

***First test:***

***Next week: 2 hours***

***50 Multiple Choice & True/False questions (70 marks): lectures & readings.. Everything through to TODAY***

***Answer 3 short essay questions (30 marks) (6 questions given): Note: this comes straight from Lectures..***

***(3<sup>rd</sup> hour, after the test, I will be reviewing Assignment 1: Library Research: Assignment will be posted this week)***

# Research Designs:

- Last class (Chapter 2)
- 4 types of “research designs”
  - 1. Experiments
  - 2. Cross sectional studies
  - 3. Longitudinal Studies
  - 4. Case studies
- Move on to Chapter 4: The Nature of Quantitative Research
- Introduce Chapter 5: Survey Research (read through to this chapter for the test)

# Today's lecture

- **1. Main goals in quantitative research:**
- **2. The main steps in quantitative research**
  - **11 basic steps**
- **3. Measurement and “operationalization”**
- **4. Checking for “reliability” and “validity” in measurement**
- **5. Some criticism of “quantitative research”**
- **6. Move onto the next Chapter: Survey Research**

# The Nature of Quantitative

## **Quantitative research:**

- inquiry using quantitative data gathering methods**
- eg. Social survey is by far the most common..**
- Later in the term: “The Nature of Qualitative Research”**

# Main Goals of Quantitative Researchers

- ***1. Systematic Measurement of social phenomenon:***

Eg. Certain sorts of issues can only be examined with quantitative work, but we must always start with clear definitions and measurement.

Province or Territory	Life expectancy in years			Comparison of life expectancy in 2015
	Estimates for 2015	Estimates for 2009	Change compared to new 2015 data for 2009	
 British Columbia	83.6	82.3	▲ 1.3	 Japan
 Ontario	83.0	81.7	▲ 1.3	 Singapore
 Quebec	83.0	81.5	▲ 1.5	
 Canada	82.6	81.4	▲ 1.2	—
 Alberta	81.7	80.8	▲ 0.9	 Norway
 Nova Scotia	81.2	80.2	▲ 1.0	 United Kingdom
 Prince Edward Island	81.1	79.9	▲ 1.2	 Belgium
 New Brunswick	80.9	80.1	▲ 0.8	 Greece
 Newfoundland and Labrador	80.3	79.4	▲ 0.9	 Chile
 Saskatchewan	80.2	79.7	▲ 0.5	
 Manitoba	79.9	79.3	▲ 0.6	 United States
 Northwest Territories	78.0	77.4	▲ 0.6	 Croatia
 Yukon	77.5	76.7	▲ 0.8	 Poland
 Nunavut	72.9	71.6	▲ 1.3	 Libya

What is meant by life expectancy?

What explains these sorts of differences?

At a societal level, what sorts factors are associated with “longevity” across these provinces??

- ***2. Establishing causality:***

- ***3. Generalization of findings to those not studied***



Two Studies:

**Job Vacancy and Wage Survey (JVWS)**

The survey will provide reliable, comparable data on job vacancies and wages.

The survey is conducted on a stratified random **sample** of approximately 100,000 business locations drawn quarterly.

In the London Region, about 1000 employers contacted (response rate 90%)

- High level of “Generalization” possible..

Same purpose:

**The ManpowerGroup Employment Outlook Survey** for the first quarter 2018 was conducted by interviewing a representative sample of 1,927 employers in Canada.

In the London region, about 20 employers contacted... No information on response rate but it is likely very low (perhaps as low as 20-30%)

For London absolutely no scientific merit due to its very small sample size.

# London businesses predict job stability, growth

NORMAN DE BONO Updated: July 4, 2018



This research is not worth the publicity..

Based on too small a sample..

Generalization is impossible



SHARE

London is in store for a hot summer for hiring, says a national employment agency.



ADJUST

Manpower has released its latest survey on employment and forecasts 23 per cent of London businesses will be adding to payrolls from now to September, it stated.

That aligns with other economic forecasts for London and Southwestern Ontario stating the economy here continues to grow, adding jobs.



COMMENT

"A positive hiring climate is anticipated for London and there were no cutbacks anticipated," said Maple Kyriacou, Manpower spokesperson.

- **4. *Replication,***

# ***• The main steps in quantitative research***

- Emphasis is “deduction” in theoretical reasoning..***
- Hence: where do we begin?***
- Library :***
- Databases available: e.g. “sociological abstracts”..***
- Review past research and theoretical arguments***
- Search on any of the databases...***
- E.g. “precarious work” and Canad\* on “Titles”***
- Develop a hypothesis,.. Eg. “precarious employment and mental/physical health”***

# Anti-poverty advocates say small minimum wage hike would have helped

In a city wrestling with poverty, homelessness and precarious work, a \$1 an hour difference in the provincial minimum wage could have a huge impact.

RANDY RICHMOND Updated: September 26, 2018



Peter Rozeluk, executive director of Mission Services of London (Free Press file photo)



SHARE



ADJUST

It may seem like a little.

But in a city wrestling with poverty, homelessness and precarious work, a \$1 an hour difference in the provincial minimum wage could have a huge impact. London's social advocates said Wednesday in the wake of a government decision to freeze the hourly rate.

"Any little bit really helps," Peter Rozeluk, executive director of Mission Services of London, said.

Assume we are interested in studying the impact of "precarious work" on the health of Londoners

How might we approach this?

Text book outlines 12 basic steps to follow



**Figure 3.1** The process of quantitative research

STEPS 1-3 (last couple of weeks),...

We discussed much of this

Typically in quantitative research design:

Deductive:

Beginning on a theoretical level (STEP 1) to develop hypotheses (STEP 2)

Select our general research design (STEP 3) which at least partially depends on the sorts of questions we are asking (Longitudinal? Cross sectional? Experimental, non-experiment, etc..

NOTE:

Assignment 1 will help here (doing library research)

Review the literature on a specific topic, which helps in narrowing our research -> researchable topics..

## Step 4: Devising measures for concepts

- ***Concept:***



- ***Once you have specified your research hypotheses... it is necessary to think about..***
- ***Measurement and research design...***
- Concepts can be defined in 2 different ways:
  - ***Nominal definition:***
  - ***Operational definition:***

- ***Measurement in Social science involves:***
- ***Operationalization:***

- N.B. For abstract concepts, indicators are often created using ***Likert scales (ordinal scales often used in measuring opinions attitudes)***
  - ***Many examples:***
  - ***Do you (1) Strongly Agree, (2) Agree (3) Neither agree nor disagree, (4) Disagree (5) strongly disagree.***
  - ***Do you consider the quality of life in London: (1) very good, (2) good, (3) fair (4) poor, (5) very poor***
  - These scales are also used for building one indicator out of many
    - Back to depression example
      - FIRST INDICATOR Have you over the past week:
        - “felt depressed”
          1. Always
          2. Almost always
          3. Some of the time
          4. Almost none of the time
          5. None of the time
      - SEVERAL MORE INDICATORS used to measure “Depression” with the same format
        - “felt everything was an effort”
        - “lost interest in activities that you previously enjoyed”
        - “trouble sleeping”
        - “appetite has shifted noticable”
- ADD THE SCORES TOGETHER TO GET A SCALE...

- *Examples of the sorts of indicators that are available in quantitative research*
- *1. Specific questions -> interviews, self administered questionnaires, etc.*
- *2. Systematic and structured observations*
- *3. Rely on official statistics already collected for other purposes*
- *4. Collect data through the indicators that classify*

# Steps 5, 6

- **Step 5: Select research site(s)**
  - **Specific community; institution; etc?? National?**
- **Step 6: Select research subjects/respondents**
  - Sampling (later this term) included here
- Steps 5 and 6 are subject very much to practical considerations

# Step 7

- **Step 7: Administer research instruments/collect data**
  - ***Experiments:*** pre-test, manipulate treatment group, post-test
  - ***Structured interviews and questionnaires:*** Provide interview schedule and conduct interviews or provide questionnaire and collect when complete
  - ***Structured observation:*** Watch setting and record info
  - ***Secondary Data:*** apply for access to data, pay for it, get it from the public realm

# Step 8

- **Step 8: Process Data**

- In quantitative research:
  - our operational definition must allow for the ***coding*** of responses for eventual analysis
- ***Coding***: transforming a measure into numbers
  - Ex. 'Political orientation'
  - (1) Conservative
  - (2) Liberal
  - (3) New Democrat ... etc.
- N.B. we do this even when the numbers don't mean anything in this context

# Step 8 con't: Coding

Case	Age	Married?	How often do you consume 5+ drinks at once	Depression Scale score
1	25	Y	Every day	48
2	76	N	Every day	35
3	34	Y	About once per week	21
4	23	Y	About once per month	14
5	21	N	Never	46
6	56	N	About once per week	42
7	61	Y	A few times per year	23
...	44	Y	Every day	31
100	19	N	Never	33

Case	Age	Married?	How often do you consume 5+ drinks at once	Depression Scale score
1	25	1	1	48
2	76	2	1	35
3	34	1	2	21
4	23	1	3	14
5	21	2	5	46
6	56	2	2	42
7	61	1	4	23
...	44	1	1	31
100	19	2	5	33





1 : agehd03 24 Visible: 745 of 745 Variables

	agehd03	ammpq02	ammsq02	ammcq01	ammcq02	admhd02	admcd03	admcd04	admcd05	admcd06	admcd06a	admcd06b	admcd06c	ac
1	24	M	F	4	F	3	11	1	1	21	1	11	3	
2	24	F	6	7	F	2	51	2	2	11	2	50	3	
3	24	F	6	3	M	3	51	2	2	11	2	50	3	
4	24	F	6	7	F	3	51	2	2	11	2	50	3	
5	24	F	6	11	M	2	51	2	2	11	2	50	3	
6	24	F	6	10	M	3	51	2	2	11	2	50	3	
7	24	F	6	11	M	3	51	2	2	11	2	50	3	
8	24	F	6	5	F	3	51	2	2	11	2	50	3	
9	24	F	6	6	F	3	51	2	2	11	2	50	3	
10	24	F	6	8	F	2	51	2	2	11	2	50	3	
11	24	F	6	2	F	2	51	2	2	11	2	50	3	
12	24	F	6	3	M	3	51	2	2	11	2	50	3	
13	24	F	6	0	M	2	51	2	2	11	2	50	3	
14	24	F	6	2	F	2	51	2	2	11	2	50	3	
15	24	F	6	5	M	2	51	2	2	11	2	50	3	
16	24	F	6	4	F	2	51	2	2	11	2	50	3	
17	24	F	6	1	F	2	71	2	3	13	2	50	3	
18	24	F	6	8	F	3	51	2	2	11	2	50	3	
19	24	F	6	11	F	2	51	2	2	11	2	50	3	
20	24	F	M	3	M	3	11	1	1	11	1	21	3	
21	24	F	6	5	M	2	51	2	2	11	2	50	3	
22	24	F	6	11	M	2	51	2	2	11	2	50	3	
23	24	F	6	4	M	2	51	2	2	11	2	50	3	
24	24	F	6	2	M	2	51	2	2	11	2	50	3	
25	24	F	6	1	M	2	51	2	2	11	2	50	3	
26	24	F	M	6	F	3	11	1	1	11	1	21	3	
27	24	F	6	10	M	4	51	2	2	11	2	50	3	
28	24	F	6	5	F	2	51	2	2	11	2	50	3	
29	24	F	6	7	M	2	51	2	2	11	2	50	3	
30	24	F	6	3	F	2	51	2	2	11	2	50	3	

Data View Variable View

SPSS Processor is ready



SPSS Data

nlsy1994.sav [Data5...

Output1 [Document1] - ...

Syntax1 - SPSS Syntax E...



# Step 9

- **Step 9: Analysis**

- Big step! Covered in some detail later in this course and much in SOC2205

-

Step 9; In your analysis you should assure that you have good measurement

- **Reliability** always concerned with the *consistency* of measures of a concept, yet several definitions:

1. ***Stability over time:***

2. ***Internal reliability:***

3. ***Inter-observer reliability:***

# Step 9

- There are various kinds of ***measurement validity***:
  - ***Face validity***: Does the measure appear 'on the face of it' to be valid?
  - ***Concurrent validity***: does the measure correlate to another measure that is also relevant to the concept?

## Step 9

- ***Construct validity:*** concepts relate to each other in a way that is consistent with the researcher's theory
  -

## Step 9

- ***Convergent validity:*** a measure of a concept correlates with a second measure of the same concept that uses a different measurement technique
- Ex.

Once you are confident with measurement, and you have conducted an analysis of the information collected:

## Steps 10, 11

- **Step 10: Findings/conclusions**

- Is your research question answered or your hypothesis supported?
- Are there implications for theory, for social life or social policy?

- **Step 11: Write-up findings/conclusions**

- Publish it and let others judge the quality/usefulness of your work, potentially replicate it etc.

# Criticisms of Quantitative Research

- All approaches to research have ***strengths and weaknesses***.
- On the next five slides are some drawbacks to quantitative research:



# Critique of Quantitative Methods

- Critique: Humans and their actions are fundamentally different from what is studied in the natural sciences – we shouldn't be studying them in the same way
- The “richness” of human experience can't be “reduced” to numbers, can't be explained in terms of “cause and effect”
- Counter:

# Critique of Quantitative Methods

- The measurement process produces an artificial and false sense of precision and accuracy
  - Ex. problems can arise if people interpret the same survey item differently
    - How is your general health?
      - Excellent
      - Very good
      - Good
      - Fair
      - Poor

# Criticisms of Quantitative Research, cont'd.

- ***The measurement process produces an artificial and false sense of precision and accuracy.***
  - A problem of external validity
    - Everyday life is more complex than we make it in experiments or captured through questionnaires
    - We assume survey respondents have both knowledge and interest to answer the questions in a 'common' way

# Criticisms of Quantitative Research, cont'd.

- ***An analysis of relationships between variables ignores people's everyday experiences and how they are interpreted.***

- E.g

# Criticisms of Quantitative Research, cont'd.

- ***Quantitative researchers tend to assume an objectivist ontology***, i.e., that a social reality exists that is independent of the observer or of individual consciousness

# Reality and practice

- The ideals of quantitative research and how it is actually conducted may be very different
- Sometimes there is less attention paid to matters of reliability and validity than what one might think
- Some of that comes about through practical limitations of time, cost, and feasibility

# Next chapter: Survey Research

- **By far the most common data collection technique**
  - Want to know? Ask people!
  - Often large scale
    - with representative samples
  - highly adaptable
  - easily replicated
  - Contain many closed-ended questions
- Two basic types:

# Sources of Error in Surveys

1. Poorly worded questions

- 2....



- Interviews may be conducted by **telephone**.
- Telephone interviews can sometimes be advantageous compared to face-to-face interviews because:

# Interview Contexts, cont'd.

- Telephone interviews have some limitations:

-

- **There are various computer software programs** used in conducting interviews, both in person and over the phone.
- CATI (computer assisted telephone interviewing)
- CAPI (computer assisted personal interviewing) -> laptop used by the interviewer
- Extremely useful in the field (collecting information with a standardized “interview schedule”)
- Interviewer follows instructions specified on the computer screen
- Questions pre-programmed into the computer
- Advantages:
- Capture and processing of information simultaneously, i.e. data set is immediately being compiled as the interview is conducted..
- Potentially assist the interviewer in collecting the appropriate information more quickly... of potentially higher quality

- Examples of how they can lead to higher quality data...
- CAPI and CATI can be particularly useful when **filter questions** are used
- These questions ‘filter out’ items that are unnecessary in certain circumstances
- Example:
  - Survey on family life
  - If a series of questions pertain to parenting, a filter question could be, ‘Are you, or have you ever been a parent?’
  - If the answer is no, then all the questions on parenting or on the characteristics of children may be skipped.
  - The software can skip all those questions automatically with filter questions. .. Speeding up the interview and avoiding unnecessary questions.
- Also:
  - Randomization can sometimes be introduced in the ordering of questions
  - This is useful if we think that some sort of “order effect” might be at play with the questions asked... CAPI can automatically randomize the questions..

# Conducting Interviews: Basic Points

- Interviewers should be familiar with the interview schedule (these can potentially be very complex given skip patterns)
- CAPI/CATI obviously helps to make it easier
- Training is important (not to introduce measurement error) as is proper salary (to motivate employees to do a better job)
- Also:

- Well prepared cover letters can reduce non-response (sent out to households ahead of time): These cover letters can:
  - -> establish credibility
  - Interviewer identification, including the organization sponsoring the research
  - obviously use professional “letterhead”
- Professional, providing phone number of research agency/university and corresponding web page
- Topic of the research (purpose and potential utility)
- How the respondent has been selected (scientific selection)
- Confidentiality procedures: respondent cannot be identified
- Participation is voluntary
- Respondents have the opportunity to ask questions about the research
- Sometimes: Funding sources
- Most university ethics committees insist upon the above!!
- In addition, interviewers should have a cover letter for convincing respondents to participate (at the door or over the phone).
- Phone interviews (properly conducted) will have an initial contact, explaining the above and scheduling an interview)

- Basic rules of reducing non-response
- -> begin with cover letters (sent to addresses ahead of time if in-person interview)
- -> appropriate dress, courtesy and tact are all fundamental
- “Be polite, confident &... expect cooperation”
- If respondent shows doubt:
- Again -> confidentiality / sampling design / importance of the study
- Through familiarity with survey instrument..
- Follow instructions and wording of questions carefully
- (not to introduce bias)
- Obviously -> neutral probes & don't put answers into the respondents mouth..
- People skills -> fundamental & of course watch out for barking dogs/nutcases

# Conducting Interviews

- Interviewers should try to develop rapport with respondents (again to reduce non-response and missing responses).
- Note: being 'too friendly' has its drawbacks (potentially biasing responses)
- Remember the importance of minimizing inter-interviewer variability



- Quantitative researchers typically insist:
- The question should be asked **exactly as stated**.

**A:** *There are always some people whose ideas are considered bad or dangerous by other people. For instance, somebody who is against all churches and religion. If such a person wanted to make a speech in your city against churches and religion, should **he be allowed to speak, or not?***

**B:** *There are some people whose ideas are against all churches and religion. If such a person wanted to make a speech in your city against churches and religion, should he be allowed **the freedom** to speak, or not?*

Yes, allowed to speak	68.7	Yes, allowed to speak	80.1
No, not allowed	31.3	No, not allowed	19.9
<i>N</i>	629		612

$X^2=21.2$ ,  $df=1$ ,  $p<.001$ .

Question A was originally part of Stouffer's (1955) study of *Communism, Conformity and Civil Liberties*. The experiment above is from a 1976 SRC study reported in Schuman and Presser (1996) *Questions and Answers in Attitude Surveys*, p.277.

- Questions should be asked in the order they are given on the interview schedule.

# Question Ordering: evidence

*Do you think the US should let Communist newspaper reporters from other countries come in here and send back to their papers the news as they see it?*

	Percentage yes	
	1948	1980
Asked First	36.5% (581)	54.7% (342)
Asked Second	73.1% (635)	74.6% (335)
$X^2$ (1 df)	168.2	29.8
p-value	.001	.001

*Do you think a Communist country like Russia should let American newspaper reporters come in and send back to America the news as they see it?*

	Percentage yes	
	1948	1980
Asked First	89.8% (635)	81.9% (331)
Asked Second	65.6% (567)	63.7% (336)
$X^2$ (1 df)	101.7	28.23
p-value	.001	.001

The 1948 study is from Hyman & Sheatsley (1950) "The current status of American public opinion," In J.C. Payne (ed.), *The Teaching of Contemporary Affairs*. National Council of Social Studies. The 1980 study is from Schuman and Presser, *Questions and Answers in Attitude Surveys*, p29.

# Conducting Interviews:

- Sometimes **probes** are used if the respondents need help with their answers.
- They should “not” put words into the respondents’ mouth!!
- Generally, probes should follow a **standardized format**.
- **“Can you give me an example?” “Are there any other reasons for that?”**
- Sometimes it may suffice to **repeat the question or answer choices**.

# Conducting Interviews

- In face to face interviews:
- sometimes **show cards** are used to provide detailed information, e.g., income categories the respondent can choose from.
- Show cards are appropriate if:

# Conducting interviews: Basic Points

- **Prompting** occurs if the interviewer suggests a specific answer for the respondent.
- Nothing from the respondent
- Prompting is generally **inappropriate** and should only be used as a last resort... or even more preferable,.. record “no response”
- This problem may be avoided if you provide the respondent with a list of possible answers (close ended)
- Good interviews usually require considerable **training and supervision** of the interviewer.

# Questionnaires




- Questionnaires are essentially structured interviews without an interviewer.
- They involve filling out a form which is then returned to the researcher, often by mail.
- Because the respondent has to read the questionnaire without the aid of an interviewer, it has to be **clear** and **easy to follow**



# Questionnaires, cont'd.

- Compared to interviews, questionnaires tend to:


-

- 
- 
- 
1. Including yourself, how many persons usually live here, at this address, as of May 16, 2006? *Include all persons who usually live here, even if they are temporarily away.*

\_\_\_\_\_

2. Including yourself, list below, using CAPITAL LETTERS, all persons who usually live here. *Begin the list with an adult followed, if applicable, by that person's **spouse** or **common-law partner** and by their children who usually live here. Continue with all other persons who usually live here.*

	FAMILY NAME	GIVEN NAME
Person 1	_____	_____
Person 2	_____	_____
Person 3	_____	_____
Person 4	_____	_____
Person 5	_____	_____
Person 6	_____	_____



2. SEX

- ☐ Male
- ☐ Female

3. DATE OF BIRTH

Day

Month

Year

Example :

1 3

0 2

1 9 5 0

*If exact date is not known, enter best estimate.*

Date of birth

Day

Month

Year

\_\_\_\_\_



4. MARITAL STATUS

*Mark one circle only.*

- ☐ Never legally married (single)
- ☐ Legally married (and not separated)
- ☐ Separated, but still legally married
- ☐ Divorced
- ☐ Widowed

# Questionnaires, cont'd.

- Advantages of questionnaires over structured interviews:
  - 
  -

# Questionnaires, cont'd.

- Disadvantages of questionnaires over structured interviews:

-

# Questionnaires, cont'd.

- Disadvantages of questionnaires over structured interviews (continued):

-

# Questionnaires, cont'd.

- Sometimes questionnaires are administered **online**.
- **Useful to distinguish:**
- -> on-line polls (non-scientific)
- -> e-mail surveys
- -> Web surveys (scientific)