Survey and Questionnaire Design

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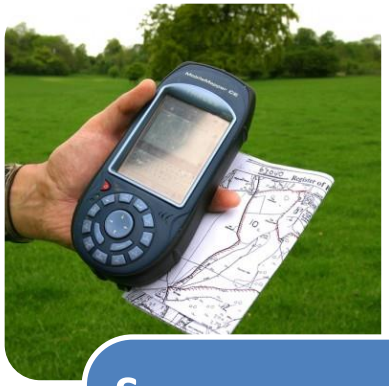
Learning Intentions

1. Understand why and when survey designs are used.
2. Demonstrate sampling methods and determination of sample size.
3. Understand the relationship between sampling and generalizability.
4. Evaluate the feasibility and utility of various methods of data collection as they apply to projects in Fraser Health.
5. Identify the basics of question design, layout and sequencing as it relates to the concepts and questions of interest.
6. Awareness of resources for analyzing survey data.

Intros



Survey

- An activity, survey as a verb
- Is an act of carrying out an activity to collect data for a project (research and/or evaluation) to examine something carefully and thoroughly

Questionnaire

- aka, survey as a noun
- A collection of questions to query someone to gather information
- Could include one or more instruments, demographics questions, and so forth

Table 8
Data-collecting instruments used in the analysed articles

Data-collecting instruments	Fre-quency	%
Questionnaires	90	71.0
Searching interviews	26	21.0
Previously prepared experiments	5	4.0
Focus-group	3	2.0
Investigator's observations	2	2.0
Total		

Source:

Instrument

- Ready made questions used to measure a construct of interest
- An instrument is often made up of several questions (or items)

When and How

When do you do a questionnaire?

- The information is not available somewhere else
- Assess a dependent variable with no associated physical measurement scale (i.e. intelligence)
- Improve or develop a program, service or intervention
- 1st stage in the development of standardized questionnaire/data collection tool

Project Components

1. Establish utilization focus (intended use & users)
2. Information gathering
3. Sampling
4. Data collection (method and questionnaire)
5. Data processing and analysis (coding, entry, cleaning, analysis)
6. Reporting and Knowledge Translation – how will information/findings be used in practice?

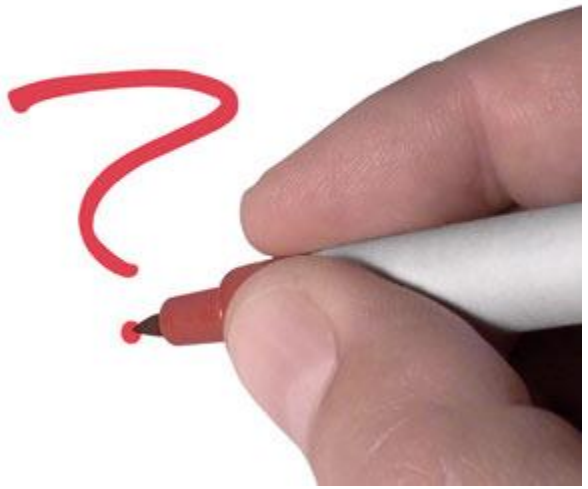
Project Components

1. Establish utilization focus (intended use & users)
2. Information Gathering
   - Select concept/constructs of interest
   - Independent (IV) and dependent (DV) variables, control variables (covariates), demographics
3. Sampling
   - Method
   - Sample size

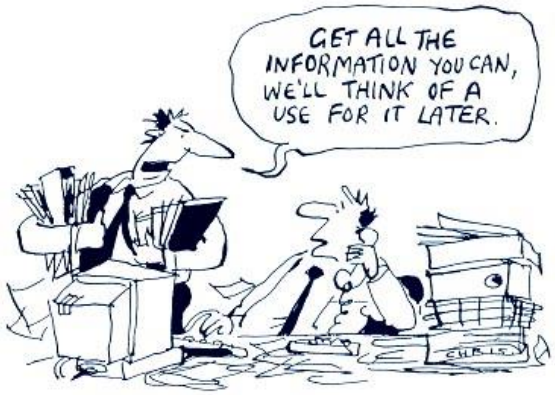
Project Components

4. Data Collection
   - Method
   - Response rates
   - Tools/questionnaire
     - Validity & reliability – overarching concern
     - Question design – wording, bias, type – determines response scale and later data processing (open, closed)
     - Response scale design (coding)
     - Sequencing
     - Style Layout (graphic design considerations)

Information Gathering



Information Gathering



Select constructs of interest

- What concept/construct/idea(s) are you trying to measure?
- What are the variables – IV, DV, covariates?
- What demographics?

Question based on variable(s) of interest

- Review literature
- Ideas to inform the questionnaire
- Existing standardized tool available (consider validity and reliability) for the concept/idea/construct of interest

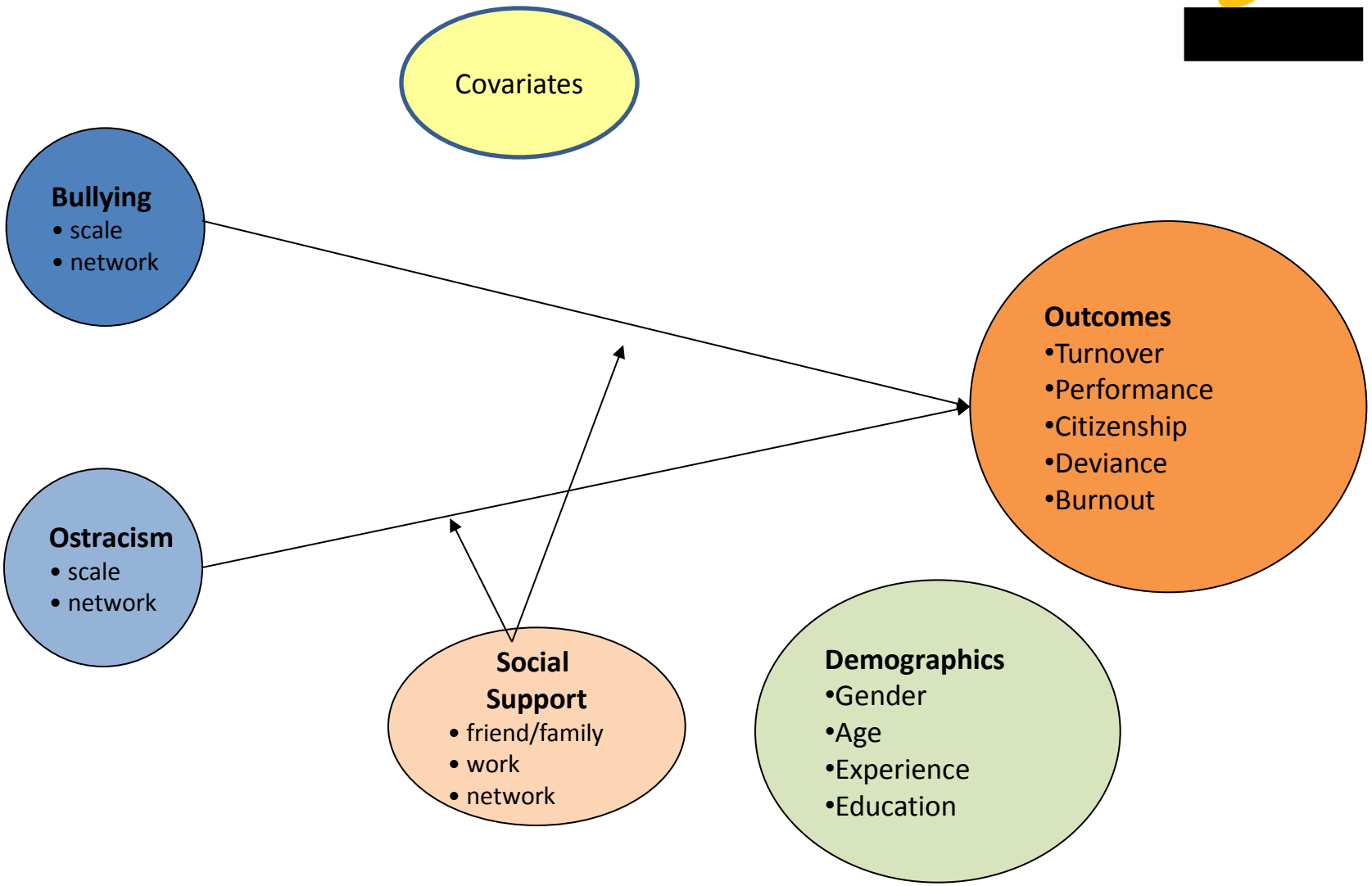
Example: Prevalence of Ostracism in the Workplace

Research Question

1. What is the prevalence of ostracism in healthcare workplaces?
2. What are the potential consequences of ostracism and other forms of co-worker mistreatment (e.g., bulling)?
3. Does social support by others mitigate the effects of ostracism on individuals?

Cross-sectional, correlational (survey) design

20-30 minute self-administered questionnaire


Covariates
Bullying
• scale
• network
Ostracism
• scale
• network
Social Support
• friend/family
• work
• network
Demographics
•Gender
•Age
•Experience
•Education
Outcomes
•Turnover
•Performance
•Citizenship
•Deviance
•Burnout

Library Services & Activity

Method

Methods Checklist

- Sampling frame
- Sampling methods
  - Probability vs. non-probability methods
- Sample size determination
- Data collection methods & timing
- Response rate considerations

Definitions: Sampling Frame

The set of potential respondents from which you will select your sample (may or may not be the entire survey population of interest)

Phone book, map, telephone numbers, address, department, hospital ward, employee listing, program registration forms, etc.

Sampling Method

Methods of selecting respondents from a survey population:

Probability

- Random selection – can usually generalize to population

Non-Probability

- Non-random selection – usually cannot generalize to population

Probability Sampling Methods

Ensure different units in the population have equal probability of being chosen

Methods to choose from:

- Simple random sampling
- Stratified sampling
- Systematic random sampling
- Cluster sampling

A subset of the population.

Non-probability Sampling Methods

Methods available

- Convenience – not representative, a group that is easy to access
- Purposive – certain group in mind
- Expert sampling – seek out specific expertise
- Snowball sampling – ask people to participate, they ask more people
- Population or census - the entire population

Sample Size: How to Determine?

Size of population

Level of precision desired

- The larger the sample, the greater the precision

Good general guideline: sample size table

SAMPLE SIZES REQUIRED

In the following table, the quantity **"N"** is:

- The **total population size** – if only overall population estimates are required
- The **stratum sizes** – for estimation strata
- The **approximate subpopulation size** - of the smallest subpopulation

N	95% Confidence Margin Of Error			90% Confidence Margin Of Error		
	± 3%	± 5%	± 10%	±3%	± 5%	± 10%
25	24	24	20	24	23	18
50	48	44	33	47	42	29
75	70	63	43	68	59	36
100	92	80	50	88	73	40
150	132	109	60	125	97	47
200	169	133	67	158	115	51
250	204	154	71	188	130	53
300	236	171	75	214	142	55
350	266	187	78	239	153	57
400	294	200	80	261	161	58
500	345	222	83	300	176	60
750	448	261	88	375	199	62
1,000	526	286	91	429	213	63
1,500	638	316	94	501	229	65
2,500	769	345	96	578	244	66
5,000	909	370	98	653	257	67
10,000	1,000	385	99	699	263	67
25,000	1,064	394	100	730	268	67
100,000	1,099	398	100	746	270	68
500,000 or more	1,110	400	100	751	270	68

Note: ***This table presents the number of responses required for a simple random sample. These sample sizes must be augmented:***

- ***if the sample design is cluster or multi-stage***
- ***to compensate for expected non-response***
- ***to compensate for out-of-scope units***

Sample Size: Other Considerations

Budget

Time

Sampling Method

Response Rate

Type of Survey

Break

Activity

Data Collection Methods

What type of method would work best?

Verbal

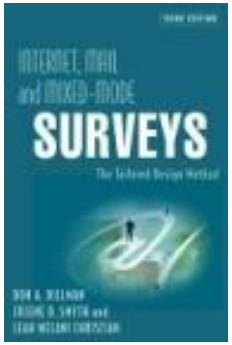
- Face to face
- Telephone

Exit (e.g. leaving job)

Self-completed

- Paper (mail)
- Web-based

Data Collection Methods



Method of data collection	Cost	Time to complete	Typical response rate	Number of questions	Question complexity
FACE TO FACE	HIGH	MEDIUM	HIGH	LONG	HIGH
EXIT	MEDIUM	FAST-SLOW	MEDIUM	SHORT	LOW
TELEPHONE	MEDIUM	FAST	MEDIUM-HIGH	MEDIUM	MEDIUM
MAIL* (paper)	LOW*	SLOW	LOW - MEDIUM*	MEDIUM	LOW
WEB-BASED	LOW	FAST	LOW-MEDIUM	SHORT-MEDIUM	MEDIUM

*Best practices in mail-out surveys can enhance response rates

Internet, mail, and mixed-mode surveys : the tailored design method / Dillman, DA.; Smyth, JD.; Christian, LM. Hoboken, N.J. : Wiley & Sons. 3rd ed. 2009..**Call Number:** HM 538 D55 2009 **Location:** SMH - Library

Summary of FH PRIVACY OFFICE Guidelines for Fraser Health

- All questionnaires must be reviewed through the *Survey Review Form* or *Privacy Impact Assessment* prior to the start of information collection.
- Questionnaires part of a research project (after reviewed by the FH REB), may be requested additional information about the survey process or may require a review via a PIA.
- *Informed consent* must precede all questions that are asked on the survey.
  - Complexity of the informed consent is determined by the nature of the questions, whether personal information is collected, and where the survey data will be stored.
- Collecting any *personal information* will undergo much more scrutiny during the review process - avoid questions that are not required to fulfill the objectives of the survey, like contact information or "other" fields.
  - If a web-based survey collects any personal information, it is highly recommended that a Canadian survey service provider or an internal (completely within Fraser Health) means of conducting the survey is used.

Summary of FH PRIVACY OFFICE Guidelines for Fraser Health

- *Views or opinions* collected from free-text/open-ended questions qualify as personal information.
- Any information collected must be properly stored and protected. In the case of any personal information the information must be stored on a folder on the M: drive.
- All information collected should not be retained any longer than necessary.

Source: http://fhpulse/COMPUTERS_AND_TECHNOLOGY/PRIVACY_AND_CONFIDENTIALITY/POLICIES_AND_GUIDELINES/Pages/Surveys.aspx

For more details see FH pulse content re:

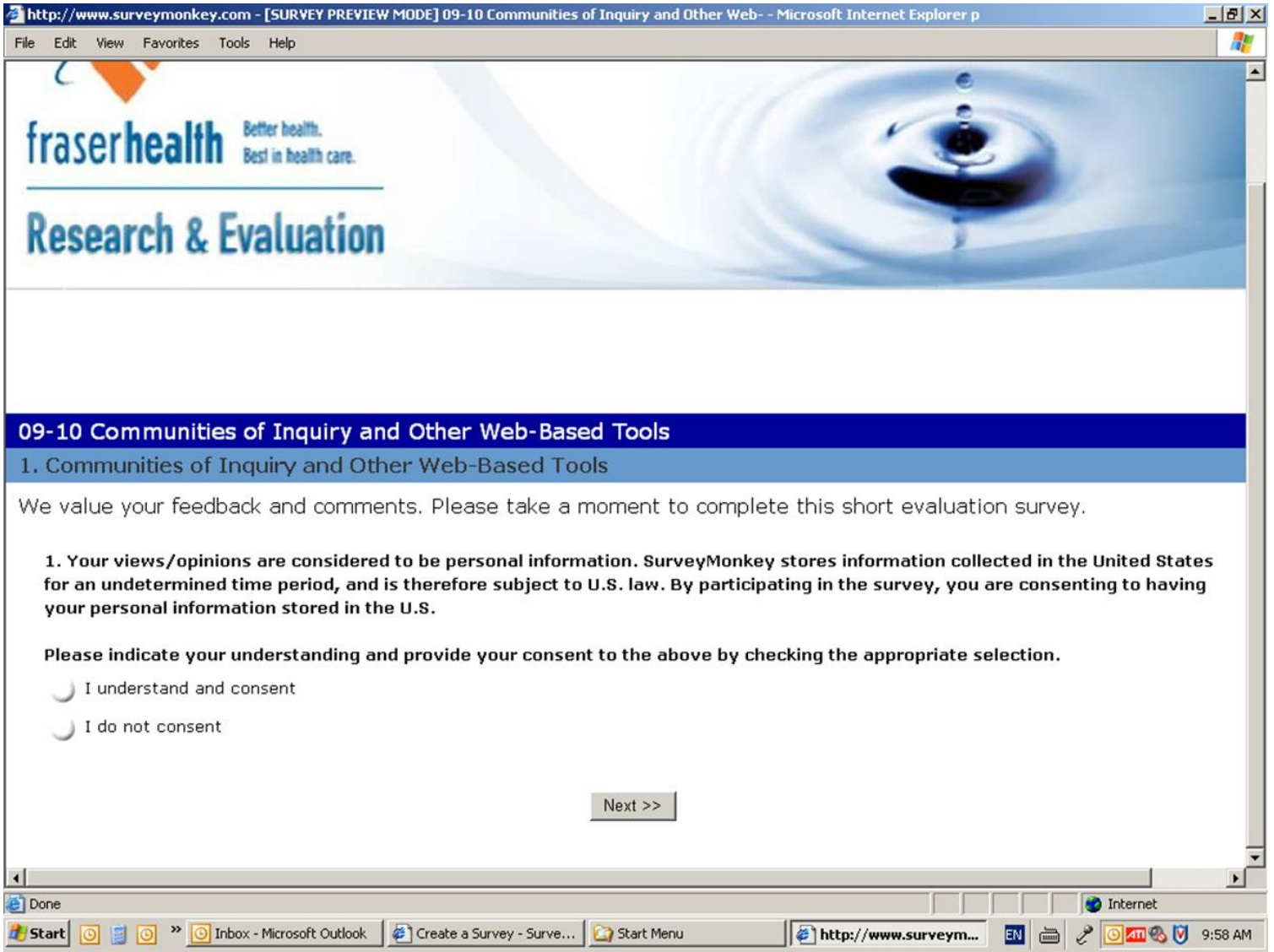
- SURVEY REVIEW FORM & INFORMED CONSENT TEMPLATE

Source: http://fhpulse/COMPUTERS_AND_TECHNOLOGY/PRIVACY_AND_CONFIDENTIALITY/POLICIES_AND_GUIDELINES/Pages/Surveys.aspx

- FOIPPA definition of personal information contained in the "Intro to PIA's" document

http://fhpulse/COMPUTERS_AND_TECHNOLOGY/PRIVACY_AND_CONFIDENTIALITY/Pages/Privacy%20and%20Security%20Impact%20Assessments.aspx

Privacy & Ethical Considerations for Web-based Surveys



What is a Response Rate?

Rate at which people agree to participate in a survey

Number of complete surveys divided by the number of eligible participants in the sample.

$$\frac{\text{\# completed}}{\text{\# eligible participants}}$$

Why Do We Care About Response Rates?

Practical Implications

- Generalizability
- Quality (or “publishability”)
- Credibility
- Fundability

Response Rate

The actual number of completed surveys, NOT the number of surveys distributed

Low response rates (of less than 60%) may put you at risk of non-response error

- Non response error: People who do not respond may be different from those that did, in ways that are important to your study

Try to get the highest response rate possible

- Reminders
- Oversample
- Incentives

Why Does Non-response Happen?

- Sample characteristics (demographics, lifestyle)
- # contacts
- Schedule of contacts
- Mode of contact
- Respondent cooperation (refusal)
- Incentives ($, benefit)
- Respondent burden (time, boredom, frustration)
- Survey fatigue
- Salience respondent ability to respond to questions
- Sponsorship
- Privacy concerns

*Best practices in mail-out surveys can enhance response rates

Internet, mail, and mixed-mode surveys : the tailored design method / Dillman, DA.; Smyth, JD.; Christian, LM. Hoboken, N.J. : Wiley & Sons. 3rd ed. 2009..**Call Number:** HM 538 D55 2009 **Location:** SMH - Library

Maximizing Response Rates

Five elements for achieving high response rates:

1. Respondent-friendly questionnaire
2. Minimum 5 contacts (pre-notice letter, questionnaire, thank-you postcard, replacement questionnaire, final reminder)
3. Return envelopes with paid postage
4. Personalization of correspondence
5. Prepaid token of appreciation

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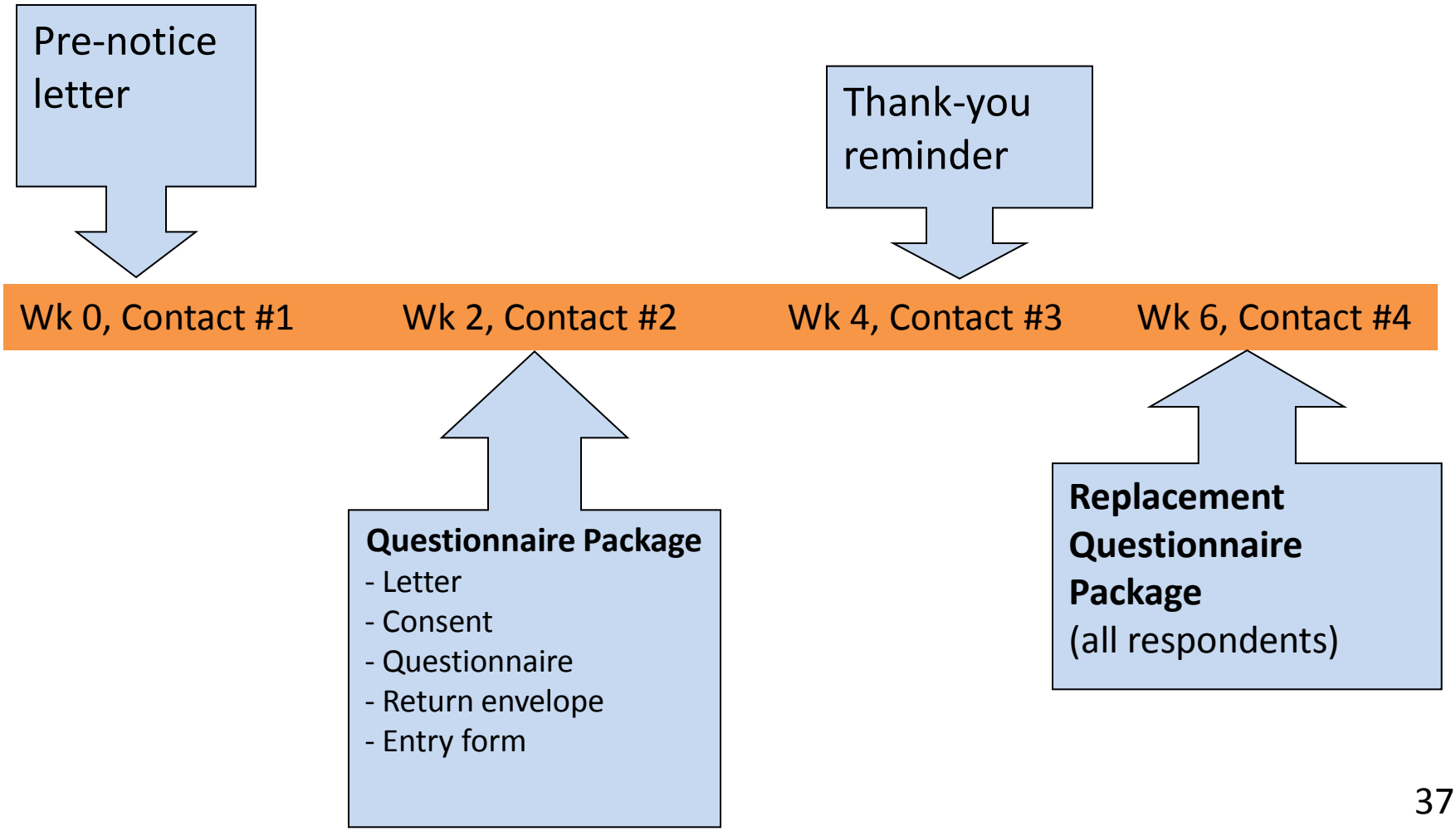
Example: Organizing the Distribution Process
Four Points of Contact



Reward, Costs and Trust

Providing Reward

- Show positive regard (e.g. explain reasons for study, personally addressing correspondence & envelopes)
- Say ‘thank you’ in correspondence and in-person
- Ask for advice or assistance
- Appeal to values shared by the group (e.g. create a positive work environment)
- Token of appreciation
- Making the questionnaire interesting

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Reward, Costs and Trust

Reducing Social Costs

- Avoid inconvenience (e.g. stamped return envelope)
- Questionnaire aesthetics (e.g. appear short and easy, easy to answer formats)
- Minimize requests for personal information

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Reward, Costs and Trust

Establishing Trust

- Token of appreciation (advance)
- Sponsorship by legitimate authority (Ex. Dir.)
- Make task appear important (e.g. personalized cover letters, stationery, questionnaire neatly compiled, target follow-up)
- Respondent-friendly questionnaire

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Token of Appreciation and Privacy Considerations

- Purpose
- Identify process to ensure anonymity and confidentiality
  - Name cannot be linked with survey
  - Mail/paper versus telephone
  - Draw card with return postage or draw box
  - Link to another survey to enter draw

Sample: Compensation

When registering in this project, you may choose to enter a draw. If you choose to take part, you can get up to 10 entries in the draw. You will get 1 entry by registering and 9 entries by completing the survey.

Validation of the Educator Competencies Assessment Tool Study

Entry Form

Please provide your **full contact information** to enter your name in the prize draw and receive study results. You can also complete online at http://fluidsurveys.com/surveys/fraserhealth/vecat-draw-entry/

Please **PRINT** clearly.

Name: _____

Phone Number: _____

Mailing address: _____

_____

_____

_____

E-mail: _____

Would you like to receive a summary of the results of the study?

- o Yes
- o No

Would you like to be contacted to participate in future research projects?

- o Yes
- o No

Thank you for your valuable participation!

Angela Wolff, PhD, RN,
Director of Clinical Education, Fraser Health Authority
Contact: angela.wolff@fraserhealth.ca

Lynne Young, PhD, RN, Associate Professor, University of Victoria, School of Nursing

Sample

Lunch Break

Activity

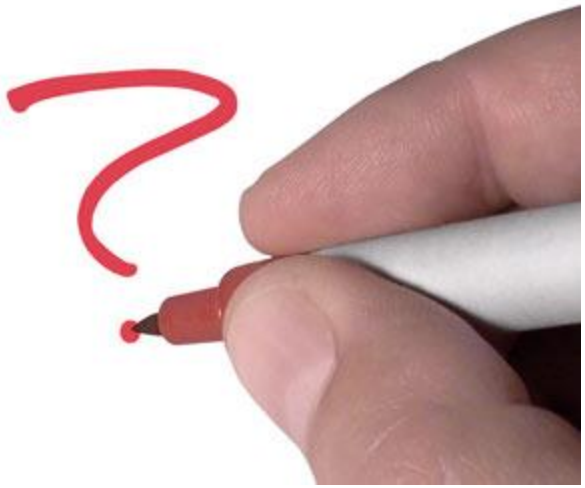
Questionnaire Development

What type of questions to measure the construct?

What demographic questions?

Question wording?

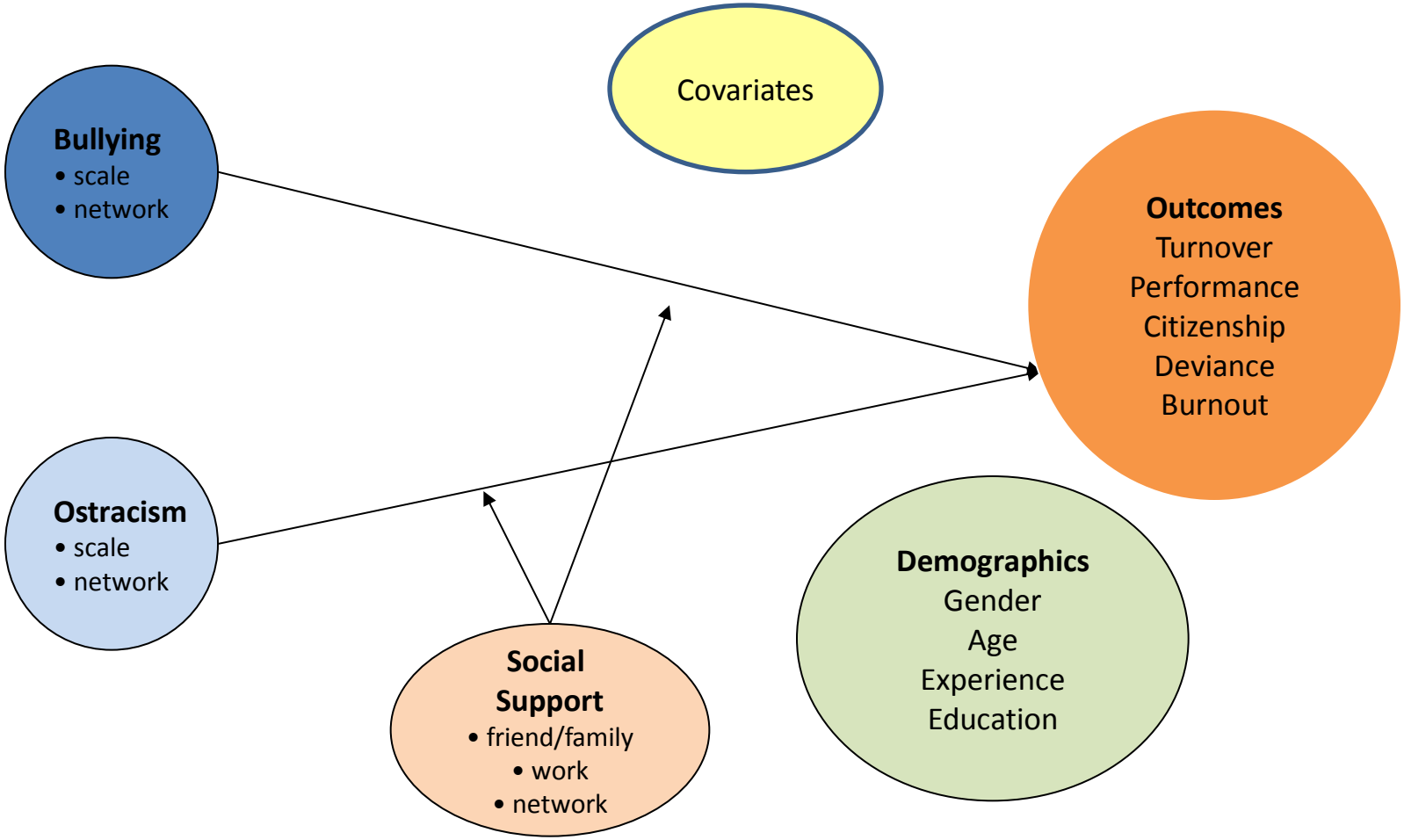
Response options?



Questionnaire Development Process

1. **Define** content requirements based on the constructs/variables you intend to measure
   - Keep to "need to know" questions, be cautious about "like to know"
2. **Consult** with experts familiar with, or as part of an identified interest group
3. Draft questions while **thinking about** data collection method and burden on respondent
4. **Review/revise** the questionnaire
5. **Pre-test** or 'pilot' the questionnaire

Constructs & Demographics



Information Gathering: Reliability and Validity

Reliability

- degree to which an instrument measures the same way each time it is used under the same condition with the same subjects

Validity

- degree to which an instrument accurately reflects or assesses the specific concept that the researcher is attempting to measure

There are many reliable and valid instruments that might be suitable for your research

Validated instruments are only valid if use entire tool

Considerations When Choosing a Ready-Made Instrument

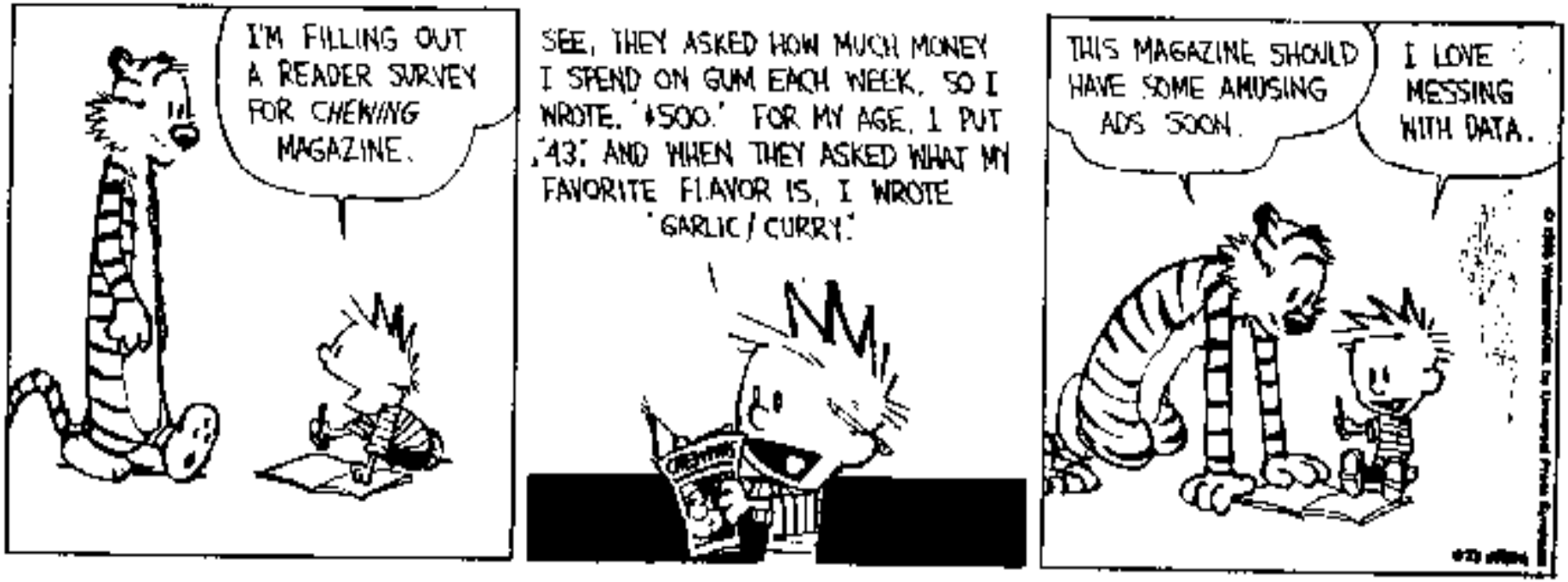
Reliability

- Test/retest
- Internal consistency (cronbach's alpha)

Validity

- **Predictive** – is it correlated with a known outcome?
- **Concurrent** – is it correlated with a known and accepted instrument?
- **Content** – does it contain all appropriate information (based on theory and expert opinion)?
- **Construct** – does the instrument measure what it is supposed to measure (accurately measure the construct)

CALVIN and HOBBES



Question Types

Open-ended questions

- Respondents are free to express answers in own words

Closed-ended questions

- Respondents must choose responses from a list

Partially-open questions

- Respondents can choose from categories provided, or compose their own answers

Open-ended Questions

Advantages

- Provide opportunity for self-expression
- Can obtain exact numerical data if required
  - E.g., How many times have you been to the hospital in the last year? 16
- Can obtain natural wording
- Provide new insight

Disadvantages

- *Researcher*:
  - Can yield irrelevant answers
  - Difficult/time consuming to code and analyze
  - Expensive
- *Respondent*:
  - Questions are demanding
  - Time consuming

Closed-ended Questions

Very common in surveys

Binary

Were you satisfied with the service you received?

- Yes
- No

Multiple Choice

How long have you worked for the clinic?

- Less than 1 year
- 1 to 5 years
- 6 to 10 years
- More than 10 years

Close-ended Questions

Advantages

- Easy to answer
- Fast to answer
- Easy to code
- Easier and faster to analyze
- Less expensive (survey processing and analysis)
- Consistent response categories

Disadvantages

- More effort in design stage
- May elicit answer where no option/knowledge exists
- Susceptible to bias
- Response categories must be exhaustive and non-overlapping

Considerations for Wording

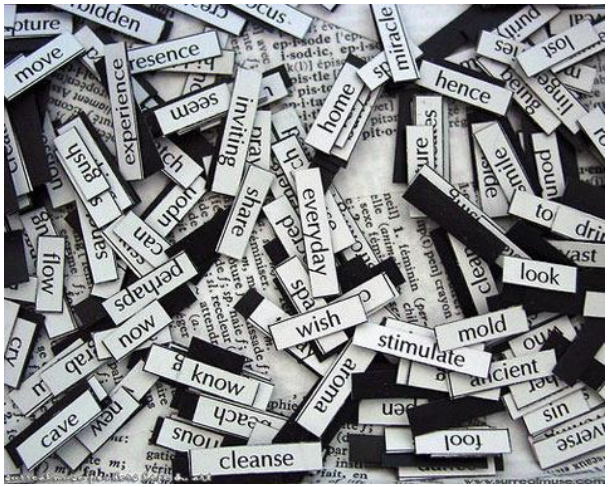
Keep audience in mind

Are the questions easy to understand?

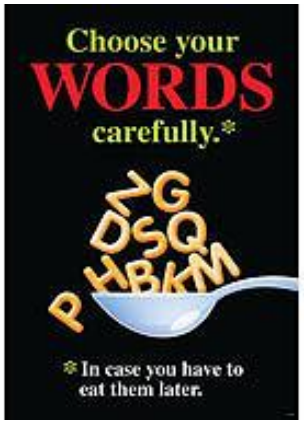
Do the questions have the same meaning to all?

Define important terms

Limit bias



Question Bias – Wording



Ambiguous/inappropriate question

- Were you happy with the service you received at the diabetes clinic?

Complex question

- Are you in favour, or not in favour of a law that would not allow stores to be open on Sundays nor stat holidays?

Double-barreled question

- If you watch TV regularly, what kind of shows do you watch?

Choi & Pak. Prev Chronic Dis. 2005: 2:1-13

Question Bias – Wording

Technical jargon

- Do you agree that IH should have access to SPSS or SAS to support quantitative survey analysis?

Uncommon word

- Assist, reside, sufficient, deleterious etc.

Vague word

- Regularly, generally, (can also apply to emotional or value based words – e.g., feel, respect, positive)

Choi & Pak. Prev Chronic Dis. 2005: 2:1-13

Question Bias – Missing or Inadequate date for intended purpose

Belief vs. behaviour

- Do you believe smoking is harmful? vs. Do you smoke?

Starting time

- In the past year . . . (changing time reference)

Data degradation

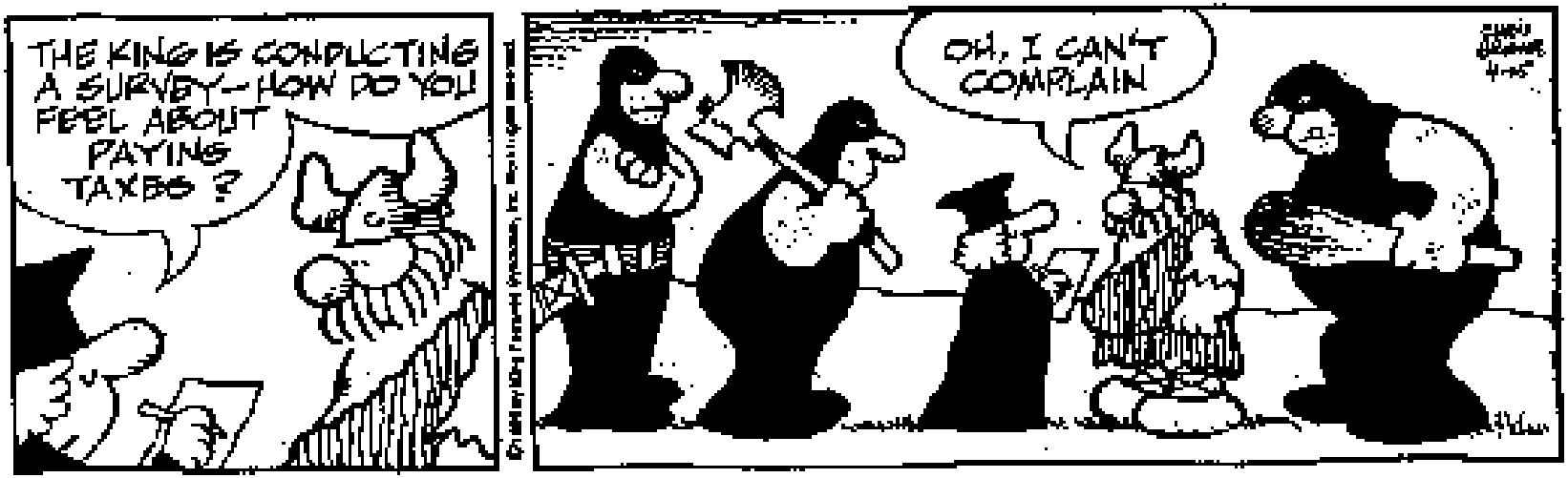
- Date of birth vs. age in years vs. age category

Insensitive measure

- (worse 1 – 2 – 3 better) limited categories, floor and ceiling effects

Choi & Pak. Prev Chronic Dis. 2005: 2:1-13

HAGAR the Horrible



Question Bias – Leading Questions

Framing

- Questions framed so that respondent may choose incorrect answer
- What surgery would you prefer?
  - Outcome with 5% mortality
  - Outcome with 90% survival

Choi & Pak. Prev Chronic Dis. 2005: 2:1-13

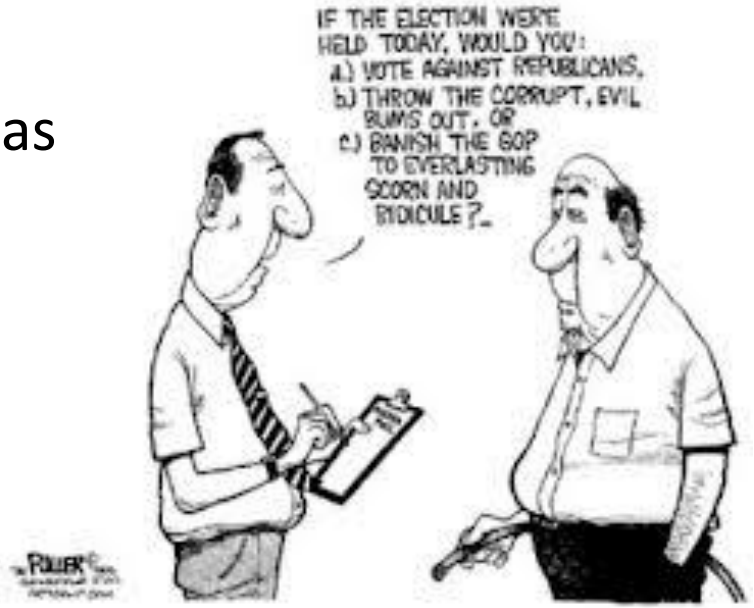
Question Bias – Leading Questions

Leading question

- Do you do physical exercise, such as cycling?
- Don't you agree that. . .
- Please rate our excellent service

Mind-set

- Try to maintain response option consistency (categories, anchors, order)



Choi & Pak. Prev Chronic Dis. 2005: 2:1-13

Question Bias – Leading Questions

Intrusiveness

- Reporting
- Sensitive information

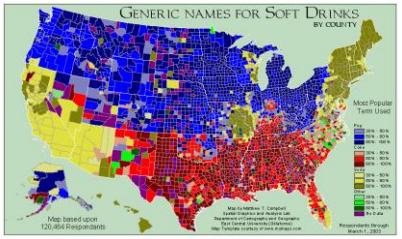
Both involve selective suppression of personal or confidential information

Choi & Pak. Prev Chronic Dis. 2005: 2:1-13

Question Bias – Inconsistency

Case definition

- ICD classifications (first event vs. recurrent)
- Coke, soda, pop



Change of scale and/or wording

- Scale consistency is especially important if comparisons are made over time or with the results of other surveyors

Diagnostic vogue

- Same illness may have different labels (region, time, type of respondent)

Choi & Pak. Prev Chronic Dis. 2005: 2:1-13

Question Bias – Faulty Scale

Forced choice

- Were you happy with the service you received at the diabetes clinic? Yes/No

Missing interval

- Complete range of response options is not present (e.g., don't know, not applicable)

Choi & Pak. Prev Chronic Dis. 2005: 2:1-13

Question Bias – Faulty Scale

Overlapping interval

- Interval anchors or parts of ranges overlap (one week or less, one month or less, etc.)

Scale format

- Odd numbers tend to result in neutral options (choose middle category)
- Even numbers tend to force choice to one side
- No consensus to best approach

Choi & Pak. Prev Chronic Dis. 2005: 2:1-13

Rating Scales

Satisfaction

- Very dissatisfied to Very Satisfied

Agreement

- Strongly disagree to strongly agree

Performance

- Poor to excellent

Frequency

- Never to very often

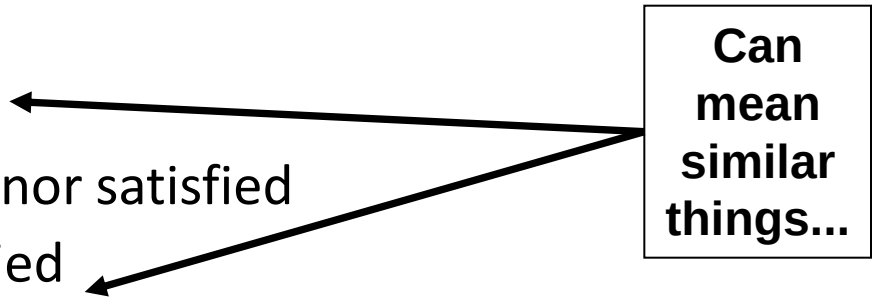
Visual Analogue

Satisfaction Scales

Quantifying vs. Categorizing

Example: 7 point scales (have a somewhat satisfied and somewhat dissatisfied categories)… use if applicable for your particular purpose

- 1 – very satisfied
- 2 – satisfied
- 3 – somewhat satisfied
- 4 – neither dissatisfied nor satisfied
- 5 – somewhat dissatisfied
- 6 – dissatisfied
- 7 – very dissatisfied



Performance Scales

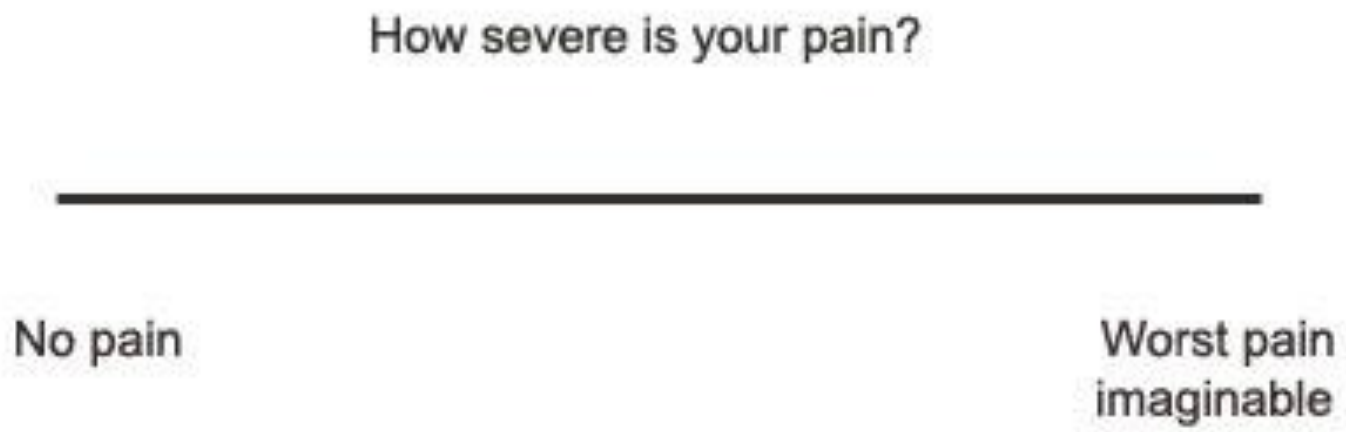
Can also have expectation scales:

- 4 point expectation
  - 1 – exceeded
  - 2 – met
  - 3 – nearly met
  - 4 – missed

Can also have importance scales (very to not very important)

Visual Analogue Scales (VAS)

Measure a construct that ranges across a continuum of values and cannot easily be directly measured (Gould, 2001)



Rating Scales: Factors to Consider

Select the appropriate scale

- Match scale to question
- Find the most natural scale through informal pre-testing
- e.g. I can easily get the information I need to do my job well
  - Would you use a frequency scale (how often), or an agreement scale (strength of agreement)?

Rating Scales: Factors to Consider

Direction

- Does not matter as long as it is clear to respondent
- If developing own items, do not change scale direction

Number of choices

- No specific number, pick the one that works for the situation
- Large scales (10 pt +), harder to answer and label
- Shorter scales not as sensitive to detect differences
- Implications for data analysis

Rating Scales: Factors to Consider

Label categories instead of using only numbers

- Will make distinction between categories clear

Midpoint

- May yield more information than forcing a pro/con response
  - e.g. neither dissatisfied or satisfied (neutral)

Rating Scales: Factors to Consider

"Don't know", "not applicable", and "neutral" are different

- Important to consider these options when appropriate
- Don't know. Respondent lacks knowledge to make judgment
- Not applicable. Respondent cannot relate to statement
- Neutral. Respondent has come to middle of two extremes

Response set

- Respondents tend to repeat previous answers in rating questions
- Long series of rating questions should be broken up
- Insert other question types between rating scales

Group Exercise

Home Care Services Survey 2006

Given what you've learned in the previous slides, how does this survey measure up?

Break

Questionnaire Content & Style Tips

Constructing the Questionnaire: Key Points to Remember

Write in everyday terms, literacy requirements

Follow basic writing principles (direct/to the point, no spelling errors, grammar etc.)

Use consistent scales

Use consistent wording

Be clear about directions (what you would like the respondent to do)

Constructing the Questionnaire: Length

Keep “need to know” questions, be cautious about “like to know”

How long is too long?

Avoid long questionnaire when they are unnecessary!

Constructing the Questionnaire: Sequencing and Layout

Introduction

Always begin a questionnaire with an introductory statement

- **Often includes**
  - Purpose of survey
  - Asking the participants to participate
  - Length of time to complete
  - Discussing confidentiality (privacy office template and research ethics consent)
  - Discusses sharing of findings with participants
  - Ends with thanking the participant for participating

Constructing the Questionnaire: Sequencing and Layout

Start with something interesting

Begin with easy questions (demographics)

Group questions by topic

Respect chronological order when appropriate

Always include comments section at end

No name on questionnaire

Reduce number of “skip to” questions (easy for web-based surveys)

Use clear instructions and priming

Questionnaire Layout

Consistent format and use of bold or italics (underline harder to read)

Use at least 12 pt font (larger for older audience)

Pastel colours work well for background

Brighter colours for text

Instructions in different style (e.g. *italics*)

Activity

Small Groups (10 min):

Look at a variety of questionnaires to identify which ones you like and why.

What is the same/different about the questionnaires?

Is the purpose/target population of the questionnaires clearly specified?

How might the design, layout and sequencing change based on the target population?

Data Processing & Analysis

Data Processing and Analysis: QUESTIONNAIRE SAYS!

Be careful how much work you make for yourself

Seek advice up front!

Data Processing and Analysis

Coding – entry – cleaning – describing – analyzing

Important to think about data coding **before** the collection of data!

Entering coded data into a spreadsheet helps with analysis

Qualitative data should be coded numerically for ease of analysis if possible

Codebook – What?

A codebook is a log of your variables (questionnaire items) and how you will code them

It helps everyone understand the coding schemes to ensure that they are on the same page!

Establish rules for situation such as two responses when only one required, missing data and imputation

Data Processing and Analysis: Codebook Example

Variable Name	Variable Label	Values	Coding	Missing	Variable Type
Age	Age in years	1,2,3,4,5	1=10-20 years 2=21-30 years 3=31-40 years 4=41-50 years 5=51+ years	97=Incorrect response 98=No response 99=Not Applicable	Ordinal
Sex	Biological sex	1,2	1=male, 2=female	97=Incorrect response 98=No response 99=Not Applicable	Nominal
Happiness	Level of happiness in general	1,2,3	1=not happy 2=somewhat happy 3=very happy	97=Incorrect response 98=No response 99=Not Applicable	Ordinal

Open-ended Data Coding

It's easy to code closed response or rating questions, but how do you code open-ended data?

Objective*:* to create codes and classify responses into categories respondents would have chosen, had they been offered categories

- Two phases:
  1) Scan responses
  2) More detailed review of responses and then code them
- Themes will emerge
- Attend qualitative data analysis workshop

Codebook

Other topics to include

- Description of team
- Methods (sampling design, strategies, size, recruitment & enrolment, ethical)
- Data collection process, questionnaire and instruments (training of data collectors; citations for instruments used; reliability & validity)
- Data file description (variable coded, names, labels)
- Decision making trail

Data Cleaning - Editing Checks

1. Structure checks – identify non-response
2. Range edits – make sure there are valid ranges (e.g. No 7's on a scale of 1-5)
3. Make sure "not stated" codes are put into unanswered responses
4. Two+ answers
5. Questionable response patterns, inconsistencies
6. Amount of missing data (typically with scales, 10%; consult statistician) and report sample size

Descriptive or Inferential Statistics?

Descriptive

- Definition: To describe, show, or summarize the data in a meaningful way
- Do **not** use to reach conclusions and describe a cause and effect
- Examples include: frequency/percentage, mean, median, mode, range, standard deviation

Descriptive or Inferential Statistics?

Inferential

- Definition: Allow us to make generalizations about population from which the sample is drawn
- Methods include testing of hypothesis/relationships between and among the constructs of interest
- Examples include: t-test, chi squared, multiple regression

Seek advice when using inferential statistics with non-probability sampling

Descriptive or Inferential Statistics?

Determined by:

- The concepts and questions being answered
- What claims do you want to make (correlation vs. causation) and theory to apply
- What conclusions can be drawn in relation to inferential (cause and effect) and descriptive
- Generalizeability of findings

(Statistical) Analysis Resources

- DERS Epidemiologist: Samar Hejazi
- DERS workshops (see CCRS system)
  - Qualitative methods workshops
  - Quantitative methods workshops

http://research.fraserhealth.ca/education/

Review: Project Components

1. Establish utilization focus (intended use & users)
2. Information gathering
3. Sampling
4. Data collection (method and questionnaire)
5. Date processing and analysis (coding, entry, cleaning, analysis)
6. Reporting and Knowledge Translation – how will information/findings be used in practice?

Further Reading

1. http://fluidsurveys.com/university/

2. A Catalog of Biases in Questionnaires. Choi & Pak article (will be emailed to workshop participants)


OLD
BLANKS
ASK US
END
SURVEY
PARTY