LESSON 30

DATA TRANSFROMATION

Data transformation is the process of changing data from their original form to a format that is more suitable to perform a data analysis that will achieve the research objectives. Researchers often modify thee values of a scalar data or create new variables. For example many researchers believe that response bias will be less if interviewers ask consumers for their year of birth rather than their age, even though the objective of the data analysis is to investigate respondents' age in years. This does not present a problem for thee research analyst, because a simple data transformation is possible. The raw data coded at birth year can be easily transformed to age by subtracting the birth year from thee current year.

Collapsing or combining categories of a variable is a common data transformation that reduces the number of categories. For example five categories of Likert scale response categories to a question may be combined like: the "strongly agree" and the "agree" response categories are combined. The "strongly disagree" and the "disagree" response categories are combined into a single category. The result is the collapsing of the five-category scale down to three.

Creating new variables by re-specifying the data numeric or logical transformations is another important data transformation. For example, Likert summated scale reflect the combination of scores (raw data) from various attitudinal statements. The summative score for an attitude scale with three statements is calculated as follows:

Summative Score = Variable 1 + Variable 2 + Variable 3

This calculation can be accomplished by using simple arithmetic or by programming a computer with a data transformation equation that creates the new variable "summative score."

The researchers have created numerous different scales and indexes to measure social phenomenon. For example scales and indexes have been developed to measure the degree of formalization in bureaucratic organization, the prestige of occupations, the adjustment of people in marriage, the intensity of group interaction, thee level of social activity in a community, and thee level of socio-economic development of a nation.

Keep it in mind that every social phenomenon can be measured. Some constructs can be measured directly and produce precise numerical values (e.g. family income). Other constructs require the use of surrogates or proxies that indirectly measure a variable (e.g. job satisfaction). Second, a lot can be learned from measures used by other researchers. We are fortunate to have the work of thousands of researchers to draw on. It is not always necessary to start from a scratch. We can use a past scale or index, or we can modify it for our own purposes. The process of creating measures for a construct evolves over time. Measurement is an ongoing process with constant change; new concepts are developed, theoretical definitions are refined, and scales or indexes that measure old or new constructs are improved.

Indexes and Scales

Scales and indexes are often used interchangeably. One researcher's scale is another's index. Both produce ordinal- or interval- level measures of variable. To add to thee confusion, scale and index techniques can be combined in one measure. Scales and indexes give a researcher more information about variables and make it possible to assess thee quality of measurement. Scales and indexes increase reliability and validity, and they aid in **data reduction;** that is condense and simplify the information that is collected.

A **scale** is a measure in which the researcher captures the intensity, direction, level, or potency of a variable construct. It arranges responses or observation on a continuum. A scale can use single indicator or multiple indicators. Most are at thee ordinal level of measurement.

An **index** is a measure in which a researcher adds or combines several distinct indicators of a construct into a single score. This composite score is often a simple sum of multiple indicators. It is used for content or convergent validity. Indexes are often measured at the interval or ratio level.

Researchers sometimes combine the features of scales and indexes in a single measure. This is common when a researcher has several indicators that are scales. He or she then adds these indicators together to yield a single score, thereby an index.

Unidimensionality: It means that al the items in a scale or index fit together, or measure a single construct. Unidimensionality says: If you combine several specific pieces of information into a single score or measure, have all the pieces measure the same thing. (each sub dimension is part of the construct's overall content).

For example, we define the construct "feminist ideology" as a general ideology about gender. Feminist ideology is a highly abstract and general construct. It includes a specific beliefs and attitudes towards social, economic, political, family, sexual relations. The ideology's five belief areas parts of a single general construct. The parts are mutually reinforcing and together form a system of beliefs about dignity, strength, and power of women.

Index Construction

You may have heard about a consumer price index (CPI). The CPI, which is a measure of inflation, is created by totaling the cost of buying a list of goods and services (e.g. food, rent, and utilities) and comparing the total to the cost of buying the same list in the previous year. An **index** is combination of items into a single numerical score. Various components or subgroups of a construct are each measured, and then combined into one measure.

There are many types of indexes. For example, if you take an exam with 25 questions, the total number of questions correct is a kind of index. It is a composite measure in which each question measures a small piece of knowledge, and all the questions scored correct or incorrect are totaled to produce a single measure.

One way to demonstrate that indexes are not a very complicated is to use one. Answer yes or no to the seven questions that follow on the characteristics of an occupation. Base your answers on your thoughts regarding the following four occupations: long-distance truck driver, medical doctor, accountant, telephone operator. Score each answer 1 for yes and 0 for no.

1. Does it pay good salary?
2. Is the job secure from layoffs or unemployment?
3. Is the work interesting and challenging?
4. Are its working conditions (e.g. hours, safety, time on the road) good?
5. Are there opportunities for career advancement and promotion?
6. Is it prestigious or looked up to by others?
7. Does it permit self-direction and thee freedom to make decisions?

Total the seven answers for each of the four occupations. Which had the highest and which had the lowest score? The seven questions are our operational definition of the construct good occupation. Each question represents a subpart of our theoretical definition.

Creating indexes is so easy that it is important to be careful that every item in the index has face validity. Items without face validity should be excluded. Each part of the construct should be measured with at least one indicator. Of course, it is better to measure the parts of a construct with multiple indicators.

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Another example of an index is college quality index. Our theoretical definition says that a high quality college has six distinguished characteristics: (1) fewer students per faculty member, (2) a highly educated faculty, (3) more books in the library, (4) fewer students dropping out of college, (5) more students who go to advanced degrees, and (6) faculty members who publish books or scholarly articles. We score 100 colleges on each item, and then add the score for each to create an index score of college quality that can be used to compare colleges.

Indexes can be combined with one another. For example, in order to strengthen the college quality index. We add a sub-index on teaching quality. The index contain eight elements: (1) average size of classes, (2) percentage of class time devoted to discussion, (3) number of different classes each faculty member teaches, (4) availability of faculty to students outside thee classroom, (5) currency and amount of reading assigned, (6) degree to which assignments promote learning, (7) degree to which faculty get to know each student, and (8) student ratings of instruction. Similar sub-index measures can be created for other parts of the college quality index. They can be combined into a more global measure of college quality. This further elaborates the definition of a construct "quality of college."

Weighting

An important issue in index construction is whether to weight items. Unless it is otherwise stated, assume that an index is un-weighted. Likewise, unless we have a good reason for assigning different weights, use equal weights. A weighted index gives each item equal weight. It involves adding up the items without modification, as if each were multiplied by 1 (or – 1 for negative items that are negative).

Scoring and Score Index

In one our previous discussions we had tried to measure job satisfaction. It was operationalized with the help of dimensions and elements. We had constructed number of statements on each element with 5 response categories using Likert scale i.e. strongly agree, agree, undecided, disagree, and strongly disagree. We could score each of these items from 1 to 5 depending upon the degree of agreement with the statement. The statements have been both positive as well as negative. For positive statements we can score straight away from 5 to 1 i.e. strongly agree to strongly disagree. For the negative statements we have to reverse the score i.e. 1 for "strongly agree," 2 for "agree," 3 for "undecided" to 4 for "disagree," and 5 for "strongly disagree." Reason being that negative multiplied by a negative becomes positive i.e. a negative statement and a person strongly disagreeing with it implies that he or she has a positive responsive so we give a score of 5 in this example. In our example, let us say there were 23 statements measuring for different elements and dimensions measuring job satisfaction. When on each statement the respondent could get a minimum score of 1 and a maximum score of 5, on 23 statements a respondent could get a minimum score of (23 X 1) and a maximum score of (23 X 5) 115. In this way the score index ranges from 23 to 115, the lower end of the score index showing minimum job satisfaction and upper end as the highest job satisfaction. In reality we may not find any on the extremes, rather the respondents could be spread along this continuum. We could use the raw scores of independent and dependent variable and apply appropriate statistics for testing the hypothesis. We could also divide the score index into different categories like high "job satisfaction" and "low satisfaction" for presentation in a table. We cross-classify job satisfaction with some other variable, apply appropriate statistics for testing the hypothesis.

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LESSON 31

DATA PRESENTATION

Tables and graphs (pictorial presentation of data) may simplify and clarify the research data. Tabular and graphic representation of data may take a number of forms, ranging from computer printouts to elaborate pictographs. The purpose of each table or graph, however, is to facilitate the summarization and communication of the meaning of the data.

Although there are a number of standardized forms for presenting data in table or graphs, the creative researcher can increase the effectiveness of particular presentation. Bar charts, pie charts, curve diagrams, pictograms, and other graphic forms of presentation create a strong visual impression.

The proliferation of computer technology in business and universities has greatly facilitated tabulation and statistical analysis. Commercial packages eliminate the need to write a new program every time you want to tabulate and analyze data with a computer. SAS, Statistical Package for the Social Sciences (SPSS), SYSTAT, Epi. Info. And MINITAB is commonly used statistical packages. These user friendly packages emphasize statistical calculations and hypothesis testing for varied types of data. They also provide programs for entering and editing data. Most of these packages contain sizeable arrays of programs for descriptive analysis and univariate, bivariate, and multivariate statistical analysis.

Results with one variable

Frequency Distribution

Several useful techniques for displaying data are in use. The easiest way to describe the numerical data of one variable is with a frequency distribution. It can be used with nominal-, ordinal-, interval-, or ratio-level data and takes many forms. For example we have data of 400 students. We can summarize the data on the gender of the students at a glance with raw count or a *frequency distribution*

Table 1: Frequency distribution of students

Gender	Frequency	Percent
Male	300	75
Female	100	25
Total	**400**	**100**

We can present the same information in a graphic form. Some common types of graphic presentations are the *histograms, bar chart, and pie chart.* Bar charts or graphs are used for discrete variables. They can have vertical or horizontal orientation with small space between the bars. The terminology is not exact, but histograms are usually upright bar graphs for interval or ratio data.

Presentation of data in these forms lays emphasis on visual representation and graphical techniques over summary statistics. Summary statistics may obscure, conceal, or even misrepresent the underlying structure of the data. Therefore it is suggested that data analysis should begin with visual inspection.

The presented data has to be interpreted. The purpose of interpretation is to explain the meanings of the data so that we can make inferences and formulate conclusions. Therefore, **interpretation** refers to making inferences pertinent to the meaning and implications of the research investigation and drawing conclusions. In order for interpretation, the data have to be meaningfully analyzed. For purposes of analysis the researchers use statistics.

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The word *statistics* has several meanings. It can mean a set of collected numbers (e.g. numbers telling how many people living in a city) as well as a branch of applied mathematics used to manipulate and summarize the features of numbers. Social researchers use both types of statistics. Here, we focus on the second type – ways to manipulate and summarize numbers that represent data from research project.

Descriptive statistics describe numerical data. They can be categorized by the number of variables involved: univariate, bivariate, or multivariate (for one, two, and three or more variables). Univariate statistics describe one variable.

Researchers often want to summarize the information about one variable into a single number. They use three measures of central tendency, or measures of the center of the frequency distribution: mean, median and mode, which are often called averages (a less precise and less clear way to say the same thing). The *mode* is simply the most common or frequently occurring number. The *median* is the middle point. The *mean* also called the arithmetic average, is the most widely used measure of central tendency. A particular central tendency is used depending upon the nature of the data.

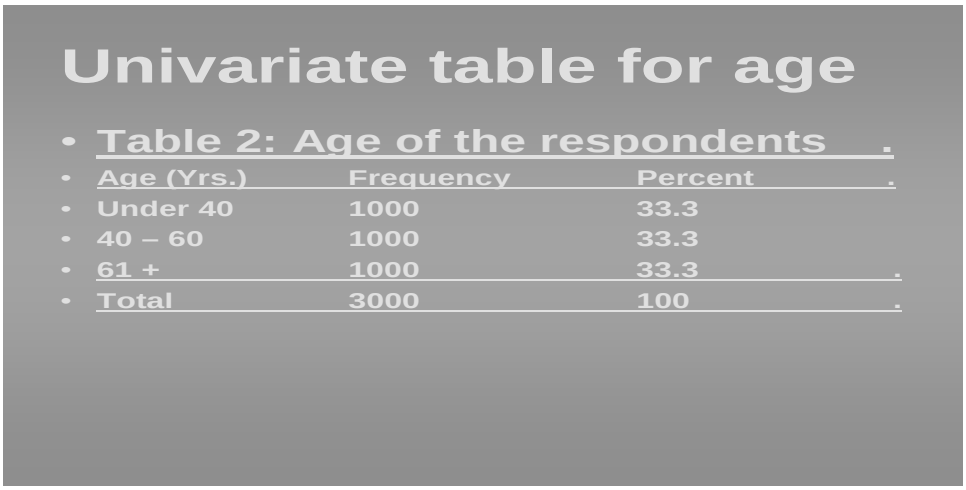
Bivariate Tables

The bivariate contingency table is widely used. The table is based on cross-tabulation (cross-classification); that is the cases are organized in the table on the basis of two variables at the same time.

A contingency table is formed by cross-tabulating the two or more variables. It is contingent because the cases in each category of a variable get distributed into each category of a second variable. The table distributes cases into categories of multiple variables at the same time and shows how the cases, by the category of one variable, are "contingent upon" the categories of the other variables.

Constructing Percentage Tables

It is to construct a percentage table, but there are ways to make it look professional. Let us take two variables like the age of the respondents and their attitude towards "women empowerment." Assuming that age affects the attitude towards women empowerment let us hypothesize: the lower the age, the higher the favorable attitude towards "women empowerment." The age range of the respondents is 25 to 70, and the attitude index has three categories of "highly favorable," "medium favorable," and "low favorable." The age variable has so many categories that making a table with that number becomes unwieldy and meaningless. Therefore, we regroup (recode) the age categories into three i.e. under 40 years, 40 – 60 years, and 61 + years.



Univariate table for attitude

- **Table 3: Attitude towards women empowerment**

Attitude	Frequency	Percent
Hi Favorable	1100	37
Med Favorable	1050	35
Lo Favorable	850	28
Total	3000	100

Bivariate table

- Table 4: Age by attitude towards women empowerment

Level of attitude	under 40		40 –60		61 +		Total	
	F.	%	F.	%	F	%	F	%
Hi Favorable	600	60	300	30	200	20	1100	37
Med. Favorable	300	30	500	50	250	25	1050	35
Lo Favorable	100	10	200	20	500	50	850	28
Total	1000	100	1000	100	1000	100	3000	100

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LESSON 32

THE PARTS OF THE TABLE

1. Give each table a number.
2. Give each table a title, which names variables and provides background information
3. Label the row and columns variables and give name to each of the variable categories.
4. Include the totals of the columns and rows. These are called *marginals.*They equal the univariate frequency distribution for the variable.
5. Each number or place that corresponds to the intersection of a category for each variable is a *cell of a table.*
6. The numbers with the labeled variable categories and the totals are called the *body of the table.*
7. If there is missing information, report the number of missing cases near the table to account for all original cases.

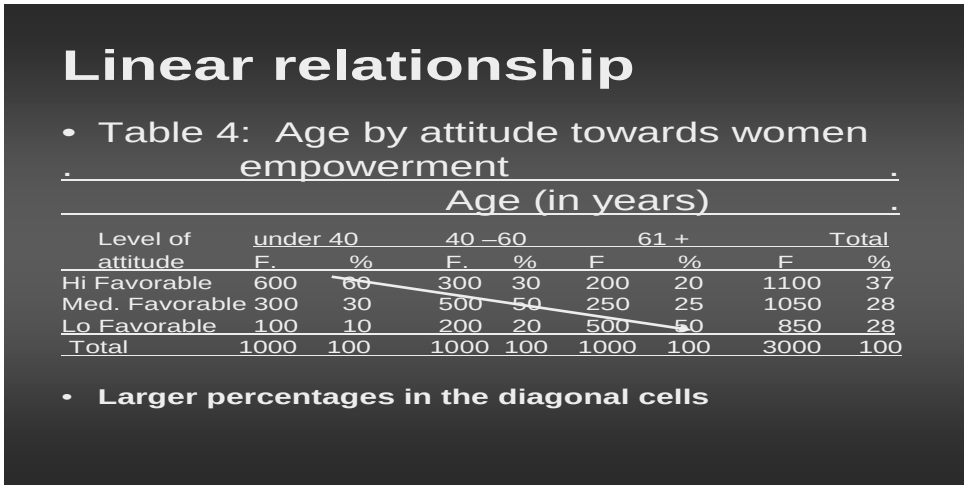
Researchers convert raw count tables into percentages to see bi-variate relationship. There are three ways to percentage a table: by row, by column, and for the total. The first two are often used and show relationship.

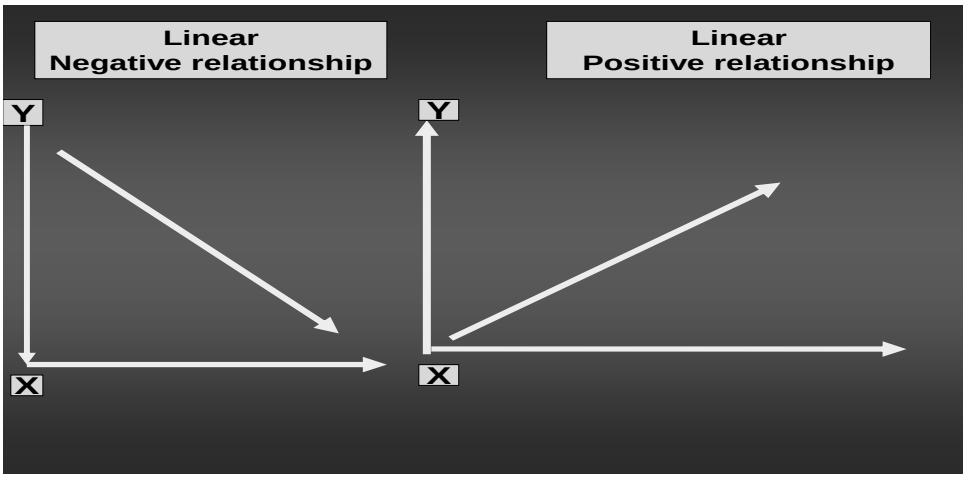
Is it best to percentage by row or column? Either could be appropriate. A researcher's hypothesis may imply looking at row percentages or the column percentages. Here, the hypothesis is that age affects attitude, so column percentages are most helpful. Whenever one factor in a cross-tabulation can be considered the cause of the other, percentage will be most illuminating if they are computed in the direction of the causal factor.

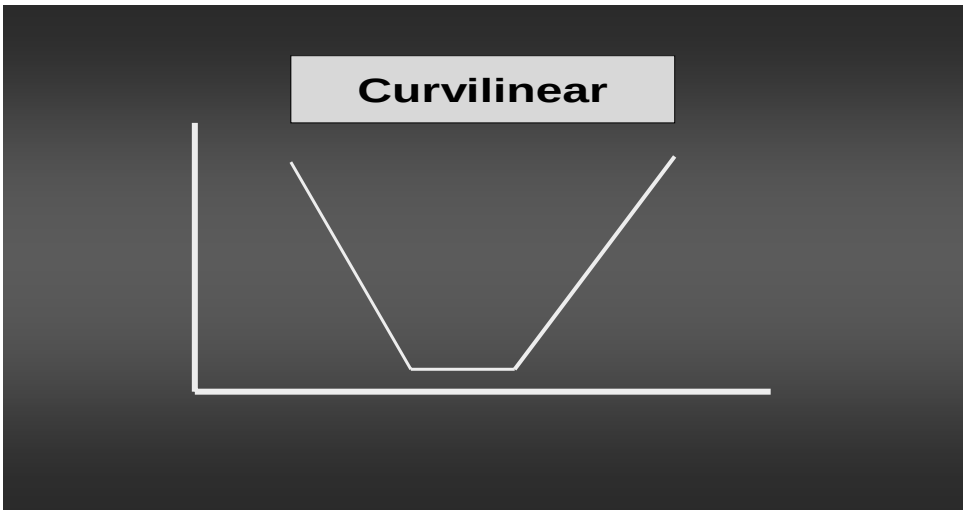
Reading a percentage Table: Once we understand how table is made, reading it and figuring out what it says are much easier. To read a table, first look at the title, the variable labels, and any background information. Next, look at the direction in which percentages have been computed – in rows or columns.

Researchers read percentaged tables to make comparisons. Comparisons are made in the opposite direction from that in which percentages are computed. A rule of thumb is to compare across rows if the table is percentaged down (i.e. by column) and to compare up and down in columns if the table is percentaged across (i.e. by row).

It takes practice to see a relationship in a perentaged table. If there is no relationship in a table, the cell percentages look approximately equal across rows or columns. A linear relationship looks like larger percentages in the diagonal cells. If there is curvilinear relationship, the largest percentages form a pattern across cells. For example, the largest cells might be the upper right, the bottom middle, and the upper left. It is easiest to see a relationship in a moderate-sized table (9 to 16 cells) where most cells have some cases (at least five cases are recommended) and the relationship is strong and precise.







A simple way to see strong relationships is to circle the largest percentage in each row (in row percentaged tables) or columns (for column-percentaged tables) and see if a line appears.

A simple way to see strong relationship is to circle the largest percentage in applicable row or column and see if a line appears

- Table 4: Age by attitude towards women empowerment

Level of attitude	under 40		40 –60		61 +		Total	
	F.	%	F.	%	F	%	F	%
Hi Favorable	600	(60)	300	30	200	20	1100	37
Med. Favorable	300	30	500	(50)	250	25	1050	35
Lo Favorable	100	10	200	20	500	(50)	850	28
Total	1000	100	1000	100	1000	100	3000	100

The circle-the-largest-cell rule works – with one important caveat. The categories in the percentages table must be ordinal or interval. The lowest variable categories begin at the bottom left. If the categories in a table are not ordered the same way, the rule does not work.

Statistical Control

Showing an association or relationship between two variables is not sufficient to say that an independent variable *causes* a dependent variable. In addition to temporal order and association, a researcher must eliminate alternative explanations – explanations that can make the hypothetical relationship spurious. Experimental researchers do this by choosing a research design that physically controls potential alternative explanations for results (i.e. that threaten internal validity).

In non-experimental research, a researcher controls for alternative explanations with statistics. He or she measures possible alternative explanations with *control variables*, and then examines the control variables with multivariate tables and statistics that help him or her to decide whether a bivariate relationship is spurious. They also show the relative size of the effect of multiple independent variables on dependent variable.

A researcher controls for alternative explanation in multivariate (more than two variables) analysis by introducing a third (sometimes fourth, or fifth) variable. For example, a bivariate table shows that young people show more favorable attitude towards women empowerment. But the relationship between age and attitude towards women empowerment may be spurious because men and women may have different attitudes. To test whether the relationship is actually due to gender, a researcher must control for gender; in other words, effects of gender are statistically removed. Once this is done, a researcher can see whether the bivariate relationship between age and attitude towards women empowerment remains.

A researcher controls for a third variable by seeing whether the bivariate relationship persists within categories of the control variable. For example controls for gender, and the relationship between age and attitude persists. This means that both male and females show negative association between age and attitude toward women empowerment. In other words, the control variable has no effect. When this is so, the bivariate relationship is not spurious.
If the bivariate relationship weakens or disappears after the control variable is considered, it means that the age is not real factor that makes the difference in attitude towards women empowerment, rather it is the gender of the respondents.

Statistical control is a key idea in advanced statistical techniques. A measure of association like the correlation co-efficient only suggests a relationship. Until a researcher considers control variables, the bivariate relationship could be spurious. Researchers are cautious in interpreting bivariate relationships until they have considered control variables.

After they introduce control variables, researchers talk about the *net effect* of an independent variable – the effect of independent variable "net of," or in spite of, the control variable. There are two ways to introduce control variables: trivariate percentaged tables and multiple regression analysis.

Constructing Trivariate Tables

In order to meet all the conditions needed for causality, researchers want to "control for" or see whether an alternative explanation explains away a causal relationship. If an alternative explanation explains a relationship, then bivariate relationship is spurious. Alternative explanations are operationalize as a third variable, which are called *control variables* because they control for alternative explanation.

One way to take such third variables into consideration and see whether they influence the bivariate relationship is to statistically introduce control variables using trivariate or three variable tables. Trivariate tables differ slightly from bivariate tables; they consist of multiple bivariate tables.

A trivariate table has a bivariate table of the independent and dependent variable for each category of the control variable. These new tables are called *partials.* The number of partials depends on the number of categories in control variable. Partial tables look like bivariate tables, but they use a subset of the cases. Only cases with a specific value on the control variable are in the partial. Thus it is possible to break apart a bivariate table to form partials, or combine the partials to restore the initial bivariate table.

Trivariate tables have three limitations. First, they are difficult to interpret if a control variable has more that four categories. Second, control variables can be at any level of measurement, but interval or ratio control variables must be grouped (i.e. converted to an ordinal level), and how cases are grouped can affect the interpretation of effects. Finally, the total number of cases is a limiting factor because the cases are divided among cells in partials. The number of cells in the partials equals the number of cells in the bivariate relationship multiplied by the number of categories in the control variables. For example if the control variable has three categories, and a bivariate table has 12 cells, the partials have 3 X 12 = 36 cells. An average of five cases per cell is recommended, so the researcher will need 5 X 36 = 180 cases at minimum.

Like a bivariate table construction, a trivariate table begins with a compound frequency distribution (CFD), but it is a three-way instead of two-way CFD. An example of a trivariate table with "gender" as control variable for the bivariate table is shown here:

Partial table for males

Level of	Age (in years)							
	Under 40		40—60		61+		Total	
Attitude	F	%	F	%	F.	%	F.	%.
High	300	60	200	33	30	6	530	33
Medium	140	28	270	45	120	24	530	33
Low	60	12	130	22	350	70	540	34
Total	500	100	600	100	500	100	1600	100

Partial table for females

Level of	Age (in years)							
	Under 40		40—60		61+		Total	
Attitude	F	%	F	%	F.	%	F.	% .
High	350	70	200	50	20	4	570	41
Medium	150	30	150	38	220	44	520	37
Low	-	-	50	12	260	52	310	22
Total	500	100	400	100	500	100	1400	100

The replication pattern is the easiest to understand. It is when the partials replicate or reproduce the same relationship that existed in the bivariate table before considering the control variable. It means that the control variable has no effect.

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The specification pattern is the next easiest pattern. It occurs when one partial replicate the initial bivariate relationship but other partials do not. For example, we find a strong (negative) bivariate relationship between age of the respondents and attitude towards women empowerment. We control for gender and discover the relationship holds only for males (i.e. the strong negative relationship was in the partial for males, but not for females). This is specification because a researcher can specify the category of the control variable in which the initial relationship persists.

The interpretation pattern describes the situation in which the control variable intervenes between the original independent variable and the dependent variables.

The suppressor variable pattern occurs when the bivariate tables suggest independence but relationship appears in one or both of the partials. For example, the age of the respondents and their attitudes towards women empowerment are independent in a bivariate table. Once the control variable "gender" is introduced, the relationship between the two variables appears in the partial tables. The control variable is suppressor variable because it suppressed the true relationship; the true relationship appears in partials.

Multiple Regression Analysis

Multiple regression controls for many alternative explanations of variables simultaneously (it is rarely possible to use more than one control variable using percentaged tables). Multiple regression is a technique whose calculation you may have learnt in the course on statistics.

Note

In the preceding discussion you have been exposed to the descriptive analysis of the data. Certainly there are statistical tests which can be applied to test the hypothesis, which you may have learnt in your course on statistics.

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LESSON 33

EXPERIMENTAL RESEARCH

Experimental research builds on the principles of positivist approach more directly than do the other research techniques. Researchers in the natural sciences (e.g. chemistry and physics), related applied fields (e.g. engineering, agriculture, and medicines) and the social sciences conduct experiments. The logic that guides an experiment on plant growth in biology or testing a metal in engineering is applied in experiments on human social behavior. Although it is most widely used in psychology, the experiment is found in education, criminal justice, journalism, marketing, nursing, political science, social work, and sociology.

The purpose of experimental research is to allow the researcher to *control* the research situation so that *causal* relationships among variables may be evaluated. The experimenter, therefore, manipulates a single variable in an investigation and holds constant all other, extraneous variables. (Events may be controlled in an experiment in a way that is not possible in a survey.) The goal of the experimental design is the confidence that it gives the researcher that his experimental treatment is the cause of the effect he measures.
Experiment is a research design in which conditions are controlled so that one or more variables can be manipulated in order to test a hypothesis. Experimentation is a research design that allows evaluation of causal relationship among variables.

Experiments differ from other research methods in terms of degree of control over the research situation. In a typical experiment one variable (the *independent variable*) is manipulated and its effect on another variable (the *dependent variable*) is measured, while all other variables that may confound such relationship are eliminated or controlled. The experimenter either creates an artificial situation or deliberately manipulates a situation.

Once the experimenter manipulates the independent variable, changes in the dependent variable are measured. The essence of a behavioral experiment is to do something to an individual and observe his or her reaction under conditions where this reaction can be measured against a known baseline.
To establish that variable X cause's variable Y, *all three* of the following conditions should be met:

1. Both X and Y should co-vary (i.e. when one goes up, the other should also simultaneously go up (or go down).
2. X (the presumed causal factor) should precede Y. In other words, there must be a time sequence in which the two occur.
3. No other factor should possibly cause the change in the dependent variable Y.

It may thus be seen that to establish causal relationships between two variables in an organizational setting, several variables that might co-vary with the dependent variable have to be controlled. This would then allow us to say that variable X and variable X alone causes the dependent variable Y. Useful as it is to know the cause-and-effect relationships, establishing them is not so easy, because several other variables that co-vary with the dependent variable have to be controlled. It is not always possible to control all the co-variates while manipulating the causal factor (the independent variable that is causing the dependent variable) in organizational settings, where events flow or occur naturally and normally. It is, however, possible to first isolate thee effects of a variable in a tightly controlled artificial setting (the lab setting), and after testing and establishing the cause-and-effect relationship under these tightly controlled conditions, see how generalizable such relationships are to the field setting.

The Language of Experiments

Experimental research has its own language or set of terms and concepts. One important term frequently used is *subjects* or *test units*. In experimental research, the cases or people used in research projects and on whom variables are measured are called thee *subjects* or *test units*. In other words these are those

entities whose responses to the experimental treatment are measured or observed. Individuals, organizational units, sales territories, or other entities may be the test units. Similar terminology is used on different component parts of the experiments.

Parts of Experiments: We can divide the experiments into seven parts and for each part there is a term. Not all experiments have all these parts, and some have all seven parts plus others. The following seven usually make up a true experiment.

1. Treatment or independent variable.
2. Dependent variable.
3. Pretest.
4. Posttest.
5. Experimental group.
6. Control group.
7. Assignment of subjects.

Treatment or independent variable: The experimenter has some degree of control over thee independent variable. The variable is independent because its value can be manipulated by the experimenter to whatever he or she wishes it to be. In experimental design the variable that can be manipulated to be whatever the experiment wishes. Its value may be changed or altered independently of any other variable.

In most experiments, a researcher creates a situation or enters into an ongoing situation, then modifies it. The treatment (or the stimulus or manipulation) is what the researcher modifies. The term comes from medicine, in which a physician administers a treatment to patients; the physician intervenes in a physical or psychological condition to change it. It is the independent variable or the combination of independent variables.
In experiments, for example, the researcher creates a condition or situation. Look at "the degree of fear or anxiety"; the levels are high-fear or low-fear situation. Instead of asking the subjects, as we do in surveys, whether they are fearful, experimenter puts the subjects into either in a high-fear or low-fear situation. They measure the independent variable by manipulating conditions so that some subjects feel a lot of fear and others feel little.

Researchers go to great lengths to create treatments. They want the treatment to have an impact and produce specific reactions, feelings, or behaviors.

It also possible the researchers look at the alternative manipulations of the independent variable being investigated. In business research, the independent variable is often categorical or classificatory variable, representing some classifiable or qualitative aspects of management strategy. To determine the effects of training, for example, the experimental treatment that represents the independent variable is the training program itself.

Dependent Variable: The criterion or standard by which thee results are judged. It is assumed that the changes in the dependent variable are consequence of changes in the independent variable. For example, measures of turnover, absenteeism, or morale might be alternative choices for the dependent variable, depending on the purpose of the training.

The outcomes in the experimental research are the physical conditions, social behaviors, attitudes, feelings, or beliefs of subjects that change, in response to treatment. Dependent variables can be measured by paper-and-pencil indicators, observations, interviews, or physiological responses (e.g. heartbeat, or sweating palms).

Selection of dependent variable is crucial decision in the design of an experiment.

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Pretests and Posttests: Frequently a researcher measures thee dependent variable more than once during an experiment. The *pretest* is the measurement of the dependent variable prior to the introduction of the treatment. The posttest is the measurement of the dependent variable after thee treatment has been introduced into the experimental situation.

Experimental and Control Groups: Experimental researchers often divide subjects into two or more groups for purposes of compassion. A simple experiment has only two groups, only one of which receives the treatment. The experimental group is the group that receives the treatment or in which the treatment is present.

The group that does not receive the treatment is called the "control group." When the independent variable takes on many different values, more than one experimental group is used.

In the simplest type of experiment, only two values of the independent variable are manipulated. For example, consider measuring the influence of a change in work situation, such as playing music over an intercom during working hours, on employee productivity. In the experimental condition (the treatment administered to the **experimental group**), music is played during working hours. In the control condition (the treatment administered to the **control group**), the work situation remains the same, without change. By holding conditions constant in the control group, the researcher controls for potential sources of error in the experiment. Productivity, (the dependent variable) in the two groups is compared at the end of the experiment to determine whether playing the music (the independent variable) has any effect.

Several experimental treatment levels can also be used. The music/productivity experiment, with one experimental and one control group, may not tell the researcher everything he or she wishes to know about the music/productivity relationship. If the researcher wished to understand the functional nature of the relationship between music and productivity at several treatment levels, additional experimental groups with music played for only 2 hours, only for 4 hours, and only for 6 hours might be studied. This type of design would allow the experimenter to get a better idea about the impact of music on productivity.

Assignment of Subjects/Test Units: Social researchers frequently want to compare. When making comparisons, the researchers want to compare the cases that do not differ with regard to variables that offer alternative explanations. Therefore the groups should be similar in characteristics in such a way that the change in the dependent variable is presumably the outcome of the manipulation of the independent variable, having no alternative explanations.

Random assignment (Randomization) is a method for assigning the cases (e.g. individuals, organizations) to groups for the purpose of making comparisons. It is a way to divide or sort a collection of cases into two or more groups in order to increase one's confidence that the groups do not differ in a systematic way. It is a mechanical method; the assignment is automatic, and thee researcher cannot make assignments on thee basis of personal preference or the features of specific cases.

Random assignment is random in statistical/mathematical sense, not in everyday sense. In everyday speech, random means unplanned, haphazard, or accidental, but it has a special meaning in mathematics. In probability theory, random describes a process in which each case has a known chance of being selected. Random selection allows the researcher calculate the odds that a specific case will be sorted into one group or the other. A random process is the one in which all cases have an exactly equal chance of ending up in one or the other group.

Random assignment or randomization is unbiased because a researcher's desire to confirm a hypothesis or a research subject's personal interests does not enter into the selection process. It also assures the researcher that repetitions of an experiment – under the controlled conditions – will show true effects, if

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they exist. Random assignment of subjects allows the researcher to assume that thee groups are identical with respect to all variables except for experimental treatment.

Random assignment of subjects to the various experimental groups is thee most common technique used to prevent test units from differing from each other on key variables; it assumes that all the characteristics of these subjects have been similarly randomized. If the experimenter believes that certain extraneous variable may affect the dependent variable, he or she may make sure that the subjects in each group are matched on these characteristics. **Matching** the subjects on the basis of pertinent background information is another technique for controlling assignment errors.

Matching presents a problem: What are the relevant characteristics to match on, and can one locate exact matches? Individual cases differ in thousands of ways, and the researcher cannot know which might be relevant.

Three Types of Controls

1. **Manipulation of the Independent Variable:** In order to examine the causal effects of an independent variable on a dependent variable, certain manipulations need to be tried. Manipulation simply means control over the stimulus that is we create different levels of the independent variable to assess the impact on the dependent variable. Let us say we want to test the effects of lighting on worker production levels among sewing machine operators. To establish cause and effect relationship, we must measure the production levels of all the operators over a 15 day period with the usual amount of light they work with – say 60 watt bulbs. We might then want to split the group of 60 operators into three groups of 20 members each, and while allowing the subgroup to continue to work under the same conditions as before (60-watt electric light bulbs). We might want to manipulate the intensity of the light for the other two subgroups, by making one group work with 75 watt and the other with 100 watt light bulbs. After the different groups have worked with these varying degrees of light exposure for15 days, each group's total production for these 15 days may be analyzed to see the difference between the pre-experimental and the post experimental productions among the groups is directly related to the intensity of the light to which they have been exposed. If our hypothesis that better lighting increases the production levels is correct, the subgroups that did not have any change in the lighting (control group), should have no increase in production and thee other two groups should show increases, with the one having the most light (100 watts) showing greater increases than those who had the 75 watt lighting.

   In this case the independent variable, lighting, has been manipulated by exposing different groups to different degrees of changes in it. This manipulation of the independent variable is also known treatment, and the results of the treatment are called treatment effects.
2. **Holding Conditions Constant:** When we postulate cause-and-effect relationships between two variables X and Y, it is possible that some other factor, say A, might also influence the dependent variable Y. In such a case, it will not be possible to determine the extent to which Y occurred only because of X, since we do not know how much of the total variation of was caused by the presence of the other factor A. If the true effect of thee X is to be assessed, then the effect of A has to be controlled. This is also called as controlling the effect of contaminating factors or confounding factors.

3. **Control over the Composition of Groups:** If the experimental and control groups have such characteristics that could contaminate the results then the researcher may have to take note of such factors, if there are any. The group differences should not confound the effect of X variable that happens to be under study. The experimental and control groups need to be balanced. For this purpose the researcher may use **random selection** of the subjects and allocating to different groups. Finally the experimental and control groups should also be selected randomly. Another way to have identical groups is by following the procedure of

matching. One could look at the possible characteristics of the subjects that could contaminate the effect of X variable, and try to distribute these evenly in all the groups. So pick up one subject and try to match it with another subject on the specified characteristics (age, gender, education, marital status) and put one subject in one group and the other in the other group. After the formation of groups, the researcher may randomly decide about experimental and control groups.

Random Assignment

Social researchers frequently want to compare. For example, a researcher has two groups of 15 students and wants to compare the groups on the basis of key differences between them (e.g. a course that one group completed). Or a researcher has five groups of customers and wants to compare the groups on the basis of one characteristic (e.g. geographic location). "Compare apples with apples, don't compare apples with oranges." It means that a valid comparison depends on comparing things that are fundamentally alike. Random assignment facilitates comparison in experiments by creating similar groups.

Random assignment is a method for assignment cases (e.g. individuals, organizations) to groups for the purpose of making comparisons. It is a way to divide or sort a collection of cases into two or more groups in order to increase one's confidence that the groups do not differ in a systematic way. It is mechanical method; the assignment is automatic, and the researcher cannot make assignments on the basis of personal preference or the features of specific cases.

Random assignment is random in a statistical or mathematical sense, not in an everyday sense. In everyday speech, random means unplanned, haphazard, or accidental, but it has a specialized meaning in mathematics. In probability theory, *random* describes a process in which each case has a known chance of being selected. Random assignment lets a researcher calculate the odds that a specific case will be sorted into one group over another.

Random assignment or randomization is unbiased because a researcher's desire to confirm a hypothesis or a research subject's personal interest does not enter into selection process.

Matching

It implies to match the characteristics (such as age, sex) of the cases in each group. Matching is an alternative to random assignment, but it is an infrequently used one.
Matching presents a problem: What are the relevant characteristics to match on, and can one locate exact matches. Individual cases differ in thousands of ways, and the researcher cannot know which might be relevant. Therefore, randomization is preferred over matching. It takes care of the contaminating factors.

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LESSON 34

EXPERIMENTAL RESEARCH (Cont.)

Steps in Conducting an Experiment

Following the basic steps of the research process, experimenters decide on a topic, narrow it into a testable research problem or question, and then develop a hypothesis with variables. Once a researcher has the hypothesis, the steps of experimental research are clear. Broadly there are about 12 steps in conducting an experiment, which are as below:

1. Begin with a straightforward hypothesis that is appropriate for experimental research.
2. Decide on an experimental design that will test the hypothesis within practical limitations. The researcher decides the number of groups to use, how and when to create treatment conditions, the number of times to measure the dependent variable, and what the groups of subjects will experience from beginning till end.
3. Decide how to introduce the treatment or create a situation that induces the independent variable.
4. Develop a valid and reliable measure of the dependent variable.
5. Set up an experimental setting and conduct a pilot test of the treatment and dependent variable measures.
6. Locate appropriate subjects or cases.
7. Randomly assign subjects to groups (if random assignment is used in the chosen research design) and give careful instructions.
8. Gather data for the pretest measure of the dependent variable for all groups (if pretest is used in thee chosen design).
9. Introduce the treatment to the experimental group only (or to the relevant groups if there are multiple experimental groups) and monitor all groups.
10. Gather data for posttest measure of the dependent variable.
11. Debrief the subjects by informing them of the true purpose and reasons for the experiment. Ask subjects what they thought was occurring. Debriefing is crucial when subjects have been deceived about some aspect of the treatment.
12. Examine data collected and make comparisons between different groups. Where appropriate, use statistics and graphs to determine whether or not the hypothesis is supported.

Types of Designs

Researchers combine parts of experiment (e.g. pretests, control groups, etc.) together into an experimental design. For example some designs lack pretests, some do not have control groups, and others have many experimental groups. Certain widely used standard designs have names.

Classical Experimental Design: All designs are variations of the classical experimental design, which has random assignment of subjects, a pretest and a posttest, an experimental group, and a control group.

Quasi-Experimental Designs:

One-shot Case Study Design: Also called the one-group posttest-only design, the one-shot case study design has only one group, a treatment, and a posttest. Because it is only one group, there is no random assignment. For example, a researcher shows a group of students a horror film, then measures their attitude with a questionnaire. A weakness of this design is that it is difficult to say for sure that the treatment caused the dependent variable. If subjects were the same before and after the treatment, the researcher would not know it.

***One Group Pretest-posttest Design*:** This design has one group, a pretest, a treatment, and a posttest. It lacks a control group and random assignment. Continuing with the previous example, the researcher gives a group of students an attitude questionnaire to complete, shows a horror film, then has them

complete the same questionnaire second time. This is an improvement over the one-shot case study because the researcher measures the dependent variable both before and after the treatment. But it lacks the control group for comparison. The researcher cannot know whether something other than the treatment occurred between the pretest and the posttest to cause the outcome.

Two Groups Posttest-only Design: It has two groups, a random assignment of subjects, a posttest, and a treatment. It has all parts of the classical design except a pretest. Continuing with our previous example, the researcher forms two groups through randomization process. He shows group a horror film to one group i.e. the experimental group. The other group is not shown any film. Both groups then complete the questionnaire. The random assignment reduces the chance that the groups differed before the treatment, but without a pretest, a researcher cannot be as certain that the groups began the same on the dependent variable.

True Experimental Designs

Experimental designs, which have at least two groups, a random assignment of subjects to experimental and control groups, only experimental group is exposed to treatment, both groups record information before and after the treatment, are known as ex-post facto experimental designs.

Pretest and Posttest Experimental and Control Group Design: Two groups, one control group and the other experimental group, are formed randomly. Both the groups are exposed to pretest and posttest. The experimental group is exposed to treatment while the control group is not. Measuring the difference between the differences in the post- and pretests of the two groups would give the net effects of the treatment.

Experimental Group: Pretest (O1) X Posttest (O2)
Control Group: Pretest (O3) - Posttest (O4)

Randomization used for setting up the group.

[(O2 – O1) – (O4 – O3)] = Treatment effect (could be anywhere between 0 to -1 or +1).

Solomon's Four Group Design: To gain more confidence in internal validity in experimental designs, it is advisable to set up two experimental groups and two control groups. One experimental group and one control group can be given the both pretest and the posttest. The other two groups will be given only the posttest. Here the effects of treatment can be calculated in several different ways as shown in figure 1:

Figure 1: Solomon's four group design

Group	Pretest	Treatment	Posttest
1. Experimental	O1	X	O2
2. Control	O3	-	O4
3. Experimental	-	X	O5
4. Control	-	-	O6

(O2 – O1) = E
(O4 - O3) = E
(O5 – O6) = E
(O5 - O3) = E
[(O2 –O1) – (O4 – O3)] = E
E = Effect

If all Es are similar, the cause and effect relationship is highly valid.

Interaction Effect

The effect of two variables together is likely to be greater than the individual effect of each put together. The idea of an interaction effect is familiar, especially in the area of medicine or illness. As an example, imagine that for a given population of 100 persons, all of the same age and sex, it was found that if all 100 smoked cigarettes the effect would be a lung cancer rate of 20 percent. Assume that for an identical group of 100 persons who did not smoke but lived in a smoggy environment, 10 percent would get lung cancer. Now consider a third identical group of 100 persons all of whom smoke and also live in a smoggy environment. The additive effect of both smoking and smog would be 20 percent plus 10 percent, or a total of 30 percent (30 people) having cancer. However, imagine that an actual medical survey of the population shows a cancer rate of 37 percent among persons experiencing both smoking and smog. This extra 7 percent can be computed residually as:

Interaction Effect = Total effect – (smoking effect + smog effect) = 37 percent

= 37 percent - (20 percent + 10 percent)
= 37 percent - 30 percent
= 7 percent

In experiments we have the pretests and posttests, in which case we use the same instrument for measuring the dependent variable, for example racial prejudice as an effect of a movie. In pretest is a questionnaire in which items forming the prejudice scale are dispersed at random among other items so that the subject does not know that his or her level of racial prejudice is being measured. Nevertheless, the measurement of this variable (prejudice) itself, by presenting questions about race relations may stimulate the subject's thinking and actually cause a change in his or her level of racial prejudice. Any pretest effect that occurs will be visible as part of extraneous change (change caused by the test stimulus) in the control group, as the pretest is also presented to the control group. Any change between the pretest and posttest for measuring the dependent variable in the control group may be attributed to the sensitization of the subjects with the instrument. In the experimental group of course a movie (an X variable) was shown due to which we expect a change in the racial prejudice of the subjects. But that is not all. The subjects in the experimental group were also exposed to the instrument for measuring the racial prejudice, hence they were also sensitized. Their posttest results include the combined effect of exposure to a movie and that of sensitization to the instrument. In other words the racial prejudice of the subjects in the experimental group exhibits the interaction effect of the treatment plus that of sensitization of the instrument.

In order to calculate the interaction effect in the experiment we shall have two experimental groups and one control group created by using the randomization process. It may look like this:

Experimental group 1:	**Pretest (O1)**	**X**	**Posttest (O2)**
Control group:	Pretest (O3)	-	Posttest (O4)

Why O4 be different from O3? The difference may be due to sensitization. So let us figure it out. Let us take another experimental group and we do not pretest i.e. no sensitization with the instrument.

Experimental group 2:	**No pretest**	**X**	**Posttest (O5)**

Let us work out the results:

(O2- O1) = D
(O4- O3) = D/
(O5 – O3)= D// (Since all groups are identical, so we can use the pretest of any of the Other two groups)
Interaction effect = D – [D/ + D//]. Substituting it with our example of lung cancer →
37 - [10 + 20] = 37 – 30 = 7

There are many other experimental designs like the randomized block design, Latin square design, natural group design, and factorial design.

LESSON 35

EXPERIMENTAL RESEARCH (Cont.)

Validity in Experiments

Experiments are judged by two measures. The first, internal validity indicates whether the independent variable was the sole cause of the change in the dependent variable. It implies the researcher's ability to eliminate alternative explanations of the dependent variable. Variables, other than the treatment, that affect the dependent variable are threats to internal validity. They threaten the researcher's ability to say that the treatment was the true causal factor producing change in the dependent variable. The second measure, external validity, indicates the extent to which the results of the experiment are applicable in the real world.

Internal validity is high in the laboratory experiment, reason being the control over all the confounding factors. External validity (generalisability) is not sure because of the effect of variety of factors. Field experiments have more external validity but less internal validity because it is closer to the real situations.

Factors Affecting Internal Validity

In choosing or evaluating experimental research design, researchers must determine whether they have internal and external validity. There are eight major types of extraneous variables that may jeopardize internal validity: History effect, maturation effect, testing effect, instrumentation effect, selection bias effect, selection bias effect, statistical regression, mortality, and mechanical loss.

1. History Effect: A specific event in the external environment occurring between the first and second measurement that is beyond the control of the experimenter and that affects the validity of an experiment. Advertisement of a particular product (mineral water) and its sale is affected by an event in the society (contamination of drinking water). The researcher does not have control on such happenings which have an impact on the X and Y relationship.

2. Maturation Effect: Cause and effect relationship can also be contaminated by the effects of the passage of time – another uncontrollable variable. Such contamination is called maturation effect. The maturation effects are a function of the processes – biological and psychological – operating within the subjects as a result of the passage of time. Examples of maturation processes could include *growing older, getting tired, feeling hungry, and getting bored*. In other words there could be maturation effect on the dependent variable purely because of the passage of time. For example, let us say that an R & D director intends that an increase in the efficiency of workers would result within three months' time if advanced technology is introduced in the work setting. If at the end of three months increased efficiency is indeed found, I will be difficult to claim that the advanced technology (and it alone) increased the efficiency of workers, because with the passage of time, employees would also gained experience, resulting in better performance and therefore improved efficiency. Thus, the internal validity also gets reduced owing to the effects of maturation in as much as it is difficult to pinpoint how much of the increase is attributable to the introduction of the enhanced technology alone.

3. Testing Effects: Frequently, to test the effects of treatment, subjects are given what is called a ***pretest*** (say**,** a short questionnaire eliciting their feelings and attitudes). That is, a measure of the dependent variable is taken (pretest), then the treatment given, and after that a second test, called ***posttest***, administered. The difference between the posttest and the pretest scores is then attributed to the treatment. However, the very fact that the subjects were exposed to the pretest might influence their responses on the posttest, which will adversely impact on internal validity. It is also called sensitization through previous testing.

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4. Instrumentation Effects: Instrumentation effects are yet another source of threat to internal validity. These might arise because of a change in the measuring instrument between pretest and posttest, and not because of the instrument's differential impact at the end. For example, in a weight-loss experiment, the springs on the scale weaken during the experiment, giving lower readings in the posttest.

A change in the wording of questions (may be done to avoid testing effects), change in interviewers, or change in other procedures to measure the dependent variable can cause instrumentation effect.
Performance of the subjects measured by the units of output in the pretest, but when measuring the out put in posttest the researcher measures it by "the number of units rejected, and the amount of resources expended to produce the units.

5. Selection Bias Effect: Selection bias is the threat that subjects will not form equivalent groups. It is a problem in design without random assignment, hence differential selection of the subjects for the comparison groups. It occurs when subjects in one experimental group have a characteristic that affects the dependent variable. For example, in an experiment on physical aggressiveness, the experimental group unintentionally contains subjects who are sportsmen, whereas the control group is made up of musicians, chess players, and painters.

6. Statistical Regression: Statistical regression is not easy to grasp intuitively. It is a problem of extreme values or a tendency for random error to move group results towards the average. If extremes are taken then they tend to regress toward the mean. Those who are on either end of the extreme would not truly reflect the cause and effect relationship.

One situation arises when subjects are unusual with regard to dependent variable. Because they begin as unusual or extreme, subjects are likely to respond further in the same direction. For example, a researcher wants to see whether violent films make people act violently. The researcher chooses a group of violent criminals from a high security prison, gives them a pretest, shows violent films, and then administers a posttest. To the researcher's surprise, the criminals are slightly less violent after the film, whereas a control group of non-prisoners who did see the film are slightly more violent than before. Because the violent criminals began at an extreme, it is unlikely that a treatment could make them more violent; by random chance alone, they appear less extreme when measured a second time.

If participants chosen for experimental group have extreme scores on the dependent variable to begin with then the laws of probability say that those with very low scores on a variable have a greater probability to improve and scoring closer to mean on the posttest after treatment. This phenomenon of low scorers tending to score closer to the mean is known as "regressing toward the mean."

Likewise, those with high scores have a greater tendency to regress toward the mean – will score lower on the posttest than on pretest. Thus the extremes will not "truly" reflect the causal relationship – a threat to internal validity.

7. Mortality: Mortality, or attrition, arises when some subjects do not continue throughout the experiment. Although the word mortality means death, it does not necessarily mean that subjects have died. If a subset of subjects leaves partway through an experiment, a researcher cannot whether the results would have been different had the subjects stayed. Even with departure of few subjects, the groups do not remain balanced.

Consider for example of a training experiment that investigates the effects of close supervision of salespersons (high pressure) versus low supervision (low supervision). The high pressure condition may misleadingly appear to be superior if those subjects who completed the experiment did very well. If, however, the high-pressure condition caused more subjects to drop-out than the other condition, this apparent superiority may be due to a self-selection bias (those who could not bear the pressure had left –

mortality) – perhaps only very determined and/or talented salespersons made it through the end of the experiment.

8. Mechanical Loss: A problem may be experienced due to equipment failure. For example, in an experiment if the subjects are told that their behavior is being video taped, and during the experiment the video equipment failed to work for some subjects, then the validity of the results could become doubtful.

9. Experimenter Expectancy: In addition to the usually listed eight factors affecting the internal validity some times **experimenter expectancy** may threaten the causal logic of the relationship between the variables. A researcher may threaten internal validity, not purposefully unethical behavior but by indirectly communicating experimenter expectancy to the subjects. Researchers may highly committed to the hypothesis and indirectly communicate desired findings to subjects. For example, a researcher studying reactions towards disabled deeply believes that females are more sensitive toward the disabled than the males are. Through eye contact, tone of voice, pauses, and other nonverbal communication, the researcher unconsciously encourages female subjects to report positive feelings toward the disabled; the researcher's nonverbal behavior is the opposite for male subjects.

The ***double-blind experiment*** is designed to control experimenter expectancy. In it, people who have direct contact with subjects do not know the details of the hypothesis or the treatment. It is ***double*** blind because both the subjects and those in contact with them are blind to details of the experiment. For example a researcher wants to see if new drug is effective. Using capsules of three colors – green, yellow, and pink -- the researcher puts the new drug in the yellow capsule, puts an old drug in the pink one, and take the green capsule a ***placebo*** – a false treatment that appears to be real (e.g., a sugar capsule without any physical effects). Assistants who give the capsules and record the effects do not know which color contains the new drug. Only another person who does not deal with subjects directly knows which colored capsule contains the drug and examines the results.

External Validity

Even if the researcher eliminates all concerns for internal validity, external validity remains a potential problem. External validity is the ability to generalize experimental findings to real life situations. Without external validity, the findings are of little use for both basic and applied research i.e. we shall not be able to develop any theories that could be applicable to similar other situations.

Reactivity: A Threat to External Validity

Subjects may react differently in an experiment than they would in real life; because they know they are in a study. *The Hawthorn Effect,* a specific kind of reactivity to the experimental situation is a good example in this respect. The experiment was conducted in the Hawthorn Electric Company where the performance of the participants was supposed to change due to the change in the environmental conditions i.e. improvement on the environmental conditions will have a positive effect on thee performance. The researchers modified many aspects of the working conditions and measured productivity. Productivity rose after each modification. Productivity rose even if there was no real modification but it was announced that there is a modification. The behavior change was simply a reaction to the announcement of modification and some other factors like the participants were being watched and had a feeling of being 'very important persons.'

Here the workers did not respond to treatment (modification of working conditions) but to the additional attention they received (being in the experiment ad being the focus of attention).

Demand characteristic (discussed earlier) is another type of reactivity. Here the participants change their behavior as a reaction to the demands of the experimenter who may have inadvertently told the subjects about the expected outcome of the treatment. They change their behavior as demanded by the experimenter.

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Ethical Issues in Lab Experiments

We have already discussed the ethical issues in research. Just for the sake of emphasis, it may be appropriate to very briefly repeat some of those which are specifically relevant to experimental designs. The following actions may be unethical:

- Putting pressure on individuals to participate in experiments through coercion, or apply social pressure.
- Asking demeaning questions from the subjects that hurt their self respect or giving menial task to subjects that diminish their self respect.
- Deceiving subjects by deliberately misleading them as to the true purpose of research.
- Exposing participants to physical or mental stress.
- Not allowing subjects to withdraw from the experiment when they want to.
- Using research results to disadvantage the participants, or for purposes not to their liking.
- Not explaining the procedures to be followed in the experiment.
- Exposing subjects to hazardous and unsafe environments.
- Not debriefing the participants fully and accurately after the experiment is over.
- Not preserving the privacy and confidentiality of the information given by the participants.
- Withholding benefits from the control group.

Human Subjects Committee

In order to protect the rights of participating subjects the research institutions have usually set up Ethics Committees. Sometime project specific ethics committees are also formed. Such committees try to look after the rights of the subjects participating in the experiments, as well as in other research techniques.

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LESSON 36

NON-REACTIVE RESEARCH

Experiments and surveys research are both ***reactive***; that is, the people being studied are aware of the fact that they are being studied. In ***non-reactive*** research, those being studied are not aware that they are part of a research project. Such a research is largely based on positivistic principles but is also used by interpretive and critical researchers.

The Logic of Non-Reactive Research

The critical thing about non-reactive or *unobtrusive measures* (i.e. the measures that are not obtrusive or intrusive) is that the people being studied are not aware of it but leave evidence of their social behavior or actions 'naturally." The researcher infers from the evidence to behavior or attitudes without disrupting those being studied. Unnoticed observation is also a type of non-reactive measure. For example, a researcher may be observing the behavior of drivers from a distance whether drivers stopped at red sign of the traffic lights. The observations can be made both at the day time and at night. It could also be noted whether the driver was a male or a female; whether the driver was also or with passengers; whether other traffic was present; and whether thee car came to a complete stop, a slow stop, or no stop.

Varieties of Non-Reactive Observations

Non-reactive measures are varied, and researchers have been creative in inventing indirect ways to measures behaviors. Because the measures have little in common except being non-reactive, they are best learned through examples like:

Physical Traces:

- *Erosion*: Wear and tear suggests a greater use. For example, a researcher examines children's toys at a children's play centre that were purchased at the same time. Worn out toys suggest greater interest of children in them.
- *Accretion:* Accumulation of physical evidence suggests behavior. A researcher examines the soft drink cans or bottles in the garbage collection. That might indicate the brands and types of soft drinks that are very popular.

Archives:

- *Running Records:* Regularly produced public records may reveal lot of information. For example, a researcher may examine marriage records for brides' and grooms' recorded ages. The differences might indicate that males marrying younger females are greater than the other way around.
- *Other Records:* Irregular or private records can reveal a lot. For example, a researcher may look into the number of reams of paper purchased by a college principal's office for the last 10 years and compare it with students' enrollment.

Observations:

- *External Appearance:* How people appear may indicate social factors. For example, a researcher watches students to see whether they are more likely to wear their college's colors and symbols after the college team won or lost.
- *Count Behaviors:* Counting how many people do something can be informative. For example a researcher may count the number of men and women who come to a full stop and those who come to a rolling stop at a traffic stop sign. This suggests gender difference in driving behavior.
- *Time Duration:* How long people take to do things may indicate their intention. For example a researcher may measure how long men and women pause in front of a particular painting. Time taken may indicate their interest in the painting.

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Recording and Documentation

Creating non-reactive measures follows the logic of quantitative measurement, although qualitative researchers also use non-reactive observations. A researcher first conceptualizes a construct, and then links the construct to non-reactive empirical evidence, which is its measure. The operational definition of the variable includes how the researcher systematically notes and records observations.

Content Analysis

Content analysis is a technique for gathering and analyzing the content of a text. The *content* refers to words, meanings, pictures, symbols, ideas, themes, or any message that can be communicated. The *text* is anything written, visual, or spoken that serves as a medium of communication. ***Possible artifacts for study*** could be books, newspaper or magazine articles, advertisements, poems, letters, laws, constitutions, dramas, speeches, official documents, films or videotapes, musical lyrics, photographs, articles of clothing, or works of arts. All these works may be called as documents. The documents can be:

- Personal – letters, diary, autobiography.
- Non-personal – interoffice memos, official documents, proceedings of a meeting.
- Mass media – newspapers, magazines, fiction, films, songs, poems, works of arts.

Content analysis goes back nearly a century and is used in many fields – literature, history, journalism, political science, education, psychology, sociology, and so on. It is also called a study of communication, which means who says what, to whom, why, how, and with what effect.

In content analysis, the researcher uses objective and systematic counting and recording procedures to produce a quantitative description of the symbolic content in a text. It may also be called **"textual coding."** There are qualitative versions of content analysis. The emphasis here is quantitative data about a text's content.

Content Analysis is Non-Reactive: It is non-reactive because the placing of words, messages, or symbols in a text to communicate to the reader or receiver occurs without influence from the researcher who analyzes its contents. There is no interaction between the researcher and the creator of the text under analysis.

Content analysis lets a researcher reveal the contents (i.e. messages, meanings, symbols, etc.) in a source of communication (i.e. a book, article, movie, etc.). It lets him/her probe into and discover content in a different way from ordinary way of reading a book or watching a television program.

With content analysis, a researcher can compare content across many texts and analyze it with quantitative techniques (table, charts). In addition, he or she can reveal aspects of the text's content that are difficult to see. For example, you might watch television commercials and feel that women are mostly portrayed working in the house, cooking food, using detergents, looking after children. Content analysis can document – in objective, quantitative terms – whether or not your vague feelings based on unsystematic observation are true. It yields repeatable, precise results about the text.

Content analysis involves random sampling, precise measurement, and operational definitions for abstract constructs. Coding turns aspects of content that represent variables into numbers. After a content analysis researcher gathers the data, he or she enters them into computers and analyzes them with statistics in the same way that an experiment or survey researcher would.

Measurement and Coding

Careful measurement is crucial in content analysis because a researcher takes different and murky symbolic communication and turns it into precise, objective, quantitative data. He or she carefully

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designs and documents the procedures for coding to make replication possible. For example, a researcher wants to determine how frequently television dramas portray elderly characters in terms of negative stereotypes. He or she develops a measure of the construct "negatively stereotypes of the elderly." The conceptualization may result in a list of stereotypes or negative generalizations about older people (e.g., senile, forgetful, frail, hard of hearing, slow, ill, inactive, conservative, etc.) that do not accurately reflect the elderly. Another example could be negative stereotypes about women.

Constructs in content analysis are operationalizing with a *coding system,* a set of instructions or rules on how to systematically observe and record content from text. Look at the construct of "leadership role;" for measuring this construct written rules should be provided telling how to classify people. Same is about the concept of "social class." In case the researcher has three categories of upper, middle, and lower class then the researcher must tell what are the characteristics that are associated with upper class, middle class, and the lower class so that the coders could easily classify people in the three proposed categories.

Observations can be structured: Measurement in content analysis uses *structured observation* i.e. systematic, careful observation based on written rules. The rules explain how to categorize and classify observations in terms of:

- *Frequency*: Frequency simply means counting whether or not something occurs and how often (how many times). For example how many elderly people appear on a television program within a given week? What percentage of all characteristics are they, or in what percentage of programs do they appear.
- *Direction:* Direction is noting the direction of messages in thee content along some continuum (e.g., positive or negative, supporting or opposed). For example the researcher devises a list of ways an elderly television character can act. Some are positive (e.g., friendly, wise, considerate) and some are negative (e.g., nasty, dull, selfish).
- *Intensity:* Intensity is the strength or power of a message in a direction. For example, the characteristic of forgetfulness can be minor (e.g. not remembering to take the keys when leaving home, taking time to recall the name of someone whom you have not seen in years) or major (e.g., not remembering your name, not recognizing your children.
- *Space:* A researcher can record the size of the text message or the amount of space or volume allocated to it. Space in written text is measured by counting words, sentences, paragraphs, or space on a page (e.g. square inches) for video or audio text, space can be measured by the amount of time allocated. For example, a TV character may be present for a few seconds or continuously in every seen of a two hour program.

The unit analysis can vary a great deal in content analysis. It can be a word, a phrase, a theme, a plot,, a news paper article, a character, and so forth.

Coding

The process of identifying and classifying each item and giving labels to each category. Later on each category may be assigned a numerical value for its entry into the computer. In content analysis one can look at the manifest coding and latent coding.

Manifest Coding: Coding the visible, surface content in a text is called manifest coding. For example, a researcher counts the number of times a phrase or word (e.g. red) appears in the written text, or whether a specific action (e.g. shaking hands) appears in a photograph or video scene. The coding system lists terms or actions or characters that are then located in text. A researcher can use a computer program to search for words or phrases in the text and have a computer do the counting work.

Manifest coding is highly reliable because the phrase or the word either is or is not present. However, manifest coding does not take the connotation of word into account. The same word can take on

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different meanings depending on the context. The possibility that there are multiple meanings of a word limits the measurement validity of manifest coding.

Latent Coding: A researcher using *latent coding* (also called *semantic analysis*) looks for the underlying meaning in the content of a text. For example, the researcher reads the entire paragraph and decides whether it contains vulgar themes or a romantic mood. His or her coding system has general rules to guide his or her interpretation of the text and for determining whether particular themes or mood are present.

Latent coding tends to be less reliable than the manifest coding. It depends on a coder's knowledge of language and its social meaning. Training, practice, and written rules improve reliability, but still it is difficult to consistently identify themes, moods, and the like.

Keeping in view the amount of work, often a number of coders are hired. The researcher trains the coders in coding system. Coders should understand the variables, follow the coding system, and ask about ambiguities. A researcher who uses several coders must always check for consistency across coders. He or she does this by asking coders to code the same text independently and then checking for consistency across coders. The researcher measures inter-coder reliability, a type of equivalence reliability, with a statistical coefficient that tells the degree of consistency across among coders. The coefficient is always reported with the results of content analysis research.

How to Conduct Content Analysis Research

Question Formulation: As in most research, content analysis researchers begin with a research question. When the question involves variables that are messages or symbols, content analysis may be appropriate. For example, how women are portrayed in advertisements? The construct here is the portrayal of women which may be measured by looking at the activities they are shown to be doing, the occupations in which they are employed, the way decision making is taking place, etc.

Unit of Analysis: A researcher decides on the unit of analysis (i.e. the amount of text that is assigned a code). In the previous example each advertisement may be a unit of analysis.

Sampling: Researchers often use random sampling in content analysis. First, they define the population and the sampling element. For example, the population might be all words, all sentences, all paragraphs, or all articles in certain type of documents over a period of specified period. Likewise, it could include each conversation, situation, scene, or episode of a certain type of television program over a specified time period. Let us consider that we want to know how women are portrayed in weekly news magazines. The unit of analysis is the article. The population includes all articles published in weekly news magazines during 2001 to 2007. Make a list of English magazines that were published during the said period. Define what is a news magazine? Define what is an article? Decide on the number of magazines. Decide on the sample size. Make a sampling frame. Here the sampling frame shall be all the articles published in the selected magazines during 2001 to 2007. Finally draw the random sample using table of random numbers.

Variables and Constructing Coding Categories: Say a researcher is interested in women's portrayal in significant leadership roles. Define "significant leadership role" in operational terms and put it as written rules for classifying people named in the articles. Say the researcher is further interested in positive leadership roles, so the measure will indicate whether the role was positive or negative. Researcher has to make a list of adjectives and phrases reflective of the leadership role being positive or negative. If someone in the article is referred to with one of the adjective, then the direction is decided. For example, the terms *brilliant* and *top performer* are positive, whereas *drug kingpin* and *uninspired* are negative. Researcher should give written rules to classify role of women as portrayed in the articles.

In addition to written rules for coding decisions, a content analysis researcher creates a recording sheet (also called a *coding form* or *tally sheet*) on which to record the information. Each unit should have a separate recording sheet.

Inferences: The inference a researcher can or cannot make on the basis of results is critical in content analysis. Content analysis describes what is in the text. It cannot reveal the intentions of those who created the text or the effects that messages in the text have on those who receive them.

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LESSON 37

USE OF SECONDARY DATA

Existing statistics/documents

Prior to the discussion of secondary data, let us look at the advantages and disadvantages of the use of content analysis that was covered in the last lecture. In a way content analysis is also the study of documents through which the writers try to communicate, though some of the documents (like population census) may simply contain figures.

Advantages

1. Access to inaccessible subjects: One of the basic advantages of content analysis is that it allows research on subjects to which the researcher does not have physical access. These could be people of old civilizations, say their marriage patterns. These could also be the documents form the archives, speeches of the past leaders (Quaid-e-Azam) who are not alive, the suicide notes, old films, dramas, poems, etc.

2. Non-reactivity: Document study shares with certain types of observations (e.g., indirect observation or non participant observation through one-way mirror) the advantage of little or no reactivity, particularly when the document was written for some other purpose. This is unobtrusive. Even the creator of that document, and for that matter the characters in the document, is not in contact with the researcher, who may not be alive.

3. Can do longitudinal analysis: Like observation and unlike experiments and survey, document study is especially well suited to study over a long period of time. Many times the objective of the research could be to determine a trend. One could pick up different periods in past and try to make comparisons and figure out the changes (in the status of women) that may have occurred over time. Take two martial periods in Pakistan, study the news papers and look at the reported crime in the press.

4. Use Sampling: The researcher can use random sampling. One could decide on the population, develop sampling frame and draw sample random sample by following the appropriate procedure. For example how women are portrayed in weekly English news magazines. One could pick up weekly English news magazines, make a listing of articles that have appeared in the magazines (sampling frame), and draw a simple random sample.

5. Can use large sample size: Larger the sample closer the results to the population. In experimentation as well as in survey research there could be limitations due to the availability of the subjects or of the resources but in document analysis the researcher could increase the sample and can have more confidence in generalization. Let us assume that a researcher is studying the matrimonial advertisements in the newspapers over a long period of time, there should be no problem in drawing a sample as large as several thousand or more.

6. Spontaneity: The spontaneous actions or feelings can be recorded when they occurred rather than at a time specified by the researcher. If the respondent was keeping a diary, he or she may have been recording spontaneous feelings about a subject whenever he or she was inspired to do so. The contents of such personal recording could be analyzed later on.

7. Confessions: A person may be more likely to confess in a document, particularly one to be read only after his or her death, than in an interview or mailed questionnaire study. Thus a study of documents such as diaries, posthumously published autobiographies, and suicide notes may be the only way to obtain such information.

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8. Relatively low cost: Although the cost of documentary analysis can vary widely depending on the type of document analyzed, how widely documents are dispersed, and how far one must travel to gain access to them, documentary analysis can be inexpensive compared to large-scale surveys. Many a time's documents are gathered together in a centralized location such as library where the researcher can study them for only the cost of travel to the repository.

9. High quality: Although documents vary tremendously in quality, many documents, such as news paper columns, are written by skilled commentators and may be more valuable than, for example, poorly written responses to mailed questionnaires.

Disadvantages

1. Bias: Many documents used in research were not originally intended for research purposes. The various goals and purposes for which documents are written can bias them in various ways. For example, personal documents such as confessional articles or autobiographies are often written by famous people or people who had some unusual experience such as having been a witness to a specific event. While often providing a unique and valuable research data, these documents usually are written for the purpose of making money. Thus they tend to exaggerate and even fabricate to make good story. They also tend to include those events that make the author look good and exclude those that cast him or her in a negative light.

2. Selective survival: Since documents are usually written on paper, they do not withstand the elements well unless care is taken to preserve them. Thus while documents written by famous people are likely to be preserved, day-to-day documents such as letters and diaries written by common people tend either to be destroyed or to be placed in storage and thus become inaccessible. It is relatively rare for common documents that are not about some events of immediate interest to the researcher (e.g., suicide) and not about famous occurrence or by some famous person to be gathered together in a public repository that is accessible to researchers.

3. Incompleteness: Many documents provide incomplete account to the researcher who has had no prior experience with or knowledge of the events or behavior discussed. A problem with many personal documents such as letters and diaries is that they were not written for research purposes but were designed to be private or even secret. Both these kinds of documents often assume specific knowledge that researcher unfamiliar with certain events will not possess. Diaries are probably the worst in this respect, since they are usually written to be read only by the author and can consist more of "soul searching" and confession than of description. Letters tend to be little more complete, since they are addressed to a second person. Since many letters assume a great amount of prior information on the part of the reader.

4. Lack of availability of documents: In addition to thee bias, incompleteness, and selective survival of documents, there are many areas of study for which no documents are available. In many cases information simply was never recorded. In other cases it was recorded, but the documents remain secret or classified, or have been destroyed.

5. Sampling bias: One of the problems of bias occurs because persons of lower educational or income levels are less likely to be represented in the sampling frames. The problem of sampling bias by educational level is more acute for document study than for survey research. It is a safe generalization that a poorly educated people are much less likely than well educated people to write documents.

6. Limited to verbal behavior: By definition, documents provide information only about respondent's verbal behavior, and provide no direct information on the respondent's nonverbal behavior, either that of the document's author or other characters in the document.

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7. Lack of standardized format: Documents differ quite widely in regard to their standardization of format. Some documents such as newspapers appear frequently in a standard format. Large dailies always contain such standard components as editorial page, business page, sports page, and weather report. Standardization facilitates comparison across time for the same newspapers and comparison across different newspapers at one point in time. However, many other documents, particularly personal documents have no standard format. Comparison is difficult or impossible, since valuable information contained in the document at one point in time may be entirely lacking in an earlier or later documents.

8. Coding difficulties: For a number of reasons, including differences in purpose for which the documents were written, differences in content or subject matter, lack of standardization, and differences in length and format, coding is one of the most difficult tasks facing the content analyst. Documents are generally written arrangements, rather than numbers are quite difficult to quantify. Thus analysis of documents is similar to analysis of open-ended survey questions.

9. Data must be adjusted for comparability over time: Although one of the advantages of document study is that comparisons may be made over a long period of time, since external events cause changes so drastic that even if a common unit of measure is used for the entire period, the value of this unit may have changed so much over time that comparisons are misleading unless corrections are made. Look at the change in measuring distance, temperature, currency, and even literacy in Pakistan.

Use of Secondary Data: Existing Statistics/Documents

Secondary Data

Secondary data refer to information gathered by someone other than the researcher conducting the present study. Secondary data are usually historical, already assembled, and do not require access to respondents or subjects. Many types of information about the social and behavioral world have been collected and are available to the researcher. Some information is in the form of statistical documents (books, reports) that contain numerical information. Other information is in the form of published compilations available in a library or on computerized records. In either case the researcher can search through collections of information with a research question and variables in mind, and then reassemble the information in new ways to address the research question.

Secondary data may be collected by large bureaucratic organization like the Bureau of Statistics or other government or private agencies. These data may have been collected for policy decisions or as part of public service.

The data may be a time bound collection of information (population census) as well as spread over long periods of time (unemployment trends, crime rate). Secondary data are used for making comparisons over time in the country (population trends in the country) as well as across the countries (world population trends).

Selecting Topic for Secondary Analysis

Search through the collections of information with research question and variables in mind, and then reassemble the information in new ways to address the research question.

It is difficult to specify topics that are appropriate for existing statistics research because they are so varied. Any topic on which information has been collected and is publicly available can be studied. In fact, existing statistics projects may not neatly fit into a deductive model of research design. Rather researchers creatively recognize the existing information into the variables for a research question after first finding what data are available.

Experiments are best for topics where the researcher controls a situation and manipulates an independent variable. Survey research is best for topics where the researcher asks questions and learns about reported attitudes and behavior. Content analysis is for topics that involve the content of messages in cultural communication.
Existing statistics research is best for topics that involve information collected by large bureaucratic organizations. Public or private organizations systematically gather many types of information. Such information is collected for policy decisions or as a public service. It is rarely collected for purposes directly related to a specific research question. Thus existing statistics research is appropriate when a researcher wants to test hypotheses involving variables that are also in official reports of social, economic and political conditions. These include descriptions of organizations or people in them. Often, such information is collected over long periods. For example, existing statistics can be used by researcher who wants to see whether unemployment and crime rates are associated in 100 cities across a 20 year period.

As part of the trends, say in development, researchers try to develop social indicators for measuring the well being of the people. A *social indicator* is any measure of wellbeing used in policy. There are many specific indicators that are operationalization of well-being. It is hoped that information about social well being could be combined with widely used indicators of economic performance (e.g., gross national product) to better inform government and other policy making officials.

The main sources of existing statistics are government or international agencies and private sources. An enormous volume and variety of information exists. If you plan to conduct existing statistics research, it is wise to discuss your interests with an information professional – in this case, a reference librarian, who can point you in the direction of possible sources.
Many existing documents are "free" – that is, publicly available at libraries – but the time and effort it takes to research for specific information can be substantial. Researchers who conduct existing statistics research spend many hours in libraries or on the internet.
There are so many sources of existing statistics like: UN publications, UNESCO Statistical Yearbook, UN Statistical Yearbook, Demographic Yearbook, Labor Force Survey of Pakistan, and Population Census Data.

Secondary Survey Data

Secondary analysis is a special case of existing statistics; it is reanalysis of previously collected survey or other data that was originally gathered by others. As opposed to primary research (e.g., experiments, surveys, and content analysis), the focus is on analyzing rather than collecting data.

Secondary analysis is increasingly used by researchers. It is relatively inexpensive; it permits comparisons across groups, nations, or time; it facilitates replication; and permits asking about issues not thought by the original researchers. There are several questions the researcher interested in secondary research should ask: Are the secondary data appropriate for the research question? What theory and hypothesis can a researcher use with the data? Is the researcher already familiar with the substantive area? Does the researcher understand how the data were originally gathered and coded?
Large-scale data collection is expensive and difficult. The cost and time required for major national surveys that uses rigorous techniques are prohibitive for most researchers. Fortunately, the organization, preservation, and dissemination of major survey data sets have improved. Today, there are archives of past surveys open to researchers (e.g., data on Population Census of Pakistan, Demographic Survey of Pakistan).

Reliability and Validity

Existing statistics and secondary data are not trouble free just because a government agency or other source gathered the original data. Researchers must be concerned with validity and reliability, as well as with some problems unique to this research technique.

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A common error is the *fallacy of misplaced concreteness*. It occurs when someone gives a false impression of accuracy by quoting statistics in greater detail than warranted by how the statistics are collected and by overloading detail. For example, in order to impress an audience, a politician might say that every year 3010,534 persons, instead of saying 3 million persons, are annually being added to the population of Pakistan.

Validity: Validity problems occur when the researcher's theoretical definition does not match that of the government agency or organization that collected the information. Official policies and procedures specify definitions for official statistics. For example, a researcher defines a *work injury* as including minor cuts, bruises, and sprains that occur on the job, but the official definition in government reports only includes injuries that require a visit to a physician or hospital. Many work injuries as defined by thee researcher will not be in the official statistics. Another example occurs when a researcher defines people *unemployed* if they would work if a good job was available, if they have to work part-time when they want full-time work, and if they have given up looking for work. The official definition, however, includes only those who are now actively seeking work (full or part-time) as unemployed. The official statistics exclude those who stopped looking, who work part-time out of necessity, or who do not look because they believe no work is available. In both the cases the researcher's definition differs from that in official statistics.

Another validity problem arises when official statistics are a proxy for a construct in which the researcher is really interested. This is necessary because the researcher cannot collect original data. For example, the researcher wants to know how many people have been robbed, so he or she uses police statistics on robbery arrests as a proxy. But the measure is not entirely valid because many robberies are not reported to the police, and reported robberies do not always result in an arrest.

Another validity problem arises because the researcher lacks control over how information is collected. All information, even that in official government reports, is originally gathered by people in bureaucracies as part of their job. A researcher depends on them for collecting organizing, reporting, and publishing data accurately. Systematic errors in collecting the initial information (e.g., census people who avoid poor neighborhoods and make-up information, or people who put a false age on their ID card); errors in organizing and reporting information (e.g., police department that is sloppy about filing crime reports and loses some); errors in publishing information (e.g., a typographical error in a table) all reduce measurement validity.

Reliability: Stability reliability problems develop when official definition or the method of collecting information changes over time. Official definitions of work injury, disability, unemployment, literacy, poverty, and the like change periodically. Even if the researcher learns of such changes, consistent measurement over time is impossible.

Equivalence reliability can also be a problem. For example, studies of police department suggest that political pressures to increase arrests are closely related to the number of arrests. It could be seen when political pressures in one city may increase arrests (e.g., a crackdown on crime), whereas pressures in another city may decrease arrests (e.g., to show drop in crime shortly before an election in order to make officials look better).
Researchers often use official statistics for international comparisons but national governments collect data differently and the quality of data collection varies.

Inferences from Non-Reactive Data:
A researcher's ability to infer causality or to test a theory on the basis of non-reactive data is limited. It is difficult to use unobtrusive measures to establish temporal order and eliminate alternative explanations. In content analysis, a researcher cannot generalize from the content to its effects on those who read the text, but can only use the correlation logic of survey research to show an association among variables. Unlike the case of survey research, a researcher does not ask respondents direct questions to measure variables, but relies on the information available in thee text.

LESSON 38

OBSERVATION STUDIES/FIELD RESEARCH

Observation studies are primarily part of qualitative research. Though qualitative and quantitative researches differ yet they compliment each other. Qualitative research produces *soft data*: impressions, words, sentences, photos, symbols. Usually it follows an interpretive approach, the goal of which is to develop an understanding of social life and discover how people construct meanings in natural settings. The research process follows a non-linear approach (spiral).

Quantitative research produces *hard data*: numbers. It follows a positivist approach to research in which the researcher speaks the language of variables and hypotheses. There is a much emphasis on precise measurement of variables and the testing of hypotheses. The researcher tries to establish causality. In most of the case there is a linear approach i.e. it follows sequential steps in doing research.

Participant/Non-Participant Observation

Observation studies can be participant or non-participant. In participant observation the researcher directly observes and participates in small scale social settings in the present time. Such a study is also referred to as **field research**, ethnography, or anthropological study. Here the researchers:

- Study people in their natural settings, or in situ.
- Study people by directly interacting with them.
- Gain an understanding of the social world and make theoretical statements about members' perspective.

The people could be a group who interact with each other on regular basis in a field setting: a street corner, a tea shop, a club, a nomad group, a village, etc.

Non-participant studies are such where the research tries to observe the behavior of people without interacting with them. It could be observing the behavior of shoppers in a departmental store through a mirror or on a closed circuit TV. Some body might be counting the number of vehicles crossing a particular traffic light.

Field researchers study people in a location or setting. It has been used to study entire communities. Field research has a distinct set of methodologies. Field researchers directly observe and interact with community members in natural settings to get inside their perspectives. They embrace an activist or social constructionist perspective on social life. They do not see people as a neutral medium through which social forces operate, nor do they see social meanings as something "out there" to observe. Instead they believe that people create and define the social world through their interactions. Human experiences are filtered through a subjective sense of reality, which affects how people see and act on events. Thus they replace the positivist emphasis on "objective facts" with a focus on the everyday, face-to-face social processes of negotiation, discussion, and bargaining to construct social meaning.

Ethnography and Ethno-methodology

Two modern extensions of field research, ethnography and ethno-methodology, build on the social constructionist perspective.

Ethnography comes from cultural anthropology. *Ethno* means people or a folk distinct by their culture and graphy refers to describing something. Thus ethnography means describing a culture and understanding another way of life from the native point of view. It is just an understanding the culture of people from their own perspective.

Ethno-methodology implies how people create reality and how they interpret it. Ethno-methodologists examine ordinary social interaction in great detail to identify the rules for constructing social reality and

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common sense, how these rules are applied, and how new rules are created. They try to figure out how certain meanings are attached to a reality.

Logic of Field Research

It is difficult to pin down a specific definition of *field research* because it is more of an orientation toward research than a fixed set of techniques to apply. A field researcher uses various methods to obtain information. A field researcher is a 'methodological pragmatist,' a resourceful, talented individual who has ingenuity and an ability to think on his or feet while in the field.

Field research is based on naturalism, which involves observing ordinary events in natural settings, not in contrived, invented, or researcher created settings.

A field researcher examines social meanings and grasps multiple perspectives in natural setting. He or she gets inside the meanings system of members and goes back to an outside or research viewpoint. Fieldwork means involvement and detachment, loyalty and betrayal, both openness and secrecy, and most likely, love and hate. The researcher switches perspectives and sees the setting from multiple pints of view simultaneously. Researchers maintains membership in the culture in which they were reared (research culture) while establishing membership in the groups which they are studying.

The researcher's direct involvement in the field often has an emotional impact. Field research can be fun and exciting, but it can also disrupt one's personal life, physical security, or mental well being. More than other types of research, it reshapes friendship, family life, self identity, or personal values.

What Do the Field Researchers Do?

A field researcher does the following:

1. Observes ordinary events and everyday activities as they happen in natural settings, in addition to unusual occurrences.
2. Becomes directly involved with people being studied and personally experiences the process of daily life in the field setting.
3. Acquires an insider's point of view while maintaining the analytic perspective or distance of an outsider.
4. Uses a variety of techniques and social skills in a flexible manner as the situation demands.
5. Produces data in the form of extensive, written notes, as well as diagrams, maps, pictures to provide very detailed descriptions.
6. Sees events holistically (as a whole, not in pieces) and individually in their social context.
7. Understands and develops empathy for members in a field setting, and does not just record 'cold' objective facts.
8. Notices both explicit (recognized, conscious, spoken) and tacit (less recognized, implicit, unspoken) aspects of culture.
9. Observes ongoing social processes without upsetting, or imposing an outside point of view.
10. Copes with high levels of personal stress, uncertainty, ethical dilemmas, and ambiguity.

Steps in Field Research

Naturalism and direct involvement mean that field research is more flexible or less structured than quantitative research. This makes it essential for a researcher to be well organized and prepared for the field. It also means that the steps of project are not entirely predetermined but serve as an approximate guide or road map. Here is just the listing of these steps:

1. Prepare yourself, read the literature and defocus.
2. Select a site and gain access.

3. Enter the field and establish social relations with members.
4. Adopt a social role, learn the ropes, and get along with members.
5. Watch, listen, and collect quality data. .
6. Begin to analyze data, generate and evaluate working hypothesis.
7. Focus on specific aspects of the setting and use theoretical sampling.
8. Conduct field interviews with member informants.
9. Disengage and physically leave the setting.
10. Complete the analysis and write the report.

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LESSON 39

OBSERVATION STUDIES (Contd.)

Steps in Field Research

Background

Naturalism and direct involvement mean that field research is more flexible or less structured than quantitative research. This makes it essential for a researcher to be well organized and prepared for the field. It also means that the steps of project are not entirely predetermined but serve as an approximate guide or road map. These guideline steps are:

1. ***Prepare yourself, read the literature and defocus.*** As with all social and behavioral research, reading the scholarly literature helps the researcher learn concepts, potential pitfalls, data collection methods, and techniques for resolving conflicts. In addition field researcher finds diaries, novels, journalistic accounts, and autobiographies useful for gaining familiarity and preparing emotionally for the field. Field research begins with a general topic, not specific hypotheses. A researcher does not get locked into any initial misconceptions. He or she needs to be well informed but open to discovering new ideas.
   A researcher first empties his or her mind of preconceptions and defocuses. There are two types of defocusing. The first is casting a wide net in order to witness a wide range of situations, people, and setting – getting a feel of the overall setting before deciding what to include or exclude. The second type of defocusing means not focusing exclusively on the role of researcher. It may be important to extend one's experience beyond a strictly professional role.
   Another preparation for field research is self knowledge. A field researcher needs to know him or herself and reflect on personal experiences. He or she can expect anxiety, self doubt, frustration, and uncertainty in the field. Also all kinds of stereotypes about the community should be emptied.
2. ***Select a site and gain access.*** Although a field research project does not proceed by fixed steps, some common concerns arise in the early stages. These include selecting a site, gaining access to the site, entering the field, and developing rapport with members in the field.

   Field site is the context in which events or activities occur, a socially defined territory with shifting boundaries. A social group may interact across several physical sites. For example, a college football team may interact on the playing field, in the dressing room, at a training camp or at the place where they are staying. The team's field site includes all four locations.
   Physical access to a site can be an issue. Sites can be on a continuum, with open and public areas (e.g., public restaurants, airport waiting rooms) at one end and closed and private settings (e.g., private firms, clubs, activities in a person's home) at the other end. A researcher may find that he or she is not welcome or not allowed on the site, or there are legal and political barriers to access.
   Look for the gate keepers for getting an entry. A gatekeeper is someone with the formal authority to control access to a site. It can be a thug at the corner, an administrator of a hospital, or the owner of a business. In formal public areas (e.g., sidewalks, public waiting rooms) rarely have gatekeepers; formal organizations have authorities from whom permission must be obtained. Field researchers expect to negotiate with gatekeepers and bargain for access. Entry and access can be visualized as an *access ladder*. A researcher begins at the bottom rung, where access is easy and where he or she is an outsider looking for public information. The next access rung requires increased access. Once close on-site observations begin, he or she becomes a passive observer, not questioning what members of community say. With time in the field, the researcher observes specific activities that are potentially sensitive or seeks clarification of what he or she sees or hears. Reaching this access rung is more difficult. Finally, the researcher may try to shape interaction so that it reveals specific information, or he or she may want to see highly sensitive material. This highest rung of access ladder is rarely

attained and requires deep trust. Such a situation may be applicable to a site of a public or private organization. In other situations just like entering the village community, the researcher may have to use different kind of access ladder. He or she may have to use local influential and some other contact persons who could introduce the researcher to local leaders and help building the rapport.

3. ***Enter the field and establish social relations with members.*** Present yourself in the field the way it is acceptable to the people to be studied. Develop relations and establish rapport with individual members. Here the researcher may have to learn the local language. A field researcher builds rapport by getting along with members in the field. He or she forges a friendly relationship, shares the same language, and laughs and cries with members. This is a step toward obtaining an understanding of members and moving beyond understanding to empathy – that is seeing and feeling events from another's perspective.

4. ***Enter the field: Adopt a social role, learn the ropes, and get along with members.*** At times, a researcher adopts an existing role. Some existing roles provide access to all areas of the site, the ability to observe and interact with all members, the freedom to move around, and a way to balance the requirements of researcher and member. There could be some limitations for the adoption of specific roles. Such limitations may be because of researcher's age, race, gender, and attractiveness. At other times, a researcher creates new roles or modifies the existing one. The adoption of field role takes time, and a researcher may adopt several different field roles over time.

   The role may also depend upon the level of involvement in the community's activities. The researcher may be a complete observer, observer as participant, participant as observer, and complete participant.

   As a researcher learns the ropes on the field site, he or she learns how to cope with personal stress, how to normalize the social research, and how to act like an "acceptable incompetent." A researcher is in the field to learn, not to be an expert. Depending on the setting, he or she appears to be friendly but naïve outsider, an acceptable incompetent who is interested in learning about social life of the field. An acceptable incompetent is one who is partially competent (skilled or knowledgeable) in the setting but who s accepted as a non-threatening person

5. ***Observing and collecting data: Watch, listen, and collect quality data.*** A great deal of what field researchers do in the field is to pay attention, watch, and listen carefully. They use all the senses, noticing what is seen, heard, smelled, tasted, or touched. The researcher becomes an instrument that absorbs all sources of information.

   Most field research data are in the form of field notes. Good notes are the brick and mortar of field research. Full field notes can contain maps, diagrams, photographs, interviews, tape recordings, videotapes, memos, objects from the field, notes jotted in the field, and detailed notes written away from the field. A field researcher expects to fill many notebooks, or the equivalent in computer memory. He or she may spend more time writing notes than being in the field.

   Writing notes is often boring, tedious work that requires self discipline. The notes contain extensive descriptive detail drawn from memory. The researcher makes it a daily habit or compulsion to write notes immediately after leaving the field. The notes must be neat and organized because the researcher will return to them over and over again. Once written, the notes are private and valuable. A researcher treats them with care and protects confidentiality.

   Field researcher is supposed to collect quality data. What does the term high-quality data mean in the field research, and what does a researcher do to get it? For a quantitative researcher, high quality data are reliable and valid; they give precise, consistent measures of the "objective" truth for all researchers. An interpretive approach suggests a different kind of data quality. Instead of assuming one single, objective truth, field researchers hold that members subjectively interpret experiences within social context. What a member takes to be true results from social interaction and interpretation. Thus high quality field data capture such processes and provide an understanding of the member's viewpoint.

A field researcher does not eliminate subjective views to get quality data: rather, quality data include his or her subjective responses and experiences. Quality field data are detailed descriptions from the researcher's immersion and authentic experiences in the social world of members.

6. ***Begin to analyze data generate and evaluate working hypothesis.*** Right in the field try to look into the research questions and the kind of answers the researcher is getting. The analysis of the answers might help in the generation of hypotheses. Over time are such hypotheses being supported by further field research?
7. ***Focus on specific aspects of the setting and use theoretical sampling.*** Field researcher first gets a general picture, and then focuses on a few specific problems or issues. A researcher decides on specific research questions and develops hypotheses only after being in the field and experiencing it first hand. At first, everything seems relevant; later, however, selective attention focuses on specific questions and themes.

   Field research sampling differs from survey sampling, although sometime both use snowball sampling. A field researcher samples by taking a smaller, selective set of observations from all possible observations. It is called theoretical sampling because it is guided by the researcher's developing theory. Field researchers sample times, situations, types of events, locations, types of people, or context of interest.

   For example field researcher samples time by observing a setting at different times. He or she observes at all time of the day, on every day of the week, and in all seasons to get a full sense of how the field site stays the same or changes. Another example, when the field researcher samples locations because one location may give depth, but narrow perspective. Sitting or standing in different locations helps the researcher to get a sense of the whole site. Similarly the field researchers sample people by focusing their attention or interaction on different kinds of people (young, adult, old).
8. ***Conduct field interviews with member informants.*** Field researchers use unstructured, non directive, in-depth interviews, which differs from formal survey research interviews in many ways. The field interview involves asking question, listening, expressing interest, and recording what was said.

   Field interview is a joint production of a research and a member. Members are active participants whose insights, feelings, and cooperation are essential parts of a discussion process that reveals subjective meaning. The interviewer's presence and form of involvement – how he or she listens, attends, encourages, interrupts, disagrees, initiates topics, and terminates responses – is integral to the respondent's account.

   Field research interviews go by many names: unstructured, depth, ethnographic, open ended, informal, and long. Generally, they involve one or more people being present, occur in the field, and are informal and nondirective.

   A comparison of the field research interview and a survey interview could be as below:

Survey Interview	Field Interview
1. It has clear beginning and end.	1. The beginning and end are not clear. The interview can be picked up later.
2. The same standard questions are asked of all respondents in the same sequence.	2. The questions and the order in which they are asked are tailored to specific people and situations.
3. The interviewer appears neutral at all times.	3.The interviewer shows interest in responses, encourages elaboration.
4. The interviewer asks questions, and the respondent answers.	4. It is like a friendly conversational exchange but with more interviewer questions.

5. It is almost always with one respondent alone.	5. It can occur in group setting or with others in area, but varies.
6. It has a professional tone and businesslike focus, diversions are ignored.	6. It is interspersed with jokes, aside, stories, diversions, and anecdotes, which are recorded.
7. Closed-ended questions are common, with rare probes.	7. Open-ended questions are common, and probes are frequent.
8. The interviewer alone controls the pace and direction of interview.	8. The interviewer and member jointly control the pace and direction of the interview.
9. The social context in which the interview occurs is ignored and assumed to make little difference.	9. The social context of the interview is noted and seen as important for interpreting the meaning of responses.
10. The interviewer attempts to mold the communication pattern into a standard framework.	10. The interviewer adjusts to the member's norms and language usages.

9. ***Disengage and physically leave the setting.*** Work in the field can last for a few weeks to a dozen years. In either case at some point of work in the field ends. Some researchers suggest that the end comes naturally when the theory building ceases or reaches a closure; others feel that fieldwork could go on without end and that a firm decision to cut off relations is needed.
   Experienced field researchers anticipate a process of disengaging and exiting the field. Depending on the intensity of involvement and the length o time in the field, the process can be disruptive or emotionally painful for both the researcher and the members.
   Once researcher decides to leave – because the project reaches a natural end and little new is being learned, or because external factors force it to end (e.g., end of job, gatekeepers order the researcher out) – he or she chooses a method of exiting. The researcher can leave by quick exit (simply not return one day) or slowly withdraw, reducing his or her involvement over weeks. He or she also needs to decide how to tell members and how much advance warning to give. The best way to exist is to follow the local norms and continuing with the friendly relations.
10. ***Complete the analysis and write the report.*** After disengaging from the field setting the researcher writes the report. The researcher may share the written report with the members observed to verify the accuracy and get their approval of its portrayal in print. It may help in determining the validity of the findings. However, it may not be possible to share the findings with marginal groups like addicts, and some deviant groups.

Ethical Dilemmas of Field research

The direct personal involvement of a field researcher in the social lives of other people raises many ethical dilemmas. The dilemmas arise when the researcher is alone in the field and has little time to make a moral decision. Although he or she may be aware of general ethical issues before entering the field, they arise unexpectedly in the course of observing and interacting in the field. Let us look at some of these dilemmas:

Deception: Deception arises in several ways in field research: The research may be covert; or may assume a false role, name, or identity; or may mislead members in some way. The most hotly debated of the ethical issues arising from deception is that of covert versus overt field research. Some support it and see it as necessary for entering into and aiming a full knowledge of many areas of social life. Others oppose it and argue that it undermines a trust between researchers and society. Although its

moral status is questionable, there are some field sites or activities that can only be studied covertly. One may have to look into the cost and benefit equation; where the researcher is the best judge.

Covert research is never preferable and never easier than overt research because of the difficulties of maintaining a front and the constant fear of getting caught.

Confidentiality: A researcher learns intimate knowledge that is given in confidence. He or she has a moral obligation to uphold the confidentiality of data. This includes keeping information confidential from others in the field and disguising members' names in field notes.

Involvement with deviants: Researchers who conduct research on deviants who engage in illegal behavior face additional dilemmas. They know of and are sometimes involved in illegal activity. They might be getting 'guilty knowledge.' Such knowledge is of interest not only to law enforcement officials but also to other deviants. The researcher faces a dilemma of building trust and rapport with the deviants, yet not becoming so involved as to violate his or her basic personal moral standards. Usually, the researcher makes an explicit arrangement with the deviant members.

The powerful: Field researchers tend to study those without power in society (e.g., street people, the poor, children, and lower level workers). Powerful elites can block access and have effective gatekeepers. Researchers are criticized for ignoring the powerful, and they are also criticized by the powerful for being biased toward the less powerful.

Publishing field reports: The intimate knowledge that a researcher obtains and reports creates a dilemma between the right of privacy and the right to know. A researcher does not publicize member secrets, violate privacy, or harm reputations. Yet if he or she cannot publish anything that might offend or harm someone, some of what the researcher learned will remain hidden, and it may be difficult for others to believe the report if critical details are omitted.

Some researchers suggest asking members of the group under study to look at a report to verify its accuracy and to approve of their portrayal in print. For marginal groups (addicts), this may not be possible, but the researchers must always respect member privacy. On the other hand, censorship or self-censorship can be a danger. A compromise position is that truthful but unflattering material may be published only if it is essential to the researchers' larger arguments.

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LESSON 40

HISTORICAL COMPARATIVE RESEARCH

History has several meanings; one of which could refer to 'the events of the past.' *Historiography* is the method of doing historical research or of gathering and analyzing historical evidence.

Historical-comparative research is a collection of techniques and approaches. It is a distinct type of research that puts historical time and /or cross-cultural variation at the center of research – that is, which treats what is studied as part of the flow of history and situated in cultural context.

Major questions

Historical comparative research is a powerful method for addressing big questions: How did major societal change take place? What fundamental features are common to most societies? Why did current social arrangements take a certain form in some societies but not in others? For example, historical-comparative researchers have addressed the questions of what caused societal revolutions in china, France, and Russia; how major social institutions, medicine, have developed and changed over two centuries; how basic relationships, like feelings about the value of children, change; why public policy toward the treatment of elderly developed in one way instead of another way in an industrial country; why South Africa developed a system of greater racial separation as the United States moved toward a greater racial integration.

Historical-comparative research is suited for examining the combination of societal factors that produce a specific outcome (e.g., civil war). It is also appropriate for comparing entire social system to see what is common across societies and what is unique, and to study long term change. An H-C researcher may apply a theory to specific cases to illustrate its usefulness. And he or she compares the same social processes and concepts in different cultural or historical contexts.

Researchers also use H-C method to reinterpret data or challenge old explanations. By asking different questions, finding new evidence, or assembling evidence in a different way, the H_C researcher raises questions about old explanations and finds support for new ones by interpreting the data in its cultural-historical context.

Historical-comparative research can strengthen conceptualization and theory building. By looking at historical events or diverse cultural contexts, a researcher can generate new concepts and broaden is or her perspective. Concepts are less likely to be restricted to a single historical time or to a single culture; they can be grounded in the experiences of people living in a specific cultural and historical context.

Historical-Comparative research focuses on:

- Tracing the development of social forms (patterns) overtime as well as its broad its broad historical processes, and
- Comparing those forms and its developmental processes across cultures (countries/nations).

Historical-Comparative research follows scientific approach:

- Can be a survey of events in history – could be through the study of documents.
  Organizations generally document themselves, so if one is studying the development of some organization he/she should examine its official documents: charters, policy statements, speeches by the leaders, and so on. Often, official government documents provide the data needed for analysis. To better appreciate the history of race relations in the United States on e could examine 200 years of laws and court cases involving race.
  One could also do the communication analysis of different documents related to a particular issue (like the communication among the leaders of Pakistan movement through their letters,

communication between the migrants to a new country and their relatives back in their country of origin)

Researcher could also get lot of information by interviewing people who may recall historical events (like interviewing participants in the Pakistan movement).

- Historical-Comparative researchers mostly do a longitudinal analysis i.e. look into the developmental processes of the issues under reference.
- Historical –Comparative researchers make cross-cultural comparisons of the social forms or economic form as well as the developmental processes of those forms, aiming at making generalizations.

Examples:

Social forms: Several researchers have examined the historical development of ideas about different forms of society. The have looked at the progression of social forms from simple to complex, from rural, from rural-agrarian to urban-industrial. The US anthropologist Lewis Morgan, for example, saw a progression from "savagery to "barbarism" to "civilization." Robert Redfield, another anthropologist, has more recently written of a shift from "folk society" to "urban society." Emile Durkheim saw social evolution largely as a process of ever-greater division of labor. Ibn-e-Khaldun looked at the cyclical process of change in the form of societies from nomadic (Al-badawi) to sedentary (Al-hadari). These researchers discuss the forces that produce changes as well as the characteristics of each form of society. The historical evidence collected by researchers from different sources about different societies supports the whole discussion.

Forms of economic systems: Karl Marx examined the forms of economic systems progressing historically from primitive to feudal to capitalistic. All history, he wrote in this context, was a history of class struggle – the "haves" struggling to maintain their advantages and the "have-nots" struggling for a better lot in life. Looking beyond capitalism, Marx saw the development of a 'classless" society. In his opinion the economic forces have determined the societal system.

Not all historical studies in the social sciences have had this evolutionary flavor. Some social scientific readings of the historical record, in fact point to grand cycles rather than to linear progression (Ibn-e-Khaldun, P. Sorokin).

Economic forms and ideas: In his analysis of economic history, Karl Marx put forward a view of economic determinism. That is, he felt that economic factors determined the nature of all other aspects of society. Without denying that economic factors could and did affect other aspects of society, Max Weber argued that economic determinism did not explain everything. Indeed, Weber said, economic forms could come from non-economic ideas. In his research in the sociology of religion, Weber examined the extent to which religious institutions were the source of social behavior rather than mere reflection of economic conditions. His most noted statement of this side of the issue is found in *The Protestant Ethic and the Spirit of Capitalism.* John Calvin, a French theologian, was an important figure in the *Protestant* reformation of Christianity. Calvin thought that God had already decided the ultimate salvation or damnation of every individual; this idea is called *predestination*. Calvin also suggested that God communicated his decisions to people by making them either successful or unsuccessful during their earthly existence.

God gave each person an earthly "calling" – an occupation or profession – and manifested his or her success or failure through that medium. Ironically, this point of view led Calvin's followers to seek proof of their coming salvation by working hard, saving for economic success.

In Weber's analysis, Calvinism provided an important stimulus for the development of capitalism. Rather than "wasting" their money on worldly comforts, the Calvinists reinvested it in economic enterprises, thus providing the *capital* necessary for the development of capitalism. In arriving at this interpretation of the origin of capitalism, Weber researched the official doctrines of the early Protestant churches, studied the preaching of Calvin and other church leaders, and examined other historical documents.

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In three other studies, Weber conducted detailed analyses of Judaism, and the religions of China and India. Among other things, Weber wanted to know why capitalism had not developed in the ancient societies of China, India, and Israel. In none of the three religions did he find any teaching that would have supported the accumulation and reinvestment of capital – strengthening his conclusion about the role of Protestantism in that regard.

Logic of Historical-Comparative Research

Confusion over terms reigns H_C research. Researchers call what they do historical, comparative or historical-comparative, but mean different things. The key question is: Is there a distinct historical-comparative method and logic, or is there just social research that happens to examine social life in the past or in several societies? Some researchers use positivist, quantitative approach to study historical or comparative issues, while others rely on qualitative approach.

Quantitative approach: Positivist researchers reject the idea that there is a distinct H-C method. They measure variables, test hypotheses, analyze quantitative data, and replicate research to discover generalizable laws that hold across time and societies. They see no fundamental distinction between quantitative social research and historical-comparative research. They apply quantitative research techniques, with some minor adjustments, to study the past or other cultures.

- The researcher can focus on the issue in one society few societies or multiple societies.
- The researcher can focus on the issue in one time in the past or examine the issue across many years/periods in the past.
- The researcher can focus on the issue in the present or a recent past period.
- The researcher's analysis could be based primarily on quantitative data or qualitative data.
- Nevertheless, the debate continues.

H-C researchers sometimes use *time-series* data to monitor changing conditions over time, such as data on population, crime rates, unemployment, infant mortality rates, and so forth. The analysis of such data sometimes requires sophistication for purposes of comparability. In case the definitions of the concept vary, it becomes difficult to make comparisons. The definitions not only could vary across nations but also these could vary within the same country over time (In Pakistan the definition of literacy changed from what it was in first population census of 1951 and what we had later on).

Qualitative approach:
There are no easily listed steps to follow in the analysis of historical data. Max Weber used the German term *verstehen* –"understanding" – in reference to an essential quality of research in behavioral sciences. He meant that the researcher must be able to take on, mentally, the circumstances, views, and feelings of those being studied to interpret their actions appropriately.

The historical-comparative researcher must find patterns among the voluminous details describing the subject matter of study. Often this takes the form of what Weber called ideal types: conceptual models composed of the essential characteristics of the phenomena. Thus, for example, Weber himself conducted lot of research on bureaucracy. Having observed numerous bureaucracies, Weber detailed those qualities essential to bureaucracies in general: jurisdictional areas, hierarchically structured authority, written files, and so on. Weber did not merely list those characteristics common to all bureaucracies he observed. Rather, he needed to understand fully the essentials of bureaucratic operation to create a theoretical model of the "perfect" (ideal type) bureaucracy.
A distinct, qualitative historical-comparative research differs from the positivist approach. Historical-comparative researchers who use case studies and qualitative data may depart from positivist approach. Their research is an intensive investigation of a limited number of cases in which the social meaning and context are critical. Case studies even in one nation, can be very important. Without case studies, scholars "would continue to advance theoretical arguments that are inappropriate, outdated, or totally irrelevant for a specific region".

Historical-comparative researcher focuses on culture (patterns of behavior), tries to see through the eyes of those being studied, reconstructs the lives of the people studied, and examines particular individuals or groups.

A distinct H-C approach borrows from ethnography and cultural anthropology, and some varieties of H-C are close to "thick description" in their attempt to recreate the reality of another time or place.

A Distinct Historical-Comparative Approach

A distinct historical-comparative research method avoids the excesses of the positivist and interpretive approaches. It combines sensitivity to specific historical or cultural contexts with theoretical generalization. Historical-comparative researches may use quantitative data to supplement qualitative data and analysis. The logic and goals of H-C research are closer to those of field research than to those of traditional positivist approaches.

Similarities to Field Research:
First, both H-C research and field research recognize that the researcher's point of view is an avoidable part of research. Both involve interpretation, which introduces the interpreter's location in time, place, and world-view. H-C research does not try to produce a single, unequivocal set of objective facts. Rather, it is a confrontation of old with new or different world-views. It recognizes that the researcher's reading of historical or comparative evidence is influenced by an awareness of the past and by living in the present. Our present day consciousness of history is fundamentally different from the manner in which the past appeared to any foregoing people.

Second, both field and H-C research examine a great diversity of data. In both, the researcher becomes immersed in data to gain an emphatic understanding of events and people. Both capture subjective feelings and note how everyday, ordinary activities signify important social meaning. The researcher inquires, selects, and focuses on specific aspects of social life from the vast array of events, actions, symbols, and words. An H-C researcher organizes data and focuses attention on the basis of evolving concepts. He or she examines rituals and symbols and dramatize culture and investigates the motives, reasons, and justifications for behaviors.

Third, both field and H-C researchers often use *grounded theory*. Theory usually emerges during the process of data collection. Both examine data without beginning with fixed hypotheses. Instead, they develop and modify concepts and theory through a dialogue with the data, then apply theory to reorganize evidence. [Historically grounded theory means that concepts emerge from the analytic problem of history: ordering the past into structures, conjectures and events. History and theory can thus be simultaneously constructed.]

Fourthly, both field and H-C research involve a type of translation. The researcher's meaning system usually differs from that of people he or she studies, but he or she tries to penetrate and understand their point of view. Once the life, language, an perspective of the people being studied have been mastered, the researcher "translates" it for others who read his or her report.

Fifth, both field and H-C researchers focus on action, process, and sequence and see time process as essential. Both say that people construct a sense of social reality through actions that occur over time. Both see social reality simultaneously as something created and changed by people and as imposing a restriction on human choice.

Sixth, generalizations and theory are limited in field and H-C research. Historical and cross-cultural knowledge is incomplete and provisional, based on selective facts and limited questions. Neither deduces propositions or tests hypotheses in order to uncover fixed laws. Likewise replication is unrealistic because each researcher has a unique perspective and assembles a unique body of evidence. Instead, researchers offer plausible accounts and limited generalizations.

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Unique Features of H-C Research: Despite its many similarities to field research, some important differences distinguish H-C research. Research on past and on an alien culture share much in common with each other, and what they share distinguishes them from other approaches.

First, the evidence of H-C research is usually limited and indirect. Direct observation and involvement by a researcher is often impossible. A H-C researcher reconstructs what occurred from the evidence, but he or she cannot have absolute confidence in his reconstruction. Historical evidence in particular depends on the survival of data from the past, usually in the form of documents (e.g., letters and newspapers). The researcher is limited to what has not been destroyed and what leaves a trace, record, or other evidence behind.

Second, H-C researchers interpret the evidence. Different people looking at the same evidence often ascribe different meanings to it, so a researcher must reflect on evidence. An understanding of it based on a first glance is rarely possible. The researcher becomes immersed in and absorbs details about a context. For example, a researcher examining the family in the past or a distant country needs to be aware of the full context (e.g., the nature of work, forms of communication, transportation technology, etc.).

Another feature is that a researcher's reconstruction of the past or another culture is easily distorted. Compared to the people being studied, H-C researchers is usually more aware of events occurring prior to the time studied, events occurring in places other than the location studied, and events that occurred after the period studied. This awareness gives the researchers a greater sense of coherence than was experienced by those living in the past or in an isolated social setting. Historical explanation surpasses any understanding while events are still occurring. The past we reconstruct is more coherent than the past when it happened.

A researcher cannot see through the eyes of those being studied. Knowledge of the present and changes over time can distort how events, people, laws, or even physical objects are perceived. When the building was newly built (say in 1800) and standing among similar buildings, the people living at the time saw it differently than people do in the 21st century.

H-C researcher does not use deterministic approach. H-C research takes an approach to causality that is more contingent than determinist. A H-C researcher often uses combinational explanations. They are analogous to a chemical reaction in which several ingredients (chemicals, oxygen) are added together under specified conditions (temperature, pressure) to produce an outcome (explosion). This differs from a linear causal explanation. H-C research focuses on whole cases and on comparisons of complex wholes versus separate variables across cases. The logic is more "A, B, and C appeared together in time and place, then D resulted" than "A caused B, and B caused C, and C caused D."

H-C researcher has the ability to shift between a specific context and a generalized context for purposes of comparison. A researcher examines several specific contexts, notes similarities and differences, then generalizes. He or she looks again at the specific context using the generalization. H-C researchers compare across cultural-geographic units. They develop trans-cultural concepts for purposes of comparative analysis. In comparative research, a researcher translates the specifics of a context into a common, theoretical language. In historical research theoretical concepts are applied across time.

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LESSON 41

HISTORICAL-COMPARATIVE RESEARCH (Contd.)

Conducting historical-comparative research does not involve a rigid set of steps and, with only a few exceptions; it does not use complex or specialized techniques. Nevertheless, some guideline for doing historical-comparative research may be provided.

Conceptualizing the Object of Inquiry

An H-C researcher begins by becoming familiar with the setting and conceptualizes what is being studied. He or she may start with a loose model or set of preliminary concepts and apply them to specific setting. The provisional concepts contain implicit assumptions or organizing categories that he or she uses to see the world, "package" observations, and search through evidence.

Decide on the historical era or comparative settings (nations or units). If the researcher is not already familiar with historical era or comparative settings, he or she conducts an orientation reading (reading several general works). This will help the researcher grasp the specific setting, assemble organizing concepts, subdivide the main issue, and develop lists of questions relating to specific issue.

Locating Evidence

The researcher locates and gathers evidence through extensive bibliographic work. A researcher uses many indexes, catalogs, and reference works that list what libraries contain. For comparative research, this means focusing on specific nations or units and on particular kinds of evidence within each. The researcher frequently spends weeks searching for sources in libraries, travels to several different specialized research libraries, and reads dozens of books and articles. Comparative research often involves learning one or more foreign languages.

As the researcher masters the literature and takes numerous detailed notes, he or she completes many specific tasks: creating a bibliography list (on cards or on computer) with complete citations, taking notes that are neither too skimpy nor too extensive, leaving margins on note cards for adding themes later on, taking all note in the same format, and developing a file on themes or working hypothesis.

A researcher adjusts initial concepts, questions, or focus on the basis of what he or she discovers in the evidence. New issues and questions arise as he or she reads and considers a range of research reports at different levels of analysis (e.g., general context and detailed narratives on specific topic), and multiple studies on a topic, crossing topic boundaries.

Evaluating Quality of Evidence

As the H-C researcher gathers evidence, he or she asks two questions: Hoe relevant is the evidence to emerging research questions and evolving concepts? How accurate and strong is the evidence?
The question of relevance is difficult one. All documents may not be equally valuable in reconstructing the past. As the focus of research shifts, evidence that was not relevant can become relevant. Likewise, some evidence may stimulate new avenues of inquiry and search for additional confirming evidence.

Accuracy of evidence may be looked at for three things: the implicit conceptual framework, particular details that are required and empirical generalizations. H-C researcher evaluates alternative interpretations of evidence and looks for "silences," of cases where the evidence fails to address an event, topic, or issue.

Researchers try to avoid possible fallacies in the evidence. For example, a fallacy of pseudo proof is failure to place something into its full context. The evidence might state that that there was a 50 percent increase in income taxes, but it is not meaningful outside of a context. The researcher must ask: Did other taxes decline? Did income increase? Did the tax incase apply to all income? Was everyone affected equally?

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Organizing Evidence

As a researcher gathers evidence and locates new sources, he or she begins to organize the data. Obviously, it is unwise to take notes madly and let them pile up haphazardly. A researcher usually begins a preliminary analysis by noting low-level generalizations or themes. For example, in a study of revolution, a researcher develops a theme: The rich peasants supported the old regime. He or she can record this theme in his or her notes and later assign to significance.

Researcher organizes evidence, using theoretical insights to stimulate new ways to organize data and for new questions to ask of evidence. The interaction of data and theory means that a researcher goes beyond a surface examination of the evidence based on theory. For example, a researcher reads a mass of evidence about a protest movement. The preliminary analysis organizes the evidence into a theme: People who are active in protest interact with each other and develop shared cultural meanings. He or she examines theories of culture and movements, then formulates new concept: "oppositional movement subculture." The researcher then uses this concept to re-examine the evidence.

Synthesizing

The researcher refines concepts and moves toward a general explanatory model after most of the evidence is in. Old themes or concepts are discussed or revised, and new ones are created. Concrete events are used to give meaning to concepts.

The researcher looks for patterns across time or units, and draws out similarities and differences with analogies. He or she organizes divergent events into sequences and groups them together to create a larger picture. Plausible explanations are then developed that subsume both concepts and evidence as he or she organizes the evidence into a coherent whole. The researcher then reads and rereads notes and sorts and resorts them into piles or files on the basis of organizing schemes. He or she looks for and writes down the links or connections he or she sees while looking at evidence in different ways.

Synthesis links specific evidence with an abstract model of underlying relations or causal mechanism. A researcher often looks for new evidence to verify specific links that appear only after an explanatory model is developed. He or she evaluates how well the model approximates the evidence and adjusts it accordingly.

Historical-comparative researchers also identify critical indicators and supporting evidence for themes or explanations. A *critical indicator* is unambiguous evidence, which is usually sufficient for inferring a specific theoretical relationship. Researchers seek these indicators for key parts of an explanatory model. Indicators critically confirm a theoretical inference and occur when many details suggest a clear interpretation.

Writing a Report

Combine evidence, concepts, and synthesis into a research report. The way in which the report is written is key in H-C research. Assembling evidence, arguments, and conclusions into a report is always a crucial step; but more than in quantitative approaches, the careful crafting of evidence and explanation makes or breaks H-C research. A researcher distills mountains of evidence into exposition and prepares extensive footnotes. She or he weaves together evidence and arguments to communicate a coherent, convincing picture to readers.

Data and Evidence in Historical context

Historical-comparative researchers draw on four types historical evidence or data:

1. Primary sources;
2. Secondary sources;
3. Running records; and
4. Recollections.

Traditional historians rely heavily on primary sources. H-C researchers often use secondary sources or the different data types in combination.

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1. Primary Sources: The letters, diaries, newspapers, movies, novels, articles of clothing, photographs, and so forth are those who lived in the past and have survived to the present are the primary sources. They are found in archives (a place where documents are stored), in private collections, in family closets, or in museums. Today's documents and objects (our letters, television programs, commercials, clothing, and automobiles) will be primary sources for future historians. An example of a classic primary source is a bundle of yellowed letters written by a husband away at war to his wife and found in a family closet by a researcher.

Published and unpublished written documents are the most important type of primary source. Researchers find them in their original form or preserved in microfilm or on film. They are often the only surviving record of the words, thoughts, and feelings of people in the past. Written documents are helpful for studying societies and historical periods with writing and literate people. A frequent criticism of written sources is that elites or those in official organizations largely wrote them; thus the views of the illiterate, the poor, or those outside official social institutions may be overlooked.

The written word on paper was the main medium of communication prior to the widespread use of telecommunications, computers, and video technology to record events and ideas. In fact, the spread of forms of communication that do not leave a permanent physical record (e.g., telephone conversation), and which have largely replaced letters, written ledgers, and newspapers, make the work of future historians difficult.

***Potential Problems with Primary Sources*:** The key issue is that only a fraction of everything written or used in the past has survived into present. Moreover, whatever is survived is nonrandom sample of what once existed.

H-C researchers attempt to read primary sources with the eyes and assumptions of a contemporary who lived in the past. This means "bracketing," or holding back knowledge of subsequent events and modern values. "If you do not read the primary sources with an open mind and an intention to get inside the minds of the writings and look at things the way *they* saw them, you are wasting time." For example, when reading a source produced by a slaveholder, moralizing against slavery or faulting the author for not seeing its evil is not worthwhile. The H-C researcher holds back moral judgments and becomes a moral relativist while reading primary sources. He or she must think and believe like subjects under study, discover how they performed in their own eyes.

Another problem is that locating primary documents is a time consuming task. A researcher must search through specialized indexes and travel to archives or specialized libraries. Primary sources are often located in dusty, out-of-the-way room full of stacked cardboard boxes containing masses of fading documents. These may be incomplete, unorganized, and various stages of decay. Once the documents or other primary sources are located, the researcher evaluates them subjecting them to external and internal criticism.
External criticism means evaluating the authenticity of a document itself to be certain that it is not a fake or a forgery. Criticism involves asking: Was the document created when it is claimed to have been, in the place where it was supposed to be, and by the person who claims to be its author? Why was the document produced to begin with, and how did it survive? Once the document passes as being authentic, a researcher uses *internal criticism*, an examination of the document's contents to establish credibility. A researcher evaluates whether what is recorded was based on what the author directly witnessed or is secondhand information.

Many types of distortions can appear in primary documents. One is *bowdlerization* – a deliberate distortion designed to protect moral standards or furnish a particular image. For example, photograph is taken of the front of a building. Trash and empty bottles are scattered all around the building, and the paint is faded. The photograph, however, is taken of the one part of the building that has little trash and is framed so that the trash does not show; dark room techniques make the faded paint look new.

2. Secondary Sources: Social researchers often use secondary sources, the books and articles written by specialist historians and other researchers, as an evidence of past conditions. It has its own limitations.

Potential Problems with Secondary Sources: The limitations of secondary historical evidence include problems of inaccurate historical accounts and lack of studies in areas of interest. Such sources cannot be used to test hypotheses. Post facto explanations cannot meet positivist criteria of falsifiability, because few statistical controls can be used and replication is not possible.

The many volumes of secondary sources present a maze of details and interpretations for an H-C researcher. He or she must transform the mass of specialized descriptive studies into an intelligible picture. This picture needs to be consistent with the reflective of the richness of the evidence. It also must bridge the many specific time periods and locals. The researcher faces potential problems with secondary sources.

One problem is reading the works of historians. Historians do not present theory-free, objective "facts." They implicitly frame raw data, categorize information, and shape evidence using concepts. The historian's concepts are a mixture drawn from journalism, language of historical actors, ideologies, Philosophy, everyday language in the present, and social science. Most lack a rigorous definition, are vague, are applied inconsistently, and are not mutually exclusive, nor exhaustive.

Second problem is that historian's selection procedure is not transparent. They select some information from all possible evidence. From the infinite oceans of facts historian selects those, which are significant for his purpose. Yet, the H-C researcher does not know how this was done. Without knowing the selection process, a historical-comparative researcher must rely on the historian's judgments, which can contain biases.

A third problem is in the organization of the evidence. Historians organize evidence as they write works of history. They often write *narrative history*. This compounds problems of undefined concepts and the selection of evidence. In the historical narrative, the writer organizes material chronologically around a single coherent "story." The logic is that of a sequence of unfolding action. Thus, each part of the story is connected to each other part by its place in the time order of events. Together all the parts form a unity or whole. Conjecture and contingency are the key elements of the narrative form. The contingency creates a logical interdependency between earlier and later elements.

With its temporal logic, the narrative organization differs from how the social researchers create explanations. It also differs from quantitative explanation in which the researcher identifies statistical patterns to infer causes. A major difficulty of the narrative is that the organizing tool – time order or position in a sequence of events – does not alone denote theoretical or historical causality. In other word, the narrative meets only one of the three criteria for establishing causality – that of temporal sequence.

Fourth and the last problem is that historiographic schools, personal beliefs, social theories influence a historian, as well as current events at the time research were conducted. Historians writing today examine primary material differently from how those writing in the 1920s did. In addition, there are various schools of historiography (diplomatic, Marxist) that have their own rules for seeking evidence and asking questions. It is also said history gets written by the people in power; it may include what the people in power want to be included.

3. Running Records: Running records consist of files or existing statistical documents maintained by organizations. An example of a running record is keeping of vital statistics by the government departments in Pakistan; vital statistics relating to births, marriage, divorce, death, and other statistics of vital events. We also have so many documents containing running records relating to demographic statistics, and economic statistics being maintained by different agencies of UNO.

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4. Recollections: The words or writing of individuals about their past lives or experiences based on memory are recollections. These can be in the form of memoirs, autobiographies, or interviews. Because memory is imperfect, recollections are often distorted in ways that primary sources are not.

In gathering *oral history*, a type of recollection, a researcher conducts unstructured interviews with people about their lives or events in the past. This approach is especially valuable for non-elite groups or the illiterate.

Evaluating the Documents

Historical-comparative researchers often use secondary sources or different data types in combination. For secondary sources they often use existing documents as well as the data collected by other organizations for research purposes. While looking into the authenticity of these document researchers often want answers to the questions like: Who composed the documents? Why were these written? What methods were used to acquire the information? What are some of the biases in the documents? How representative was the sample? What are the key categories and concepts used? What sorts of theoretical issues and debates do these documents cast light on?

Problems in Comparative Research

Problems in other types of research are magnified in a comparative study. In principle, there is no difference between comparative cross-cultural research and research conducted in a single society. The differences lie, rather, in the magnitude of certain types of problems.

The Units being compared:

For convenience, comparative researchers often use nation-state as their unit of analysis. The nation-state is the major unit used in thinking about the divisions of people across globe today. The nation-state is a socially and politically defined unit. In it, one government has sovereignty over populated territory. The nation-state is not the only unit for comparative research, but also frequently used as a surrogate for culture, which more difficult to define as a concrete, observable unit. The boundaries of nation-state may not match those of a culture. In some situations a single culture is divided into several nations (Muslim culture); in other cases, a nation-state contains more than one culture (Canada). The nation-state is not always the best unit for comparative research. A researcher should ask: What is the relevant comparative unit for my research question – the nation, the culture, a small region, or a subculture?

Problems of Equivalence: Equivalence is a critical issue in all research. It is the issue of making comparisons across divergent contexts, or whether a researcher, living in a specific time period and culture, correctly reads, understands, or conceptualizes data about people from different historical era or culture. Without equivalence, a researcher cannot use the same concepts or measures in different cultures or historical periods, and this makes comparison difficult, if not impossible. It is similar to the problems of validity in quantitative research. Look at the concept of a *friend.* We ask some body how many friends do you have? People living in different countries may have different meanings attached to it. Even in Pakistan, we have variations in its meaning across the Provinces, and between rural and urban areas.

Ethical problems are less intense in H-C research than in other types of social research because a researcher is less likely to have direct contact with people being studied. Historical-comparative research shares the ethical concerns found in other non-reactive research techniques.

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LESSON 42

FOCUS GROUP DISCUSSION

A visitor to a locality stops by a house and inquires about the address of a resident he wants to see. May be he starts talking with a couple of persons asking for their help. In the meantime, some other passersby, or coming out of other houses join, showing their curiosity about the issue. They ask for some more information about the resident concerned, and then start discussing among them to come up with the exact identification of the resident. As an outcome of this discussion they would guide the visitor to reach the destination. This is quite a common feature in a folk society (village, neighborhood in a city) where we may start talking with a couple of persons and others come and join the conversation. This is an example of *informal* focus group discussion, which is built upon the social networks that operate in a natural setting. These social networks include both kinsfolk and other neighbors. In some cases the participants may be the local decision makers.

In research, focus group discussions (FGD) are a more formal way of getting groups of people to discuss selected issues. A focus group discussion is a group discussion of 6-12 persons guided by a facilitator, during which group members talk freely and spontaneously about a certain topic. There may be some disagreement about the exact number of participants in the discussion, as one comes across variations in numbers (6 to 10, 6 to 12, 6 to15, 8to 10, 5 to 7) in different books on research methods. The trend has been toward smaller groups due to some problems with the larger groups, which like:

- In a bigger group each participant's speaking time is substantially restricted. Dominant/submissive relationships are almost inevitable.
- Frustration or dissatisfaction among group members is likely to result because of some members' inability to get a turn to speak. This produces lower quality and quantity of data.
- Participants are often forced into long speeches, often containing irrelevant information, when they get to speak only infrequently.
- The tendency for side conversations between participants increases.

In contrast, smaller group sessions are felt to provide greater depth response for each participant. The group is often more cohesive and interactive, particularly when participants are professionals, such as physicians or pharmacists.

The key factor concerning group size is generally the of group purpose. If the purpose of the group is to generate as many ideas as possible, a larger group may be most useful. If the purpose of the group is to maximize the depth of expression from each participant, a smaller group works better.

The Purpose of FGD

The purpose of an FGD is to obtain in-depth information on concepts, perceptions, and ideas of the group. An FGD aims to be more than a question-answer interaction (Focus group interview is different). Here the idea is that group members discuss the topic among themselves.

Formal Focus Groups

Formal groups are formally constituted, that is these are organized in advance by inviting the selected individuals to participate in the discussion on a specific issue. They are structured groups brought together in which the participants are expected to have similar background, age, sex, education, religion, or similar experiences. Similarity in background is likely to make them comfortable where they could express their viewpoint frankly and freely. If the big boss and his junior officer working in an organization together participate in an FGD, the junior officer may not be able to express his or her opinion freely in the presence of his/her boss. Similarly, in some situations the children may experience some inhibitions in expressing their views on a sensitive issue in the presence of their parents. A lot depends on the kind of issue that is to be discussed.

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The group is guided by a moderator/facilitator. The participants address a specific issue (talk freely, agree or disagree among them) within a specified time in accordance with clearly spelled out rules of procedure.

Designing a Focus group Study

As with other approaches to studying social phenomena, designing a focus group study requires careful thought and reflection. Given that focus groups can be used for a variety of purposes within social research, the design of focus group study will depend on its purpose. At one extreme, FGD is used at the exploratory stage of the study (FGD may help in the identification of variables, formulation of questions and response categories) and at the other extreme, when qualitative information is needed on issues about which the researchers have substantial background knowledge and a reasonable grasp of the issues. Here we are focusing on the latter type of design.

How to conduct FGD?

The following guideline may be provided for conducting FGD.

1. Preparation:

- Selection of topic, questions to be discussed. It is appropriate to define and clarify the concepts to be discussed. The basic idea is to lay out a set of issues for the group to discuss. It is important to bear in mind that the moderator will mostly be improvising comments and questions within the framework set by the guidelines. By keeping the questions open-ended, the moderator ca stimulates useful trains of thought in the participants that were not anticipated.
- Selecting the study participants: Given a clear idea of the issues to be discussed, the next critical step in designing a focus group study is to decide on the characteristics of the individuals who are to be targeted for sessions. It is often important to ensure that the groups all share some common characteristics in relation to the issue under investigation. If you need to obtain information on a topic from several different categories of informants who are likely to discuss the issue from different perspectives, you should organize a focus group for each major category. For example a group for men and a group for women, or a group for older women and group for younger women. The selection of the participants can be on the basis of purposive or convenience sampling. The participants should receive the invitations at least one or two days before the exercise. The invitations should explain the general purpose of the FGD.
- Physical arrangements: Communication and interaction during the FGD should be encouraged in every way possible. Arrange the chairs in a circle. Make sure the area will be quite, adequately lighted, etc., and that there will be no disturbances. Try to hold the FGD in a neutral setting that encourages participants to freely express their views. A health center, for example, is not a good place to discuss traditional medical beliefs or preferences for other types of treatment. Neutral setting could also be from the perspective of a place where the participants feel comfortable to come over and above their party factions.

Conducting the session:

- One of the members of the research team should act as a "facilitator" or "moderator" for the focus group. One should serve as "recorder."
- ***Functions of the Facilitator:*** The facilitator should not act as an expert on the topic. His or her role is to stimulate and support discussion. He should perform the following functions:
  - **Introduce the session**: He or she should introduce himself/herself as facilitator and intro duce the recorder. Introduce the participants by name or ask them to introduce themselves (or develop some new interesting way of introduction). Put the participants at ease and explain the purpose of the FGD, the kind of information needed, and how the information will be used (e.g., for planning of a health program, an education program, et.).
  - **Encourage discussion:** The facilitator should be enthusiastic, lively, and humorous and show his/her interest in the group's ideas. Formulate questions and encourage as many participants as

possible to express their views. Remember there are no "right" or "wrong" answers. Facilitator should react neutrally to both verbal and nonverbal responses.

- **Encourage involvement:** Avoid a question and answer session. Some useful techniques include: asking for clarification (can you tell me more?); reorienting the discussion when it goes off the track (saying: wait, how does this relate to the issue? Using one participant's remarks to direct a question to another); bringing in reluctant participants (Using person's name, requesting his/her opinion, making more frequent eye contact to encourage his participation); dealing with dominant participants (avoiding eye contact or turning slightly away to discourage the person from speaking, or thanking the person and changing the subject).
- **Avoid being placed in the role of expert:** When the facilitator is asked for his/her opinion by a respondent, remember that he or she is not there to educate of inform. Direct the question back to the group by saying: "What do you think?" "What would you do?" Set aside time, if necessary, after the session to give participants the information they have asked.

  Do not try to give comments on everything that is being said. Do not feel you have to say Something during every pause in the discussion. Wait a little and see what happens.
- **Control the timing of the meeting but unobtrusively:** Listen carefully and move the discussion from topic to topic. Subtly control the time allocated to various topics so as to maintain interest. If the participants spontaneously jump from one topic to the other, let the discussion continue for a while because useful additional information may surface and then summarize the points brought up and reorient the discussion.
- **Take time at the end of the meeting to summarize, check for agreement and thank the participants:** Summarize the main issues brought up, check whether all agree and ask for additional comments. Thank the participants and let them know that their ideas had been valuable contribution and will be used for planning the proposed research/intervention/or what ever the purpose of FGD was.

  Listen to the additional comments made after the meeting. Sometime some valuable information surfaces, which otherwise may remain hidden.

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LESSON 43

FOCUS GROUP DISCUSSION (Contd.)

Functions of the Recorder

The recorder should keep a record of the content of the discussion as well as emotional reactions and important aspects of group interaction. Assessment of the emotional tone of the meeting and the group process will enable the researcher to judge the validity of the information collected during the FGD. Record the following:

- Date, time, and place:
- Names and characteristics of participants:
- General description of the group dynamics (level of participation, presence of a dominant participant, level of interest):
- Opinions of participants, recorded as much as possible in their own words, especially for key statements: and
- Vocabulary used, particularly in focus group discussions that are intended to assist in developing questionnaire or other material as stipulated under the topic.

It is highly recommended that a tape/video recorder (with permission) be used to assist capturing information. Even if a tape/video recorder is used, notes should be taken as well, incase the machine malfunctions and so that information will be available immediately after the session.
A supplementary role for the recorder could be to assist the facilitator (if necessary) by drawing his/her attention to:

- Missed comments from participants, and
- Missed topics (the recorder should have a copy of the discussion guide, key probe questions during the FGD).

If necessary, the recorder could also help resolve conflict situations that facilitator may have difficulty handling.

Number and duration of sessions: The number of **focus group sessions** to be conducted depends upon project needs, resources, and whether new information is still coming from the sessions (that is, whether contrasting views from various groups in the community are still emerging).

One should plan to conduct at least two different focus group discussions for each subgroup (for example two for males and two for females).

For **duration**, a focus group session typically lasts up to an hour and a half. Generally the first session with a particular type of group is longer than the following ones because all of the information is new. Thereafter, if it becomes clear that all the groups have the same opinion on particular topics, the facilitator may be able to move the discussion along more quickly to other topics that still elicit new points of view.

3. Analysis of Results

- After each focus group session, the facilitator and the recorder should meet to review and complete the notes taken during the meeting. This is also the right moment to evaluate how the focus group went and what changes might be made when facilitating future groups.
- A full report of the discussion should be prepared that reflects the discussion as completely as possible using the participants' own words. List the key statements, ideas, and attitudes expressed for each topic of discussion.
- After the transcript of the discussion is prepared, code the statements right away, using the left margin? Write comments in the right margin. Formulate additional questions if certain issues are still unclear or controversial and include them in the next FGD.

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- Further categorize the statements for each topic, if required. Compare answers of different subgroups (e.g., answers of young mothers and answers of mothers of above childbearing age in the FGD on changes in weaning practices).
  The findings must be recorded in coherent manner. For example, if young women in all focus group discussions state that they start weaning some 3-6 months earlier than their mothers did and the women above childbearing age confirm this statement, one is likely to have a solid finding. If findings contradict each other, one may need to conduct some more focus group discussions or bring together representatives from two different subgroups to discuss and clarify the differences.
- Summarize the data in a matrix, diagram, flowchart, or narrative, if appropriate, and interpret the findings.
- Select the most useful quotations that emerged from the discussions to illustrate the main ideas.

4. Report Writing

- Start with a description of the selection and composition of the groups of participants and a commentary on the group process, so the reader can assess the validity of the reported findings.
- Present the findings, following a list of topics and guided by the objective(s) of the FGD. Include quotations whenever possible, particularly for key statements.

Uses of Focus Group Discussions

- The primary advantage of focus groups is its ability to quickly and inexpensively grasp the core issues of the topic. One might see focus group discussions as *synergistic* i.e. the combined effort of the group will produce a wider range of information, insights, and ideas than will the accumulation of separately secured responses of a number of individuals. Even in non-exploratory research, focus group discussions produce a lot more information far more quickly, and at less cost than individual interviews.
- As part of exploratory research, focus group discussions help the researcher to focus on the issue and develop relevant research hypotheses. In the discussions the relevant variables are identified, and relationships are postulated. Once the variables are identified, the same focus group discussions help in the formulation
  of questions, along with the response categories, for the measurement of variables.
- Focus group discussion is an excellent design to get information form non-literates.
- Focus groups discussions are a good means to discover attitudes and opinions that might not be revealed through surveys. This is particularly useful when the researcher is looking at the controversial issue, and the individual might be able to give his opinion as such but not discuss the issue in the light of other viewpoints. In focus group discussions there is usually a *snowballing* effect. A comment by one often triggers a chain of views from other participants.
- Focus group discussions are well accepted in the folk communities, as this form of communication already exists whereby the local communities try to sort out controversial issues.
- Focus group discussions generate new ideas, questions about the issues under consideration. It may be called *serendipity (*surprise ideas). It is more often the case in a group than in an individual interview that some idea will drop out of the blue. The group also affords the opportunity to develop the idea to its full significance.
- Focus group discussions can supplement the quantitative information on community knowledge, attitude, and practice (KAP), which may have already been collected through survey research.
- Focus group discussions are highly flexible with respect to topic, number of participants, time schedule, location, and logistics of discussion.
- Focus group discussions provide a direct link between the researcher and the population under study. In fact most of the focus group discussions are held close to peoples places of living and

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work. It helps in getting the realistic picture of the issue directly from the people who are part of it.

- For some researchers, focus group discussions may be a fun. They enjoy discussing the issues directly with the relevant population.

Limitations

- Results of the focus group discussions cannot usually be used for generalization beyond the population from where the participants in FGD came. One important reason being the lack of their representative-ness about other populations.
- It is often seen that participants usually agree with the responses from fellow members (for different reasons). Without a sensitive and effective facilitator, a single, self-appointed participant may dominate the session. Researchers have to be cautious when interpreting the results.
- The moderator may influence focus group discussion and may bias the information.
- Focus group discussions may have limited value in exploring complex beliefs of individuals, which they may not share in open discussion.
- It is possible that focus group discussions may paint a picture of what is socially acceptable in the community rather than what is actually occurring or is believed. The picture may be given of what is ideally desirable and not what is really in practice. Participants may like to project a good image of their community to strangers; hence the information may be highly contaminated.

CASE STUDY

Case study is a comprehensive description and analysis of a single situation or a number of specific situations i.e. cases. It is an intensive description and analysis of a case. Researchers often use qualitative approach to explore the case in as rich a detail as possible. The examples could be a case study of a highly successful organization, a project (Orangi Pilot Project, Karachi), a group, a couple, a teacher, and a patient. In a way it is more like a clinical approach to study the case in detail.

If the researcher is looking at highly successful organization then he may have to look into all the factors that may have contributed to its success. The factors may relate to the availability of the financial resources, the management, the work environment, work force, the political atmosphere, and many more. All these factors may be considered as different dimensions for studying the organization. Similarly, one may do the case study of a happily married couple.

Data Sources

Usually the following sources are suggested:

- Naturalistic observations (ethnographic studies)
- Interviews
- Life histories
- Tests (Psychological, clinical)

In most of the cases the data sources may depend upon the nature of the case under investigation. If we are trying to do the case study of a community, then one shall be looking for naturalistic observations (ethnographic information), in-depth interviews with individuals, life histories of the people, and any thing, which may have previously been written about the community.

Preserve the unitary character of the object under study: The researcher tries to study the case as a whole by collecting the breadth of data about the totality of the unit. For the collection of such data a multidisciplinary approach may be used, which could help looking at the case from different

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perspectives prior to coming to some conclusions. Hence it is not a segmental study; therefore effort is made to study it as a whole and while making the analysis try to present it as a unit.

Case Control studies

It is also possible to select two groups (taking them as cases), one with an effect (study group) and the other without effect (control group). Both the cases are similar except for the effect. One could look at the case of Manga Mandi village, where, a few years back, deformities in the bones of children were observed in one part of the village. Here one could explore the totality of the background of affected and unaffected parts of the locality, each being treated as a unit. One could develop hypothesis by having an in-depth analysis of the affected and unaffected parts.

Case study is empirical

Case study is empirical because:

- It investigates a contemporary phenomenon within its real life context. It is retrospective study in which the researcher follows the research process from effect to its cause. It is a study back in time. Just like a medical practitioner who is treating his patient as a case, tries to diagnose his/her ailment by taking the case history, doing the physical examination, and if necessary, doing some laboratory tests. On the basis of the triangulation of all this information the medical doctor traces the cause of patient's present ailment. The information is empirical.
- When the boundaries between the phenomenon and context are not clearly evident, the researcher tries to use multiple sources of evidence. One could say that the researcher is trying to look at the case by using multiple dimensions, and trying to come up with a finding that is empirical.

Limitations

Despite the fact that the case study may be considered empirical yet it lack rigor in its approach. Therefore it has limitations with respect to the reliability of the findings. Also one could question whether the case is representative of some population.

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