple contacts to potential web participants

- Sequence
  - Initial e-mail invitation
  - Pre-notice (rarely used)
  - Follow-up e-mails

- Consideration
  - Answer: What have been your gains with f/o e-mails?
  - Your answer to this question should suggest 2nd, 3rd etc.
  - Irritate sample members
Use multiple contacts and vary the message across them

➢ Content should parallel other modes
  ▪ Original e-mail
    ▪ Clearly state what is being asked of respondents
    ▪ Why they were selected
    ▪ What the survey is about
    ▪ Who is conducting it
    ▪ How sample members can contact someone to get any questions answered
    ▪ Statement that data will be kept confidential
    ▪ Information how to access the survey (including a URL link)

Carefully & strategically time all contacts with the population in mind

➢ 1st e-mail reminder
  ▪ Explain that a survey invitation was sent
  ▪ Thank those who have responded
  ▪ Ask those to respond who have not done so yet
➢ Additional follow-up e-mails should be personalized
  ▪ “We’ve not heard from you”
  ▪ Emphasize the importance of the recipient’s response
  ▪ Important to remove those who have already responded

Example of initial e-mail (continued)

By answering some questions, you will provide me with the necessary data to complete my study. I sincerely hope that you will enjoy participating in this study, by allowing me to understand your own self-care behaviors and positive and negative aspects of caring. If you agree to participate in my study, please type in the specific URL link into your web browser, enter the access code that has been provided in this e-mail, and then you may begin your survey.

Following the completion of this study, my plan is to publish the results in the Oncology Nursing Forum Journal and to share this new knowledge amongst my fellow oncology nurses.

If you have any questions, I have included all of my contact information. Please do not hesitate to contact me.

Sincerely,

Contact information

Time all contacts with the population in mind

- Timing is important to the overall effect
  - Give adequate time to respond before reminders arrive
  - Waiting to send reminders gives surveyor opportunities to address problems
  - Do not allow so much time to pass that initial requests are forgotten
- Optimal timing sequence varies (goals, needs, and population)
- Avoid rapid-fire sequencing e-mails
- Time of day – on Monday, early in am before day starts

Keep e-mail contacts short and to the point

- Goal: short and engaging
- Mobile devices – 1st few lines
  - Highlight key information
    - Sponsor
    - Topic
    - Any incentive
    - Link to survey
  - Some of the key information can be part of the sender address or subject line
- Important to include the survey link as early in e-mail as possible
- Consider shortening the URL to reduce space on the screen

Take steps to ensure that e-mails are not flagged as spam

- “junk” or “bulk”
- Spam – unsolicited bulk messages for which there is no preexisting relationship between the sender and recipient
- Spam poses potential problems for surveyors
  - E-mail contacts being labeled as spam
- Possible resolutions:
Take steps to ensure that e-mails are not flagged as spam (continued)

Possible resolutions:
- Talk to Internet service provider or survey vendor
  - Internet protocol (IP) address surveyor will be sending from is not already flagged as spam
  - Use plain text communications rather than HTML messages
  - Send individual e-mails rather than bulk
  - Do not use “CC” or “BCC” fields
  - Avoid words such as offer, free, cash, win, promo, prize, and so on.
- Time sensitive – quickly out of date – research spam filters close to the time of doing your surveys

Each sample member has a unique ID #

- This is automatic
- Researcher can provide unique access code required in order to enter the web survey
- Protects the integrity of the sample
- Ensures each respondents answers survey only once
  - The access code can be deactivated after respondent submits the completed survey

Other considerations:
- Not completing survey in one sitting
  - Do not deactivate
  - Allow them to reenter survey where they stopped
  - After responses are submitted, then deactivate their access code
- Manual vs. automatic log in
  - Manual log in:
    - Respondents are sent the URL
    - They key in their access code to gain entrance into survey
  - Automatic log in
    - The unique access code is contained within the URL so entering the URL into their browser will gain them access to survey
- Limitations
  - Exceed capabilities of the web server(s)
    - Bog down/crash

- Recommendations
  - Do not send out e-mail survey invitations or reminders to the entire sample at one time
    - Bounce-back
  - Except for small samples
  - Send e-mails communications in batches of a few hundred at a time over the course of the day, in the late evening

- Consider effects of incoming surveys

Other considerations
- Place demographics at the end of survey
Speaker information

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