INTRODUCTION
TO
MASS MEDIA RESEARCH

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AJEEP

AJEEP
Introduction to Media Research

Course Description

This course focuses on the basic principles of social science research which also apply to research on mass media. This includes theories of media power as well as hypotheses, variables, and levels of measurement. The many differences between qualitative and quantitative methods are discussed as are proper questionnaire wording.

Course Goals and Student Learning Objectives

The course goal is that students understand the basic foundations of social science and see how its elements can assist in acquiring information about mass media.

Student learning objectives focus on how students can:

1. Demonstrate how to apply a research plan to a media question
2. Demonstrate distinctions between common sense and science
3. Demonstrate principles of science in contemporary media.
4. Demonstrate proper use of survey questions by constructing questionnaire
5. Demonstrate difference in levels of measurement and use of indexes
6. Demonstrate proper use of qualitative and quantitative research designs

Required Texts/Readings

No text is required.
Students may receive handouts and may search the Internet

Assignments and Grading Policy

Assignments will mainly focus on gathering of information from the Internet to support or rebut what the instructor says. There will two 20-point quizzes, one at the beginning of the third class and the other at the start of the fifth class. One out-of-class assignment will be worth 20 points. It will be a short paper topic agreed upon by both student and instructor. It will be assigned at conclusion of the third lecture. A final exam will be worth 40 points. Since the total number of points equal 100, a minimum grade of 60 points, or 60 percent is required to pass the course with a grade of D. The standard university policy dictates that 70 be required for a C; 80 for a B; and 90 for an A.

Introduction to Media Research

Class	Date	Topics, Readings, Assignments, Deadlines
1		Topic: Research and Media Power. Assignment: Find TV or newspaper examples using examples of Lecture #2
2		Topic: Principles of Science. Assignment: Find media examples utilizing content of Lecture #3
3		Topic: Theories, hypotheses, variables. Assignment: Find media examples that include examples of Lecture #4 content. Quiz #1 at start of class. (next page) Paper topic assigned
4		Topic: Questions and Questionnaires. Assignment: Find media examples of content of Lecture #5
5		Topic: Levels of Measurement, Central Tendency. Assignment: Find media examples of Lecture #6 content Quiz #2 at start of class (see next pages)
6		Topic: Qualitative v. Quantitative Methods.
		Final Examination

STUDENTS: The three main things you should learn from this lecture are:

1. the steps in conducting research
2. development of media power theories over time
3. limited effects model's findings on filters and moderate effects model findings and recommendations
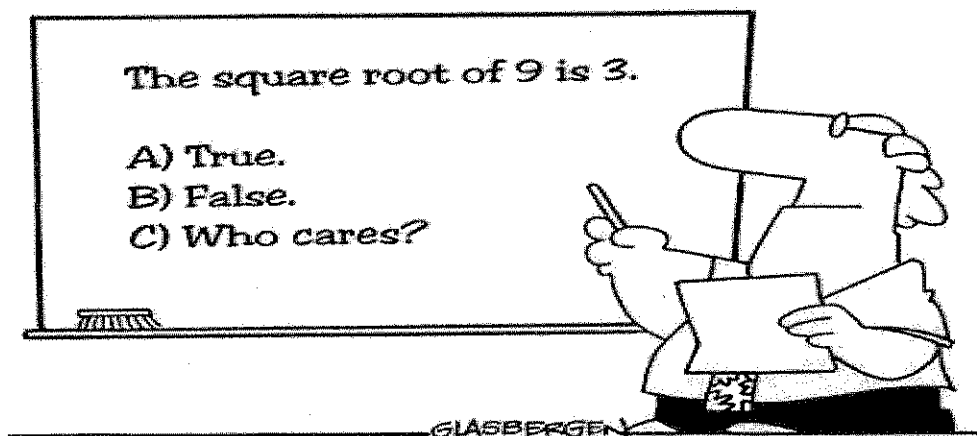
What is research?

Suppose I need a new camera. I do research. I talk with my friends. I check the newspaper and online ads. I talk to people at the camera shop. Then I buy.

Problem solved.

Unfortunately, it is not always that easy. Also, that way is not scientific.

Sidney Harris

Many students actually look forward to Mr. Atwadder's math tests.

The above cartoon is not research, but doing research is as easing as getting the right answer. HINT: C is wrong?

Research offers the pleasure of solving a puzzle, the satisfaction of discovering something new, something no one else knows, ultimately contributing to the wealth of human knowledge (Booth, Colomb & Williams, *The Craft of Writing*, 1995).

There is a seven-stage process in conducting research:

1. Select a problem

   For example, your TV station's viewership is declining

2. Review the existing literature

   You talk to other station managers that you know to see if they ever had that problem and how did they solve it? You read academic journals on TV audience research as well as the trade press.

3. Develop research questions

   Which part of the population is no longer watching?
   Why did they quit watching?
   Where do they get their news now?
   What kind of news is it?
   What kind of news do they want, need, use?

4. Determine the appropriate research method

   Do you hire a research firm to do a survey?
   Do you conduct small focus groups?

5. Collect relevant data

   Amount of time needed as well as the cost are two factors in determining how much data will be collected from how many people by what research methods.

6. Analyze and interpret the results

   Read transcripts of the personal interviews, examine statistical data for clues to decline in viewership.

7. Present results in the appropriate form

Write a journal article, present results at corporate meeting, use tables of percentages and/or statistical tests.

But before researching to determine such things as media effects, uses of the media and other aspects, we have to determine: Do the media really have any power to influence people?

Researchers have been examining this question from about 1900. We have had five over-arching theories of media power, five theories that may include many smaller, more specific theories.

Although many are decades old, perhaps each has an element of truth that can be used today in examining current media, because the essence of media is really ultimately focuses on the individual.

The five theories in chronological order are:

1. Hypodermic needle (or Bullet) (early 1900s)
2. Null effects (1940s)
3. Limited effects (1960s)
4. Moderate effects (1970s)
5. Powerful effects. (1980s)

The Hypodermic Needle theory is a stimulus-response theory, like Pavlov's dogs salivating for food after the bells and no food has been presented. This theory viewed the communications system as able to:

1. Shape opinion and belief
2. Change habits of life
3. Mold audience behavior according to the will of those controlling the system.

Much of this research looked at a lot of the war propaganda by both sides during both world wars as well as the Spanish-American war. How do you think the researchers viewed human beings' ability to think for themselves.

The Null Effects theory arose out of a study of the 1940 voter study in Erie County, Ohio and essentialy denied the premises of the Hypodermic Needle theory because:

1. Information is not direct to the consumer but is filtered by opinion leaders who shape and transmit it.

2. People choose or select that which they wish to find out about.

In other words, people can turn the TV on or leave it off and not bother with the newspaper at all. And they do receive much information from knowledgeable friends or others who can guide them, not only in the selection of a camera, but also the selection of a governmental leader.

But null effects? Null means no. None. If advertisers had believed that then, both print media and radio would have died and televsion would never have been born.

A researcher named Joseph Klapper analyzed hundreds of media effects studies and concluded that the media had limited effects based on five broad generalizations or theoretical propositions:

1. Mass communication functions among and through a nexus of mediating factors and influences. These filters are:

   1. Predispositions
   2. Opinion leadership
   3. Selectivity
   4. Group membership and norms
   5. Interpersonal communications

The idea of opinion leaders and the selectivity process come from earlier research, but the others are added to form quite a hurdle for mass media, news or advertisers, to overcome in getting information to their audiences. Predispositions come from an individual's experiences, upbringing, culture, schooling, and so forth. How do you think makes it more difficult or how can it be used by people in mass media today?

2. Media are contributors to, not the sole cause, of changes in attitudes and beliefs.

3. If media causes change, it is because the filters are suggesting the same thing.

4. Media can have a direct effect when there is no conflicting messages from other media and when the message are repeated over and over and over again.

Number 4 above is more likely to occur in state-owned or totalitarian systems where dissent is not allowed, unlike the multitude of opinions in open societies.

The limited-effects model implies that persuasive attempts in the mass media probably tend to reinforce existing attitudes in the audience. If attitude change occurs at all, it is minor; conversion is rare.

The way to find out what people think and want is through research.

But some ten years later, researchers were saying that previous research on the media was flawed because it:

1. Focused on political attitudes
2. Did not consider awareness or knowledge gain
3. Excluded what people did with the media
4. Excluded long-term effects

These researchers also suggested that future research should examine:

1. Uses and gratifications
2. Agenda-setting
3. Cultural norms

Uses and gratifications is a reversal of the prior model, what was termed SMCR, for a Source sends a Message through a Channel to a Receiver. The new position is to turn it around: A receiver goes to a channel to hear a message from a receiver.

Agenda-setting essentially says that while the media do not tell us what to think about a subject, the media do tell us what subjects to think about.

Cultural norms theory says the media choose what to emphasize of contemporary ideas and values. The media influences norms through reinforcement or change, that people accept as reality that which is presented by the media.

In the 1990s, researchers concluded that the media could have powerful effects if messages are:

1. Tailored to objectives
2. Targeted to specific audiences
3. Repeated over and over and over again

This is the essence of modern public relations, as well as of all propagandists.

This theory brings us full circle. Parts of some of the theories may operate some times in some places under some conditions.

These theories are just a few of the theories on how mass communications as well as media operate.

Theories of Media Power

1. Hypodermic Needle (early 1900s)

2. Null Effects (1940s)

3. Limited Effects (1960s)

4. Moderate Effects (1970s)

5. Powerful Effects (1980s)

Hypodermic Needle (Early 1900s)

This stimulus-response theory viewed communication systems as able to:

1. Shape opinion and belief
2. Change habits of life
3. Mold behavior according to the will of those controlling the system

Hypodermic needle (early 1900s)

Mass communications had this power because:

1. People were gullible and easily swayed
2. Messages were "injected" into the mind where they changed attitudes, feelings, and ultimately the behavior
3. Impact was immediate and beyond the control of the individual

Null Effects (1940s)

Two findings of the 1940 Erie County (Ohio) voter study, and others, denied the premises of the Hypodermic Needle theory because:

1. Information is not direct to the consumer but is filtered by opinion leaders who shape and transmit it

2. People choose or select that which they wish to find out about.

Limited Effects (1960s)

Media are not impotent but messages reinforce existing attitudes through four-fold process of:

1. Interpreted through five filters:

    A. Interpersonal communications

    B. Group memberships and norms

    C. Opinion leadership

    D. Selectivity

    E. Predispositions

Limited Effects (1960s)

2. Media are contributors to, not sole cause of, attitudes and beliefs

3. If media cause change, filters suggest same thing or are not considering the topic

4. Media can have direct effect when:

   A. No conflicting messages from other media

   B. Messages are repeated over and over

Moderate Effects (1970s)

It found prior research flawed because it:

1. Focused on political attitudes
2. Did not consider awareness/knowledge gain
3. Excluded what people do with media
4. Excluded long-term effects

Moderate Effects (1970s)

Researdhers suggested three effects models:

1. Uses and gratifications

2. Agenda setting

3. Cultural norms

C

Powerful Effects (1980s)

Research found that media can have powerful effects if messages are:

1. Tailored to objectives
2. Targeted to specific audiences
3. Repeated over and over and over again

Attitude Formation and Change

-4   -3   -2   -1   0   +1   +2   +3   +4
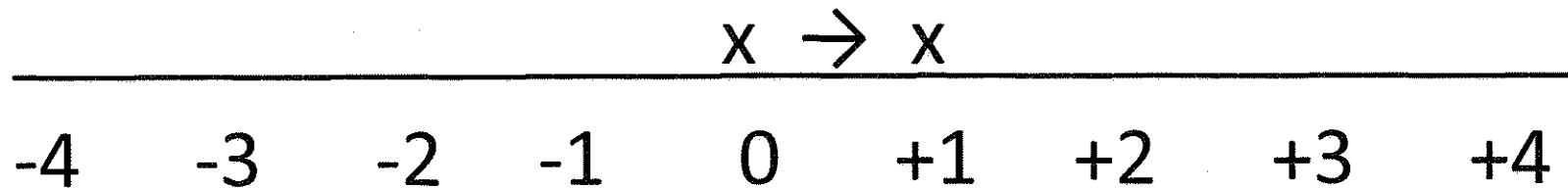
Attitudinal Predispositons

0 = no attitude and/or no knowledge

+ = degree of intensity of positive attitude
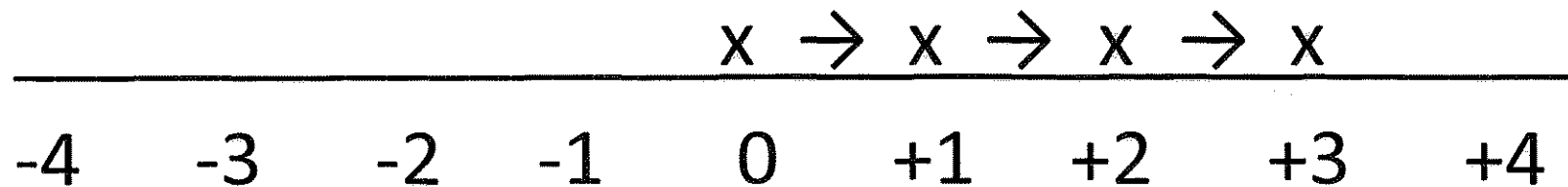
- = degree of intensity of negative attitude

Attitude Activation

Mild negative activation

$$x \rightarrow x$$

| -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 |

Increased negative activation

$$x \rightarrow x \rightarrow x \rightarrow x$$

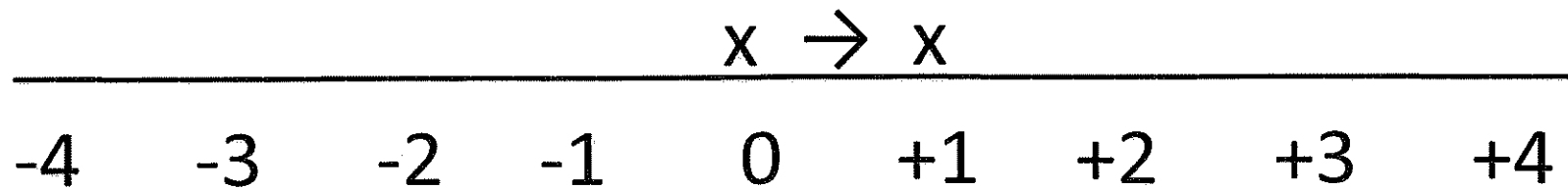| -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 |

Attitude Shifts

1. Activation
2. Accretion
3. Reinforcement
4. Erosion
5. Neutralization
6. Conversion

Activation

Activation establishes direction
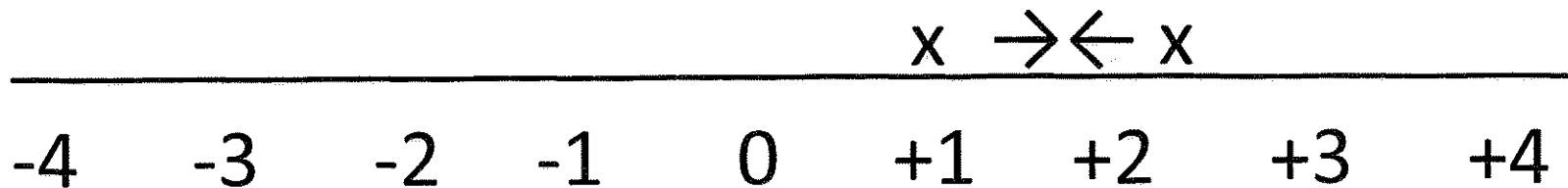
$$x \rightarrow x$$

| -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 |

Accretion

Accretion increases intensity in same direction

$$x \rightarrow x \rightarrow$$

| -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 |
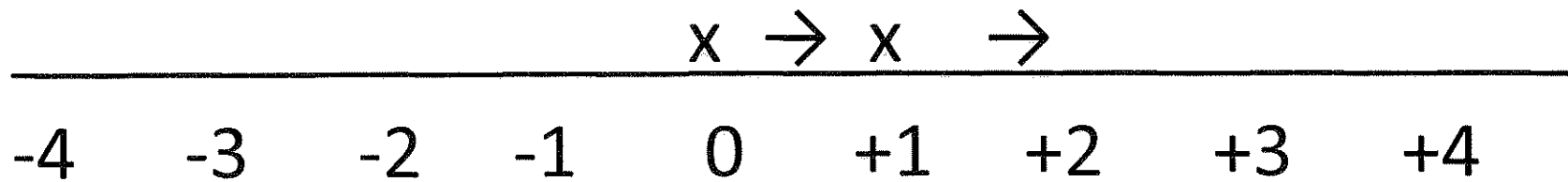
Reinforcement

Reinforcement: No change in intensity, no
   change in direction from contrary information

$$x \rightarrow \leftarrow x$$

-4   -3   -2   -1   0   +1   +2   +3   +4

Erosion

Erosion: No change in direction, but change in intensity

```
                                      x   ←_←__x____
_____
-4     -3     -2     -1      0     +1    +2    +3    +4
```
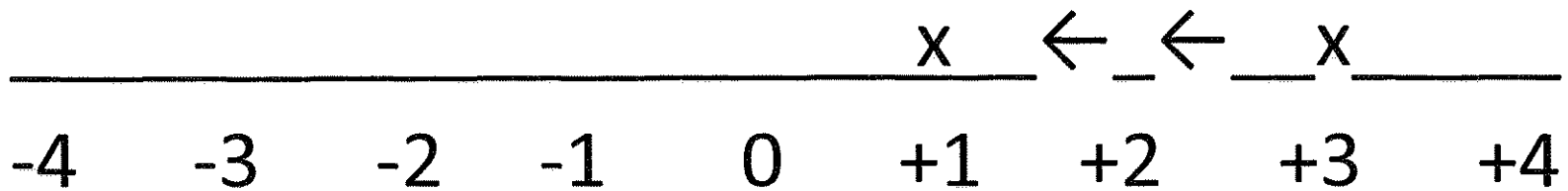
Neutralization

Neutralization: Decrease in intensity, loss of
   direction

$$x \leftarrow x$$

| -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 |
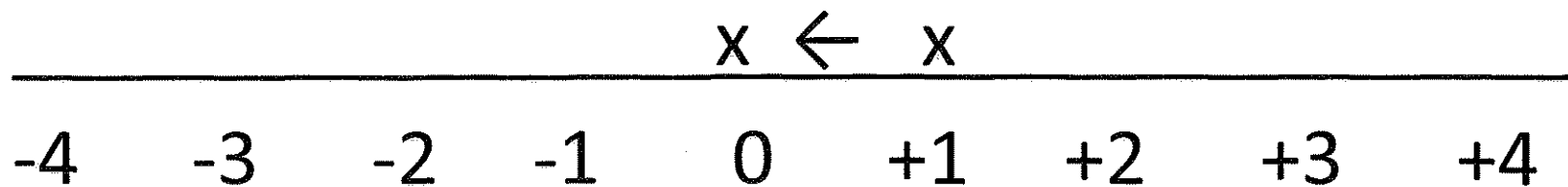
Conversion

Conversion: Change in direction

```
                    x  ←   ←   ←  x
_____
 -4    -3    -2    -1    0    +1   +2   +3   +4
```
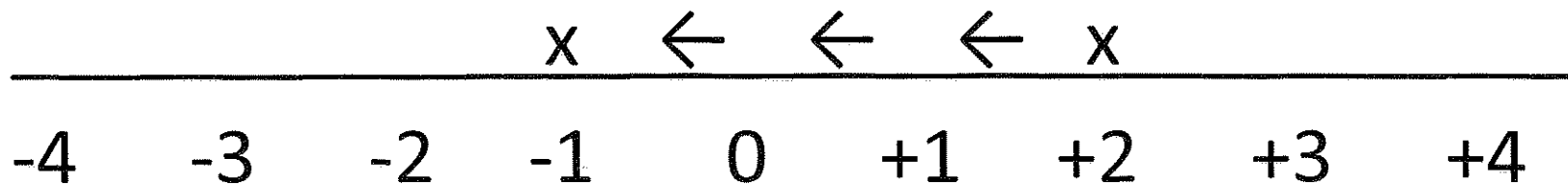
Cognitive Dissonance

Cognitive dissonance is the uncomfortable tension which comes from holding two conflicting views at the same time. It increases with:

1. the importance of the subject to us
2. how stongly the dissonant thoughts conflict
3. our inability to rationalize and explain away the conflict.

Cognitive Dissonance

Dissonant tension can be reduced or eliminated by:

1. changing our behavior (**revoking**)
2. changing cognitions (**re-evaluating**)
3. adding new cognitions (**revising**)

Discussion Questions

1. What determines the type of research a newspaper or TV station conducts?

2. Develop two different types of questions requiring different research methods and how do your answers to the previous question change?

3. What are some of the safeguards that the newspaper or TV station needs to take in order to ensure the accuracy and value of the findings of its research?

4. The chronology of the five media power theories appear to suggest that we have come full circle, back to where we started from, a powerful media. How are the two theories, the Hypodermic Needle and the Powerful Effects, alike and how are they different?

5. What do the similarities and differences in answers to Question 4 tell us about the society, man, the media, and the message?

6. Although the Null Effects researchers were perhaps naïve in giving their theory that title, their research discovered two important sub-theories, opinion leadership and selective exposure. What should the media do either avoid opinion leadership or ensure that opinion leaders understand the message the way the media intended it to be understood? How can the media use, or get around the selectivity element?

7. Besides opinion leadership and selectivity, there are three other filters the media must get through in order to be received properly, according the Limited Effects theory. How should the media structure messages, or should they, to take advantage of all five filters, including predispositions, group memberships and interpersonal communications?

8. Which of the five filters is the strongest, that is the most difficult for a media message to get through with the same intention it was sent? Why is it the strongest, and can it sometimes vary which is the strongest?

9. Discuss the importance to the mass media the implications of the recommendations of the Moderate Effects theorists that there should be more consideration to the agenda-setting function, to cultural norms, and to uses and gratifications.

10. The Powerful Effects theory states that the media can be very powerful if they do three things: (1) tailor the message (2) to a targeted audience, and (3) repeat, repeat, repeat, repeat. How is this different from public relations?

Terms or concepts to know and remember:

1. The five theories of media power: hypodermic needle, null effects. limited effects, moderate effects, and powerful effects

2. Nexus of mediating factors

3. Agenda-setting

4. Cultural norms

5. Uses and gratifications

6. predispositions

STUDENTS: The three main things you should learn from this lecture are:

1. Similiarities and differences between science and common sense
2. Characteristics of the scientific method
3. The scientific process

We learn about the world in two ways: subjective and objective. Subjective is

our personal experience. Objective is our collective experience, our consensus.

One method of knowing is called common sense. Common sense and science

work in similar ways. However, science often refutes common sense.

One problem with common sense is that unless we decide not to, we usually

observe inaccurately.   When we use a scientific method, we consciously decide what to

observe and how to observe it.

The common sense method usually generalizes from only a few cases. But

science explicitly samples for generalizability. Science does not create opinions about

ethnic groups by just three or four examples, but many people will judge an entire

group on having been in contact with only two or three.

In common sense, we make things up to fill in the gaps in our knowledge. But

science bases conclusions only on the evidence.

Common sense believes in luck, in having streaks and slumps.   Science

documents in order to back up its conclusions about performance. If your friend, who

has four daughters, is about to give birth again, what are the odds it will be a girl

again? It is fifty-fifty. The birth of one child is not connected to the birth of another,

unless they are twins. Many gamblers lose a lot of money believing in streaks or in slumps.

Common sense users get personally and emotionally involved. Science must respect its own rules regardless of personal opinions. Each of us has some things that we feel very strongly about, strongly enough so that our judgment is clouded and we filter out both opinions and facts contrary to what we already know to be true. Science does not do that.

If we use common sense, we form our views prematurely with little or no revision. Science constantly revises views and beliefs.

Science is more conscious than most common sense and is also more careful than most common sense.

The contrast between common sense problem solving and scientific problem solving can be seen in the following:

1. Common sense has a casual curiosity, science has persistent curiosity.

2. Common sense has a casual observation, science is systematic observation.

3. Common sense has a casual experimentation, science is systematic.

Common sense does have value. We could not live without it. If the sky is full of dark clouds and the wind is blowing, we know that a storm is coming and it will probably rain. So we put on a jacket and grab an umbrella before we go out.

But common sense can mislead us if we use isolated instances to generate to a larger situation, such as judging a group of people on the basis of your experience with one or two. If we think that one thing, say poverty, causes young people to be

rebellious toward society, we mislead ourselves because the issue is much more complex.

So, what is science? It is:

1. A process of inquiry, a way of knowing

2. A systematic process of asking and answering questions

3. Driven by curiosity, creativity, skeptism, and a tolerance for ambuguity

4. A prepared mind able to use serendipity

The characteristics of the scientific are that it is:

1. Public
   The results of science are made public in order that they may be subjected to additonal testing, that is replication, to detemine if the results will be found again and again.

2. Objective
   A researcher may have a personal opinion or belief, but he or she does not allow that to become part of the research or to cloud the judgment of the results

3. Empirical
   Science is based on measuring that which is observable, or that can be detected, essentially in numerical form. Science cannot measure questions such as what is God like because there is nothing to observe or measure.

4. Systematic
   Science does things in an orderly precise way that is written down so that it may be replicated.

5. Predictive
   All of science is based on the premise that the universe is orderly. We know what time the sun will rise tomorrow and we know, to some extent, what happens when you do certain things? If you strike a person, that person is likely to strike you back.

The scientific method:

1. Observes

2. Asks questions

3. Formulates hypotheses

4. Tests hypotheses
   (designs tests . . .conducts tests . . . analyzes data)

5. Evaluates the outcome

Examine almost any academic research journal and you will see that all quantitative research will follow this basic pattern base on the above. The article usually has five sections: statement of problem, literature review, research methods, results, and discussion.

Science and Common Sense

Science often refutes common sense

Science and common sense work in similar ways

Common sense and Science

Common sense · Unless we decide not to, we usually observe inaccurately

Science · We consciously decide what and how to observe

Common Sense and Science

Common sense · We observe selectively to see what we are looking for

Science · We consciously decide what and how to observe

Common Sense and Science

Common sense   ·   We usually generalize from only a few cases

Science   ·   We explicitly sample for generalizing

Common Sense and Science

Common sense · We make things up to fill in
the gaps

Science · We base conclusions only
on the evidence

Common Sense and Science

Common sense · We believe in luck
(streaks and slumps)

Science · We have to document and
back up conclusions about
performance

Common Sense and Science

Common sense · We get personally and emotionally involved

Science · We have to respect scientific norms regardless of opinions

Common Sense and Science

Common sense · We form our views prematurely with little or no revision

Science · We can constantly revise views

Common sense and Science

Science is . . .

- more conscious than most common sense knowi ng

- more *careful* than most common sense knowing

Contrast Between Common Sense Problem Solving and Scientific Problem Solving

· Casual versus persistent curiosity

· Casual versus systematic observation

· Casual versus systematic experimentation

What is Science?

- Process of inquiry, a way of knowing
- Systematic process of asking and answering questions
- Driven by curiosity, creativity, skepticism, and tolerance for ambiguity
- A "prepared mind" utilizes serendipity

Characteristics of Scientific Method

Science is . . .

1. public
2. objective
3. empirical
4. systematic
5. predictive

The Scientific Method

- Observe

- Ask questions

- Formulate hypotheses

- Test the hypotheses

  Design tests...Conduct experiments...Analyze data

- Evaluate the outcome

Research procedures

1. Select a problem
2. Review existing theory and literature
3. Develop research questions
4. Determine appropriate research method
5. Collect relevant data
6. Analyze and interpret results
7. Present results in appropriate form

Research elements

Variables . . .

1. are measureable phenomena/events that can be manipulated

2. link the empirical world with the theoretical

3. can have more than one value

Major variable types

Independent --- antecedent, predictor --- varied by researcher to see effect on . . .

Dependent ----- effect, result --- what the researcher wants to explain

Research questions/hypotheses

Research questions ask: Why?...How?....What if?

Hypotheses predict the answer: If A, then B or
   the more A, the more B, etc.

Discussion:

1. What is the strongest difference between these two ways of knowing: (1) common sense; and (2) science? Give examples of when each method should be used and not used.

2. Johnathan Swift, author of Gulliver's Travels (1726) said: "It is useless to attempt to try to reason a man out of a thing he was never reasoned into." How can the scientific process overcome that deficiency?

3. Do you think that there are specific weaknesses in any of the five characteristics of science, that it is (1) public; (2) objective; (3) empirical; (4) systematic; and (5) predictive? What are they and why in the characteristic weak?

4. Science makes no moral judgment. It helps man create without asking: Will this be good or bad. Atomic energy killed 70,000 Japanese when the United States bombed Nagasaki to end World War Two. (Hiroshima had already been bombed.) But, nuclear power plants around the world create cleaner, more efficient fuel. Science was able to create life by cloing a sheep into a second sheep. Should science not be allowed to create anything that is harmful?

5. Are there major flaws in the in the researcher scientific method which seeks to (1) observe; (2) ask questions; (3) formulate hypotheses; (4) conduct tests and analyze the data; and (5) evaluate the outcome? How can the research be valid, that is objective and useful, if the observer was born a specific culture which will structure the researcher's observation and evaluation?

Terms or concepts to know and remember:

1. The scientific characteristics: public, objective, emperical, systematic, and predictive

2. Hypotheses

3. Generalizability

4. Subjectivity

5. Objectivity

NAME_____   Score_____

Quiz #1

Which of the following theories of mass communication power best answers the questions below: (A) hypodermic needle; (B) limited effects; (C) moderate effects; (D) null effects; or (E) all-powerful effects?

1. _____ When mass communication results in change, it is because the mediating factors are inoperative.

2. _____ Objected that prior research had ignored what the audience did with mass communication.

3. _____ Can occur if a message is tailored to a targeted audience.

4. _____ stimulus-response

5. _____ said the flow of information was direct, from the media to the individual.

Which one of the following theories of media power best fit the descriptions below?

A. Hypodermic needle   C. moderate effects   D. null effects
B. Limited effects   E. powerful effects

6. _____ considers every person to be equally susceptible to messages.

7. _____ concluded media are unable to affect how people vote.

8. _____ believes people are easily swayed.

9. _____ says predispositions and group memberships filter media messages.

10. _____ criticized early research for not looking at receiver first instead of source.

Circle TRUE if the following statements are true, but circle FALSE if they are false.

TRUE   FALSE   11. Commonsense is a systematic process of asking questions and answering.

TRUE   FALSE   12. Common sense has no value at all.

TRUE   FALSE   13. Common sense often refutes science.

TRUE   FALSE   14. Science can create accurate data about a group of people by observing three or four persons.

TRUE   FALSE   15. Gamblers should not believe in streaks or slumps because the gambling events are not connected.

16. Circle the letter of the topic below that Science can NOT investigate.

    A. Military training methods
    B. Children's television viewing behavior
    C. Planetary orbits
    D. God, Allah, Jehovah and heaven
    E. Dieting methods

Place A on the line next to the statements below if it describes common sense, but put B on the line if the statement refers to science.

_____ 17. Constantly revises views and beliefs

_____ 18. Makes things up to fill in the gaps of knowledge

_____ 19. Gets personally and emotionally involved

TRUE   FALSE   20. Based on the lecture and your own examination, would
                             you say the following statement is true or that it is false?

                             An underlying assumption of science is that there is
                             an order to the universe and to human activity.

ANSWERS:
1. B   11. FALSE
2. C   12. FALSE
3. E   13. FALSE
4. A   14. FALSE
5. A   15. TRUE
6. A   16. D
7. D   17. B
8. A   18. A
9. B   19. A
10. C   20. TRUE

STUDENTS: The three main things you should learn from this lecture are:

1. Characteristics and operationalization of variables
2. Structure and purpose of hypotheses
3. Interpretations of data results

Once a researcher determines the ideas he or she wishes to study comes the

problem of "operationalization," that is defining possible abstract concepts into testable,

concrete terms.

Would we all be able to distinguish between men and women, planes and trains,

red and blue, and so forth? They are physical, can be seen and measured very easily.

Even electricity, gravity, and magnetism can be measured even though it is not seen.

But what about love, patriotism, and honor for example? Such words have to be

defined by their acts since none of them are directly observable. When you have done

that, you have created a variable. A variable does just what its name implies – it

varies, that is it has different characteristics or what in science are termed attributes.

For example, gender is a variable. It has two characteristics, two attributes,

which are male and female. In studies which use both, gender meets the first set of

requirements. It is mutually exclusive. That means a person can be one or the other,

but not both and must be one. It is also mutually exhaustive. There is no person that

can fit into a third category. There are just the two possibilities.

But what about religion?   How can they be either exclusive or exhaustive when

there are literally dozens of them? Religion can still be defined as belief in a greater

power, a moral code, and an afterlife. But how do you handle the question of the number? It can vary by where you are researching. For example, in some areas of the world, there may be only one major religion and perhaps a very few believers in other religions. If you live in other areas you may have to have a list that contains Atheists, Agnostics, Buddhists, Christians, Jews, Mormons, Muslims, and Others. Notice that last group. It contains all the believers of the remaining religions which will number less in that particular area.

Earlier, it was said that gender only had two attributes, male and female. If a researcher is examining sexuality, gender could be defined so as to encompass homosexuals, bisexuals, trans-sexuals and possibly others. But for most research, the definition is simple. It is the anatomical difference that determines whether a person is female or male.

Variables are the marbles of research. You use them with each other, to see how, or if they relate. Other variables are: age, income, and ethnicity. These are all demographic variables, that is they all relate to the individual and either can't be changed, or they change, usually only slightly.

There are other kinds of variables. Patriotism can be a variable. Watching television can be a variable. Being politically active can be a variable. Being a Communist or a Laborer can be a variable. Being a smoker can be a variable.

Variables used in research studies can be defined as either the independent variable or the dependent variable. In many cases, a variable can switch back and forth.

An independent variable is one that you vary because you want to see if there is any change in the dependent variable.

Suppose a newspaper editor reads that readers like larger pictures in newspapers or a station manager hears that viewers want more weather on television. Picture size and more weather are the independent variables that will be varied. That means we need to specify what the attributes are. The variables of picture size are fairly obvious, number of inches or centimeters, or columns wide. More weather might be defined in the number of seconds or perhaps in the number of nearby communities listed in the weather forecast.

"Readers like" and "Viewers want" are the dependent variables. Defining like and want are not so easy. They have to be measured using concrete, or basic, language.

Suppose we define "Readers like" using a scale from zero to ten where zero means don't like at all, and ten means it is fantastic. Suppose we decide that want means that they will watch the weather longer if they like, or want, it.

We vary the independent variable, liking and wanting, by daily changing the size of the pictures and the number of towns listed. Then we measure later that day or night to see if the dependent variable did change.

A simpler example would be using more concrete terms. Our TV is interested in adding another section to the late night newscast, either about food or about money. The cost is about the same either way. But what do our viewers want. We ask. The

data are coded in the computer: Gender (female = 1; male =2); New Content (food = 1; money = 2).

But in our anecdotal experience, with friends and neighbors, we think that there will be a difference, that women will prefer food over money, and men will prefer money over food.

Now we have a hypothesis, (actually we have two) which is a formal statement of expected results. We predict that:

1. More women will prefer a food section than will prefer a money section.
2. More men will prefer a money section than will prefer a food section.

A hypothesis is an educated guess. It must be testable, measurable and falsifiable. That basically means that if we can't test, if we can't measure, if there is no way prove something might be false, it is not science. A hypothesis must state a prediction that can be tested in repeatable research and shown to be either proven or rejected. For example, most of our economic problems are caused by aliens from outer space is not a scientific hypothesis because it cannot be tested. We cannot measure aliens from outer space. A hypothesis states: if A, then B, or some variation.

What are some other hypotheses? Think of your own experiences, personal experiences with people and situations, as well as professional experiences, co-workers, clients, students, media people. What kind of testable hypotheses can you make about them?

Often after you gather data, you put it in visual form in an attempt to see if there is a larger picture involved. The following has not been discussed, but look at the figures in

the table below. First, what do the numbers actually say? Then what is the larger picture, if there is one.

Two surveys were conduction in 1987 and again in 2003 in the United States asking Americans whether they agreed with the following statement: I think it is all right for Blacks and Whites to date each other. The results by age are given below. What do the numbers say? What is the still larger picture? Would the results be the same in other countries, just changing the two types of people involved?

Generation	Percent Agreeing	
	1987	2003
Born before 1913	26%	-----
WWII (1913-1927)	31	49%
Silent (1928-1945	41	60
Boomer (1946-1964)	59	77
Gen. X (1965-1976)	64	83
Gen. Y (1977--	---	91
Live in the South	30	59
Live Elsewhere	50	78

This is information gathered and presented as social scientists do it. But readers now have to rephrase this in words in their minds so that they can comprehend it. Before discussing that, consider how quickly the information can be absorbed using a simple chart as supposed to several paragraphs.

There are six ways of analyzing the data. They and what they say are:

1. In 1987, Younger Americans were more likely to think it was okay for Blacks and Whites to date each other than older Americans. That belief was more likely the younger the Americans were.

    Tolerance may be a function of age when it comes to issues that have been in society for many, many years.

2. In 2003, the results are similar, the younger the Americans are, the more likely they think inter-racial dating is okay.

3.   A comparison of the two age charts suggests that all Americans have become more likely over time to accept the idea that Black-and-What dating is okay. Each age group was more approving in the second survey than in the first survey.

4. In the 1987 survey, less than one-third of Southerners approved o inter-racial dating compared to half of the rest of the United States.

5. In 2003, the results were similar to 1987 except that in both cases the percentage approving was much greater.

6. The geographic chart is similar to the generational chart. It also shows the United States becoming more racially tolerant over time, at least in this specific type of Black-White relations.

Will newspapers and television in other parts of the world gather comparable data of their country or region? First, will they see any value in conducting such research? If so, what value? After all, research is expensive, and it is time-consuming. Second, how will they conduct such research – with their own staffs, contract it out? How will they determine what it is to ask?

Discussion:

1. How do you "operationalize" concepts like honor, patriotism, love or other abstractions? What problems does that present?

2. What is the difference between "gender" and "attribute"? How do either of them relate to being independent and dependent variables?

3. Discuss the difference between a research question and a hypothesis and how that is reflected in research.

4. What is wrong with the hypothesis: If X is elected leader of his country, the world economy will be the sorrier?

5. In Question #4, what is the independent variable and what is the dependent variable and why is that so? Could the two variables be reversed? What would that mean?

Words to know and remember

Operationalization

Variable

Attribute

Independent variable

Dependent variable

Mutually exclusive

Mutually exhaustive

STUDENTS: The three main things you should get from this lecture are:

1. Qualities of open-ended and close-ended questions
2. Types and characteristics of questions
3. The no-no's of questionnaires

Survey results are only as good as the sample AND the questions asked.

Poor sample = poor results

Poor questions = poor results

The worst question ever asked? Many pollsters voted for this one asked by a

British pollster in 1937:

Are you in favor of direct retaliatory measures against Franco's piracy?"

In 11 words it breaks five question design rules.

1. It is not balanced
2. It assumes knowledge – Who is Franco?
3. It does not use everyday language – What are retaliatory measures?
4. It used a loaded word (piracy); and
5. It is vague. Retaliatory measures could range from talking to the ambassador to declaring war.

The following is an example of improper definition. In 2007, the New York

Times led a story with:

"For what experts say is probably the first time, more American women are living without a husband than with one."

The Times used survey data that counted teenagers 15 through 17 as spouseless

women. Some 90 percent were living with their parents.

The Times based its lead, and its story, on the percentage of women 15 and older who were not married. It is not legal to marry at 15 in most states.

Question Dichotomy

Some questions are open-ended, such as: What do you think of Iran? Answers can be positive, negatives, referring to Islam, the country's nuclear program, or any of a thousand other topics.

Some questions are close-ended, such as: Do you favor or oppose our country having diplomatic relations with Israel? The answer is either yes or it is no. Nothing else can be added.

The advantage of open-ended questions includes:

1. Unlimited number of answers
2. Person can qualify and clarify answers
3. You can obtain the unexpected feeling
4. It reveals a person's thinking process

Some of the disadvantages of open-ended questions include:

1. Respondents give different levels of feeling
2. Answers can be irrelevant
3. Inarticulate or forgetful people are at a disadvantage
4. Comparing the answers takes a lot of time and different coders mark the same answers differently.

Some of the advantages of close-ended questions include:

1. They are quick and easy to answer
2. Answers from various people are easy to compare
3. Answers easier to analyze on a computer
4. The two answers make questions clearer
5. It is easier to replicate the study

Some of the disadvantages of close-ended questions are:

1. They force people into simple answers
2. It is easier to make clerical mistakes
3. Fine distinctions may be lost
4. You cannot tell if people don't understand the question
5. Person with no opinion gives an answer anyway.

The guide for writing close-ended questions includes:

1. Write clear sentences that are not too long
2. Avoid questions with words that force a person to answer one way.
3. Avoid negative and biased words
4. Keep questions simple

There are four types of close-ended questions:

1. Dichotomous – just yes or no answers
2. Multiple choice – several answers covering all possibilities
3. Scale – measures attitudes, opinions, and feelings on a five-point scale
4. Rank order – compares one thing to another

Close-ended questions fall into several categories, such as these:

1. Filter – it determines the next question, or even if there is a next question.
2. Loaded – it suggests what answer is right.
3. Double-barreled – it contains two questions but requires only one answer.
4. Likert – Answers are polar, such as from vary favorable to very unfavorable, usually on a five-point scale.
5. Scale – The second questions extends the first, and the third extends the second and so on.

The questionnaire questions generally fall into these three categories:

1. Factual
   In an average week, how many hours do your watch TV?
2. Opinion
   Whom do you think has to solve the Israeli-Palestinian problem, the big world powers (United States, Russia, China, and Great Britain) or Israelies and Palestinians?

3. Demographics
   How old are you? What grade are you in school?

Types of words to avoid include this example:

1. Ambiguous
   What is your income? Do you exercise regularly?
2. Loaded
   What should be done about <u>murderous</u> <u>terrorists</u> who <u>threaten</u> the <u>freedom</u> of <u>good citizens</u> and the <u>safety</u> of our children?
3. Prestige markers
   Most <u>doctors</u> say smoke from cigarettes causes lung cancer for those near it. Do you agree?

Avoid negatives, especially double negatives that are two negatives together, such as this example:

   It is not a good idea to not do something you are supposed to do.

Avoid leading questions such as:

   You don't smoke, do you?

Avoid extra wording such as:

   Should our good mayor spend even more tax money to repair and keep the streets in top condition?

Mental limitations such as:

   How did you feel about your brother when you were six years old?

There is also general feeling that questions should be asked this way:

1. Ask easy questions first
2. Ask factual questions next
3. Vary opinion questions to avoid person say same answer over and over
4. Avoid question influence
5. Ask demographic questions last, unless respondent shows signs of wanting to end the interview, then go straight to the demographics;

Ask questions on the ratio level whenever possible. Ask old are you? Instead of which age category do you belong: 18-29,30-45,46-54, 55-69;70-84; 85 and older?

Survey results are only as good as the sample AND the questions asked.

Poor sample = poor results

Poor questions = poor results

The Worst Question Ever?

A 1937 British Poll asked:

"Are you in favor of direct retaliatory measures against Franco's piracy?"

The Worst Question Ever?

In 11 words it breaks five question design rules.

1. It is not balanced;

2. It assumes knowledge – Who is Franco?

3. It does not use everyday language – What are retaliatory measures?

4. It uses a pejorative (piracy); and

5. It is vague – Retaliatory measures could range from talking to the ambassador to declaring war.

Improper Question definitions

In 2007, the New York Times led a story with:

"For what experts say is probably the first time, more American women are living without a husband than with one."

Improper Question Definitions

The Times used survey data that counted teenagers 15 through 17 as spouseless women.

90 percent were living with their parents.

The Times based its story, and its lead, on the percentage of women 15 and older who were not married. (It is not legal to marry at 15 in most states.)

Question Dichotomy

1. Some questions are open-ended, such as:

   What do you think of President Obama?

   Answers can be positive, negative, and on
   many different topics.

2. Some are close-ended, such as:

   Do you favor or oppose offshore drilling for
   oil?

   Answers are either favor or oppose.

Open-ended Advantages

1. Unlimited number of answers
2. Respondent can qualify and clarify responses
3. Can obtain the unanticipated feeling
4. Reveals respondent's thinking process

Open-ended Disadvantages

1. Respondents give different levels of detail

2. Answers can be irrelevant

3. Inarticulate of forgetful respondents are at a disadvantage

4. Coding answers is subjective and tedious

Close-ended Advantages

1. Easy and quick to answer
2. Answers across respondents easy to compare
3. Answers easier to analyze on computer
4. Response choice make questions clearer
5. Easier to replicate study

Close-Ended Disadvantages

1. Forces respondents into simple responses
2. Easy to make clerical errors
3. Fine distinctions make be lost
4. Can't tell if respondent misinterpreted question
5. Respondent with no opinion answers anyway

Guide to Close-ended Questions

1. Write clear, unambiguous questions.
2. Avoid double-barreled questions.
3. Avoid negative and biased wording.
4. Keep question simple

Close-ended Questions

1. Dichotomous – yes or no answers
2. Multiple choice – exclusive and exhaustive
3. Scale – measures attitudes, feelings

   Likert – 5 points, agree to disagree

   Semantic differential – positive/negative
4. Rank order – compares one to another

Close-ended Question Types

1. Filter --- determines next question, or even if there is a next question.
2. Loaded --- Suggests what answer is right.
3. Double-barreled --- Contains two questions requiring only one answer.
4. Likert --- Answers are polar, such as from very favorable to very unfavorable
5. Scale --- 2nd question extends 1st, 3rd extends 2nd

Questionnaire Question Categories

- 1. Factual
- 2. Opinion
- 3. Demographics

Wording to Avoid

Ambiguity -- What is your income?

Do you jog regularly?

Loaded – What should be done about <u>murderous</u> <u>terrorists</u> who <u>threaten</u> the freedom of <u>good citizens</u> and the <u>safety</u> of our <u>children?</u>

Prestige markers – Most doctors say cigarette smoke causes lung disease for those near a smoker. Do you agree?

Wording to Avoid

Avoid negatives, especially double negatives.

Students should not be required to take a comprehensive exam to graduate.

It is not a good idea to not turn in homework on time.

Wording to Avoid

Leading Questions – You don't smoke, do you?

Extra adjectives – Should the mayor spend even more tax money trying to keep the streets in top condition?

Cognitive limitations – How did you feel about your brother when you were six years old?

Question Placement

1. Easy questions first

2. Factual questions first

3. Vary opinion questions to avoid response set

4. Avoid question influence (see next slide)

Influence of Question Placement

1. Do you think the U.S. should let Communist newspapers come in and send back to their papers the news as they see it?

2. Do you think a Communist country should let American newspaper reporters come in and send back to their papers the news as they see it?

Question Influence

Percent Agreeing	Yes to #1	Yes to #2
Heard #1 first	54%	75%
Heard #2 first	64%	82%

Question Answer Level

Get ratio level answers when possible.

How old are you? _____ years

Not:

18 to 29 _____   55 to 69 _____

30 to 45 _____   70 to 84 _____

46 to 54 _____   85 and up _____

Discussion:

1. When, why, and in what type of research would you use open-ended questions? What specifically would you want to achieve (in one sentence)?

2. What happens when a filter question is used? Why is that good or bad?

3. In addition to the sum of their answers, what to factual, opinion and demographic questions tell you about a society?

4. What is the problem with variables like religion compared to gender and how can it be overcome?

5. Close-ended or open-ended questions – which is best under under what circumstances?

6. Give two examples of ambiguous media research questions, indicating what is the main problem with each and how that might be corrected?

Words to know and remember

Question dichotomy

Likert

Filter

Loaded

Open-ended

Close-ended

Demographics

1. Which statement below is a hypothesis?

    A. It is starting to rain.
    B. Have you read all of the newspaper?
    C. If I work an extra shift this week, I will get paid double time.
    D. Stop doing that!
    E. My sister is looking for a name for her new baby girl.

You need two types of variables to construct a hypothesis, an independent and a dependent variable. Circle the letter of the independent variable in the following examples.

2. If you add (A) more salt to the soup, it will (B) increase the flavor.

3. I (A) purchased a new coat because the store (B) cut the price in half.

4. People will be (A) more informed if they (B) read and watch the news daily.

TRUE	FALSE	5. A hypothesis is making a prediction.
TRUE	FALSE	6. A hypothesis must be measureable and falsifiable.
TRUE	FALSE	7. "I like peanuts" is a hypothesis.
TRUE	FALSE	8. A hypothesis must have at least two variables.

9. Income is a variable but women usually are not. They usually are:

    A. an attribute   D. combined with men
    B. dependent variable   E. none of the above
    C. independent variable

Indicate whether the following questions are (A) open-ended or (B) close-ended.

10._____ Are you going to vote for Obama? Yes. No. Maybe

11._____ What is the main problem in the world today?

12._____Where did you go on your vacation?

13._____Which one of the following best describes your religion: Athiest, Agnostic, Buddhist, Jew, Mormon, Muslim, Protestant, or something else?

You should not use the sentences below because they are: (A) loaded; (B) ambiguous; (C) double-barreled;

14._____I think the government should reduce funding for the military and instead use the money for social services.

15._____I believe gun control is necessary to prevent crime.

16._____The American Medical Association recommends eating five times a day, but less amount each time to help control weight. Do you feel that would help you lose weight?

Match the type of question: (A) likert; (B) filter; (C) open-ended; to its example below:

17._____What is the best way to eliminate poverty in a country?

18._____Do you now smoke, or have you ever smoked cigarettes?

19._____How would you rate the effectives of the current government? Would you rate it as (A) very effective; (B) effective; (C) neither; (D) ineffective; or (E) very ineffective?

20. Which one of the follow is a disadvantage of asking open-ended questions?

   A. Unlimited number of answers
   B. Person can qualify and clarify answers
   C. You can obtain the unexpected feeling
   D. It reveals a person's thinking process
   E. Respondents can give different levels of feeling

Answers

1.	C	8.	TRUE	15.	B
2	A	9.	A	16.	C
3.	B	10.	B	17.	C
4.	B	11.	A	18.	B
5.	TRUE	12.	A	19.	A
6.	TRUE	13.	B	20.	E
7.	FALSE	14.	C		

STUDENTS: The three main things you should learn from this lecture are:

1. qualities of each level of numerical measurement
2. central tendency: mode, mean, and median
3. when to use and not use the levels and each central tendency

You can't add some numbers together. Some that you can add are not as good as others that you can add. And, it can be difficult to use numbers to compare.

Welcome to the world of measurement. You intuitively know the difference so understanding them should be fairly easy.

There are four levels of measurement that cover anything in universe. And the four levels vary in their strength and/or ability. From least to most powerful they are: (4) nominal, (3) ordinal, (2) equal interval, and (1) ratio. You also have to consider whether you should use the mean, median or mode, and even whether the standard deviation might be appropriate.

But first, the measurement levels. First remember that:

1. Nominal means counting
2. Ordinal means greater than or less than
3. Equal Interval means addition and subtraction
4. Ratio means multiplication and division

(4) Nominal. This is the easiest and the least powerful. All that nominal does is classify things as either something or something else.

Nominal is used to group things, usually for computer use. For example, since computers can't add, subtract, multiply, or add men and women, they need to by what the computer can do, which is to calculate, or use numbers.

So, what number is a man? Or a woman? They can be just about any number, but they can't be the same number since the purpose is to distinguish between the categories. Usually, you just make them one and two. Either can be the number one and the other can be two. Or a man could be 2.6 and a woman could be 147.89. It does not matter all the computer does is classify all men under the number designated for men and all women under their number.

You can group countries this way. Give countries with complete freedom the number one and all countries the number two. Obviously that is a crude classification. But it suggests a problem for all measurement.

Note. Measurement categories must me mutually exhaustive and also mutually exclusive.

Gender is easy. Everyone has to be male or female. There are just two sexes so gender defined this why is mutually exhaustive. There are no other categories because gender is an anatomical difference definition. So the numbers one and two, or two other numbers will do.

The categories are also mutually exclusive because you have to be one or the two and you cannot be neither or both. For example, listing apples, oranges, pears, and fruit as categories is a no-no because apples, oranges and pears also fall into the fruit category.

The fruit category does suggest how pollsters can get around the problem of too many groupings under the same overall umbrella. During election years, pollsters focus on the party identification of registered votes. They want to classify them so their views can be compared and contrasted. There are Republicans, Democrats, Independents, Greens, Communists, Socialists, Libertarians, and so on. In most elections, polls are only interested in the first three groups, so the might classify Republicans as one, Democrats as 2, Independents as three, and all other as four.

Pollsters use religion this way also. The number of religions has been estimated as high as 750 with 34 major religions. Both are too large for pollsters to handle. They take the four or five main religions in their area of interest and classify all other religions under the "other" umbrella. That is okay as long as it is not large a group. Again, whether Catholics are one or six makes no difference.
Gender defined this way is also mutually exclusive.

It is easy to see that nominal measurement doesn't tell you much. But many important things can be measured at a higher level, such as ordinal measure.

(3) Ordinal. Ordinal measurement does everything that nominal does, that is classify but it also does one more. It ranks things.

For example, you can rank sports teams. You can say Spain is Number One in soccer, followed by Italy and then others. Or in the United States you can rank college football or basketball teams. You can rank things such as beauty pageants. Who wins is Number One, and the first runner-up is Number Two and so on.

But, while ordinal measure can rank, it cannot tell how much more Spain has of what is being measured, say athletic ability that Italy has, or whether Italy has the same amount more than the team ranked Number Three.

You can often see stories containing ordinal measurement on the Internet. If you go to a farmer's market, you might find several individuals selling the same thing for about the same price. But either by prior experience, information from friends, or testing the freshness, you might rate one of them as the best and another as second, and so on.

At county fairs in the United States, you often have displays of jams and pies, pigs and cows that have been evaluated with the best in each class being awarded a blue ribbon while second and third get a red and yellow ribbon. But what is not given is how much better Number One was than Number Two. They might have been very close or choosing which was best might have been quite easy because Number One was far superior.

Generally you won't see news stories that try to attach any math to the rankings, except in stories about social science research which will be discussed later.

(2) Equal Interval. Its name tells you what else it does. It classifies and it ranks but it also can tell you that the distance between Number One and Number Two is and that it is the same for all other numbers.

The Fahrenheit temperature scale is a good example. If the temperature at 8:00 a.m. was 70 degrees and it is 80 at noon and then 90 at 3:00 p.m., we know that

the temperature went up exactly 10 degrees in each time period. It is the same with tests in school, measuring the level of achievement for students.

Although you can add and subtract and determine some basic indexes, such as the mean, median or mode, there is one major thing you cannot do, and that is describe things in ratio terms. Eighty degrees is not twice as warm as 40 degrees and neither is someone with an I.Q. of 180 twice as smart as a person with an I.Q. of 90. They are in accurate because there is no zero on these scales. In colder climates in the winter, temperature often plummet at night, dropping from a daytime high of 20 degrees to a minus 15 or more. Temperature goes right by the zero point. Zero is simply one point on the temperature scale and does not imply the absence of temperature.

(1)Ratio. Ratio measurement does everything that the others do. It can classify, rank, and determine equal distances. But it can do one more thing. It can express numbers in ratio terms because this measures things that have a real zero

The world is full of ratio measurements and so are news stories. Distance for example. Which city is closer to Paris, Rome or Moscow, and by how much? Rome is 694 miles (1,117 kilometers) from Paris while Moscow is 1,544 miles (2,484 kilometers) away.

A more useful term (unless you are driving) is to say that Moscow is more than twice as far from Paris that is Rome.

You can also say that 60 miles (100 kilometers) per hour is twice as fast as is 30 miles per hour.

By far the most important numbers for journalists to write about are those representing money, dollars, euros, pounds, etc. Stock markets around the world express the estimated value of companies in numbers. Governments try to balance their books, estimating that incoming revenue will equal or surpass governmental spending on social services, security, and so forth.

Much of the time, the importance of numbers is how they can be expressed by one number, by an index.

Suppose you want to do a story about which brand of a given product is the best seller in your community? How do you write about that?

Suppose you want to do a story about which brand of a given product is the best seller in your community? How do you write about that?

Suppose national authorities become concerned about the rise of obesity in the country start releasing statistical data on weight by gender, by geography, by age, by ethnicity, by family income level? How do you write about it?

Suppose you are writing a story about the sales of homes in your community? How do you write about that?

Usually you want numerical information to support quotes, opinions, and other qualitative (authoritative) information. You cannot use hundreds of different numbers. You need an index, one number that can be used for each group you are writing about. You probably need one of these three:

Mode, Mean, Median. Each of these measures indicates a different aspect of any group of information.

Mode. The mode is that number, or value, which occurs most often in the group.

You ask 400 people which news outlet they prefer, Al Jazeera, BBC or CNN And you get: Al Jazeera, 150; BBC, 180; and CNN, 70. The mode is 180. If you list the numbers on a chart, the mode is the highest and usually close to the center of all numbers.

Mean. Mean is another name for average. For example, if five boys each have the following amounts of money: $2.50; $4.00; $6.25; $7.10; and $8.40, the average is those numbers divided by the number of boys, or $28.25/5 = $5.65.

The problem with the mean is that if one of the numbers is extremely higher than the others, it throws everything off balance. For example, if the boy who had $8.40 instead had $135.25, then the average for all of the boys would be: $155.10/5 =$31.02, which is higher than the amount of each boy except the last.

Suppose that you were examining audiences for TV stations in a given area for Monday night viewing and you obtained following audience sizes:

Channel 1: 24,050
Channel 2: 27,300
Channel 3: 27,500
Channel 4: 28,000
Channel 5: 30,000
Channel 6: 30,500
Channel 7: 30,700
Channel 8: 31,500
Channel 9: 32,300
Channel 10: 34,000

The total number of viewers for these 10 stations is 295,850 which when divided by the 10 stations equals an average of 29,585. Notice that it is close to the middle.

Four stations have fewer viewers, and six have more viewers. But if the last station had 9 7,000 viewers, the new total would be 358,850. Dividing that number by the 10 TV stations produces an average of 35,885 viewers per station. Again, only the one station has that many viewers.

Situations or events that have extreme numbers distort reality and render the mean a poor index since it no longer a reliable indicator.

Median. Extreme numbers do not affect the median. It is the middle point in the number of things being measured. You can see that in the case of the 10 TV stations, the middle number is half way between five and six and since both are 30,000, the median is 30,000.

Levels of Measurement

Measurement is the assignment of **numbers** to **objects** to represent amounts or degrees of **a property** possessed by the objects. For example:

"She (or he) is a 10."

"Unemployment increased by 2%"

Four Levels of Measurement

The levels of measurement, in ascending order of power, are:

4. Ratio

3. Equal Interval

2. Ordinal

1. Nominal

Nominal Level of Measurement

Nominal Level: Numerals or other symbols are used to **classify** people, objects or characteristics.

Gender: Female = 1, Male = 2

Religion: Catholic = 1, Protestant = 2, etc.s

Properties: equivalence, exhaustive, and mutually exclusive

Ordinal Level of Measurement

Ordinal Level: In addition to **classification,** objects are **ranked** along some dimension, such as from smallest to largest, least to most.

Prizes: 1st, 2nd, 3rd

Rankings of football teams, etc.

Properties: Nominal, **plus Order (ranking)**

Equal Interval Level of Measurement

Interval Level: A scale has all the properties of ordinal, and the **intervals** between adjacent points on the scale are of **equal value**

Temperature, Personality Scores

Properties: All of nominal, ordinal, and **equal difference**

Ratio Level of Measurement

Ratio Level: The scale has all the properties of interval scale plus one more, the existence of a **true zero point**.

Examples: Income, Age, Distance

Properties: All of the others plus **true zero**

Measurement Capabilities

Nominal: Counting

Ordinal: Greater than or less than

Equal Interval: Addition and Subtraction

Ratio: Multiplication and division

Descriptive Summary Statistics

1. Central tendency determines typical score of a distribution: mode, mean, median

2. Dispersion (range, variance, standard deviation) describes the way scores spread out about the central point

   A data set can be described adequately by reporting central tendency and dispersion

Need for Descriptive Statistic

Student	Height	Weight	Student	Height	Weight
Anne	60	95	George	81	225
Bill	72	180	Harriet	70	150
Chuck	68	200	Harry	74	190
Carol	66	125	Ingrid	59	100
Diane	72	160	James	69	140
Don	64	134	John	84	260
Eugene	72	184	Joyce	66	135
Evelyn	60	106	Kenneth	73	173
Faye	60	150	Louise	60	100
Frank	69	140	Lloyd	74	210

Summary Statistics: Central Tendency

Central Tendency provides information about a group of numbers in a distribution by giving a single number that characterizes the entire distribution.

Mode: The score that occurs the most often

Median: The midpoint; half of the scores are above it and the other half are below

Mean: The average, the sum of all scores divided by the number of scores

Central Tendency: Mode

The mode is the number that occurs the most often in a series of numbers. Suppose 100 people list their favorite fruit.

Apples --------- 11   Kiwi ------------------ 3

Bananas ------ 27   Strawberries ----- 15

Cherries ------ 18   Peaches ----------- 2

Oranges ------   9   Plums ------------- 3

Grapes -------- 11   Apricots ---------- 1

What fruit is the mode?

Summary Statistics: Central Tendency

Who uses modes, means, medians ????

Modes: super markets. Why?

Medians: Realtors. Why?

Means: Government? Why

Summary Statistics: Dispersion

Dispersion indicates the distance of scores from the mean

Range: The difference between the maximum and the minimum

Variance: The sum of the squared differences between the score and the mean

Standard deviation: The square root of the variance

Summary Statistics: Example

Ann	20	Pete	15	Sam	75
Sara	36	Joyce	25	Alan	80
Elliot	12	Bill	18	Joan	49
Harriet	24	Henry	39	James	29
Thomas	49	Tina	32	Wanda	40
Alice	39	Nora	81	Peter	14
Kenneth	29	Sandy	17	Barbara	41
Kelly	18	Edith	39	Tim	27
Willy	32	Al	29	Jack	71

Money Statistics

Central Tendency Statistics are:

Mode: 29 and 39

Median: 32

Mean: 69.74

Note: if the 750 is reduced to 81, the mean is
   36.30

Money Statistics

Dispersion Statistics are:

Range: 81 – 12 = 69

Variance:

Mean: 69.74

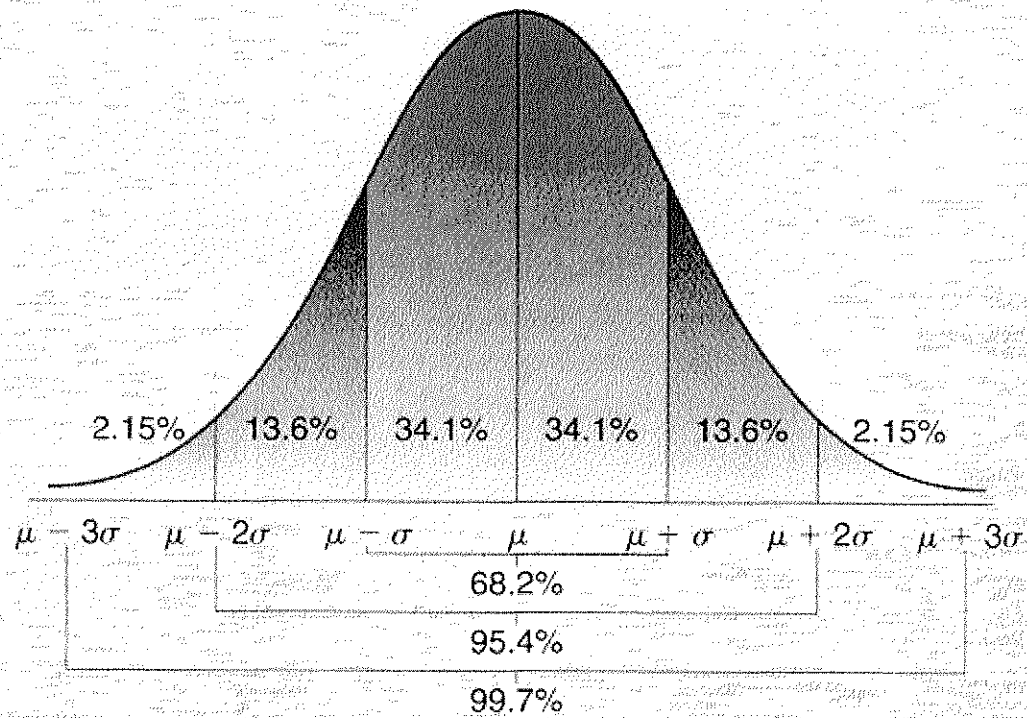Note: if the 750 is reduced to 81, the mean is 36.30

Money Statistics

The range of the money that the 27 individuals had was: 12, 14, 15, 17, 18, 18, 20, 24, 25, 27, 29, 29, 29, 32, 36, 39, 39, 39, 40, 41, 49, 49, 71, 75, 80, 81

68% of a set of scores will fall within one standard deviation of the mean. The mean of 36.26 +/- 20.3 = 15.96 to 56.56.

20 numbers (74%) are within; 7 are not

Normal Curve

Discussion:

1. Religion is a nominal variable but religiosity is at least an ordinal level variable. Why and What difference does it make in terms of research implications?

2. Give an example of a variable defined at least three different ways so that the researcher would use three or the four levels of measurement: nominal, ordinal, equal interval, and ratio.

3. Why are both the Celsius and the Fahrenheit temperature scales interval instead of being either ordinal or ratio? What difference does it make? Are they different from the Kelvin scale?

4. In mutual exclusivity and mutual exhaustive terms, describe the problems involved in measuring the world's people in any universal description other than human.

5. What is the best level of measurement? Why? Give an example to illustrate.

6. If you were giving the measurements of the population of Afghanistan, how would you use the mode, the mean, and the median to describe the people?

7. What does it mean when the mean, the mode, and the media are all the same number? What does it mean when they start getting further apart?

Words to know and remember

Levels of measurement

Nominal

Ordinal

Equal Interval

Ratio

Indexes

Mode

Mean

Median

STUDENTS: The three main things you should learn from this lecture are:

      1. essential differences between qualitative and quantitative methods
      2. the researcher's role in qualitative research
      3. when to use qualitative and when to use quantitative methods

Whether you use qualitative or quantitative research methods depends on what you need to know and what you want to do with the data.

We can see differences in the two approaches if we examine the basic purposes of the research. Qualitiative provides context, interpretation, and understanding of other perspectives. Quantitative seeks to generalize, provide causal explanation, and to predict.

The follow differences should help define more clearly the two research methods. A researcher needs to examine each characteristic for its relevance to the research, the strength and weakness of each, and whether they are relevant, or even apply to the research.

Research Assumptions:

Quantitative	Qualitative
1. There is one reality	1. Observer creates reality
2. It is objective	2. It is subjective
3. Strives for breadth	3. Strives for depth
4. People are alike	4. People are different
5. Measurement tool is	5. Researcher is the

separate from the researcher   measurement tool

Researcher's Role:

Quantitative   Qualitative

1. Detachment, impartiality   1. Personal involvement, partiality

2. Objective understanding   2. Empathic portrayal

Predispositions of Researcher:

Quantitative   Qualitative

1. Social facts have a   1. Reality is socially constructed
   objective reality
2. Variables can be identified   2. Variables can be complex and
   and measured   difficult to measure
3. Outsider's view   3. Insider's point of view

Features of the Research:

Quantitative   Qualitative

1. Design is determined   1. Design emerges from study
   before study begins
2. The data are numbers, statistics   2. Data are words, pictures

3. Uses more people for   3. Uses fewer people for longer
   Short time   time
4. Controlled settings   4. Natural settings

An overall perspective is that Quantitative tells you how many and Qualitative

tells you why. Quantitative provides cause-and-effect relationship while Qualitative

provides in-depth understanding. Quantitative uses content analyses, surveys, and experiments and Qualitative uses case studies, field research, and focus groups.

Both quantitative and qualitative research often use a method called triangulation to obtain more confidence in their results. Triangulation is simply the use of more than one research method to examine the same research questions and hypotheses.

Triangulation includes using several investigators to reduce bias, comparing observaional knowledge with interview data, and comparing qualitative with quantitative data.

Let us use Napoleon, a former president of France and a major military figure in European history.

An individual, an historian, who is interesed in studying Napoleon will learn all that he or she can about him, what time of day and place he was born, his height and weight, siblings, his schooling, what he did down to the most minute detail, what he said and wrote to people, what people and history say about Napoleon. The historian will go to France to see as many documents as there are that relate to Napoleon.

After possibly years of research, the historian can write a book and readers will have a better understanding of Napoleon, what he did and why and his place in history.

That is qualitative research. It helps us understand Napoleon, but little if anything else. There will never ever be another Napoleon. That time is gone and will not be repeated. The events and people are also gone.

But we can also view Napoleon from a quantitative viewpoint. Suppose the ministry of defense in any country concludes that too many young officers complete their required thee or four years of service after their education, paid for by the military, and then resign to return to civilian life. Military life is not for them. The military leaders are unhappy becausse that education was expensive and not enough young officers are staying in the service which could mean fewer competent leaders later on.

The ministry calls a research firm, seeking help. One of the first things that the research firm will ask is what do you want in an officer, what abilities? The military responds that what is needed is an individual who could be a good field commander during possible military conflicts.

How do you find out the qualities of a good battlefield commander? The research firm concludes that the answer will come from examining the lives of recognized battlefield commanders. So the make a list of battlefield commanders through history: Atilla the Hun, Ghenghis Khan, Julius Caesar, Alexander the Great, Charles DeGaulle, Rommel the Desert Fox, Dwight Eisenhower, and of course, Napoleon Bonaparte.

The researchers study each of these individuals, but not in breadth. They don't care how much the individuals weighed at birth or things like that. The researchers examine, to the extent possible, the personality, the ego, the intelligence, and so forth. They examine the military campaigns these commanders lsed.

Finally, the researchers conclude that a competent battlefield commander must be charismatic, a leader of men, ego-driven, and others. The researchers report to the military that you need to give all applicants to your college a test that determines the degree of these characteristics. These can be number-driven, so that out of 1,000 applicants you can see the top 10 percent who will be more likely to stay in the military.

Every time you read a book about an individual, a time, or an event, it is qualitative. Evey time you hear of a study that says 65 percent of the people in Iran favor peaceful interaction with all its neighbors, including Israel, you know that it is a quantiative study.

Quantitative or Qualitative?

Quantitative

1. Tells you how many

2. Gives cause-effect relationship

3. Uses experiments, surveys

Qualitative

1. Tells you why

2. Gives in-depth understanding

3. Uses focus groups, case studies, etc.

Predispositions of Qualitative and Quantitative

Qualitative

1. Reality is socially constructed

2. Variables are complex and difficult to measure

3. Insider's point of view

Qsuantitative

1. Social facts have an objective reality

2. Variables can be id'ed and measured

3. Outsider's view

Purposes

Qualitative

1. Context
2. Interpretation
3. Understanding other perspectives

Quantitative

1. Generalizability
2. Prediction
3. Causa lexplanation

Researcher's Role

Qualitative

1. Personal involve-
   ment and partiality

2. Empathic
   understanding

Quantitative

1. Detachment and
   impartiality

2. Objective portrayal

Qualitative/Quantitative Research

Qualitative approach

- includes historical, case studies, observation, participant observation, focus groups
- collects narrative data to gain insight

Research assumptions

Quantitative

1. Strives for breadth
2. Objective
3. One reality
4. People are alike
5. Measurement tool is separate from researcher

Qualitative

1. Strives for depth
2. Interpretive
3. Observer creates reality
4. People are different
5. Researcher is the measuring tool

Research features

Quantitative

1. Design determined before study begins

2. Data are numbers, statistics

3. Uses more people for short time

4. Controlled settings

Qualitative

1. Design emerges from study.

2. Data are words, pictures

3. Uses fewer people for longer time

4. Natural settings

Triangulation

1. Use several investigators to reduce bias

2. Compare observational with interview data

3. Compare qualitative with quantitative results

<u>Discussion:</u>

1. How can we reconcile the differences between the assumptions of qualitative an quantitative research, or can we? When should a newspaper or TV station use each method?

2. What are some of the strongest differences and how to you use or guard against them in specific reseach?

3. In one sentence, what does each of the two research categories, qualitative and quantitative, provide that the other does not. They might be considered as the major strength of the method.

4. Look at the differences between qualitative and quantitative: (1) the assumptions; (2) the researcher's role; (3) researcher predispositions; and (4) the features of the research method. As you do so, ask yourself, which are you more comfortable with, would find more value in, or whether you are equally predisposed to the two methods.

5. Choose two men, of your choice from two areas in Afghanistan, military leadership and the president or supreme leader, and consider how you might each of them from the perspectives, qualitative and quantitative.

Words to know and remember

Qualitative

Quantitative

triangulation