Research Methods

Section 1

- Definition of Science
- Fundamental Bases of Knowledge
  - Agreement Reality
  - Experimental Reality

  Methodology

  Difference between human inquiry and social science research
  - Desire to predict the future.
  - Cause and Effect
  - Myths

Actual Behavior

Dangerous	Not Dangerous
Predicted Behavior Dangerous: Optimal	False Positive (alpha error) (Type 1 error)
Not Dangerous	Optimal
True Positive (beta error) (Type 2 error)	

Start Here for Paper Topic

Errors in personal inquiry versus logical social scientific research

- Inaccurate Observation
- Over Generalization
  - H_1 – Person is Dangerous
  - H_0 – Person is not Dangerous
  - False positives AKA Alpha Error (Type 1 Error)
  - True positive AKA Beta Error (Type 2 Error)
- Replication
- Generalization

- Selective Observation
  - Liberal people are less in favor of the death penalty
  - Representativeness
  - Deduced Information

- Illogical Reasoning
  - Gambler's Fallacy
  - Ego Involvement
  - Premature Closure of Inquiry
  - The Mystification of residuals

Height	Weight
5'	110
5'5"	130
6'	150
6'5"	115

Theoretical Modeling

- Correlates

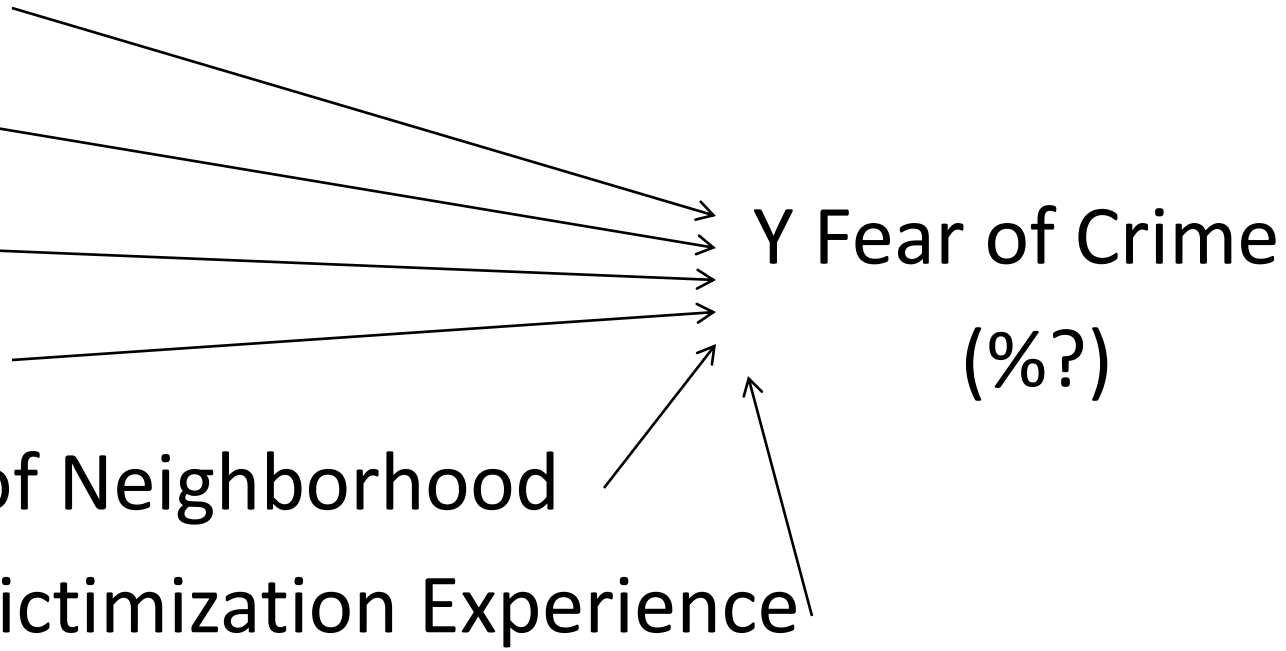
  X 1 Age

  X 2 Sex

  X 3 Race

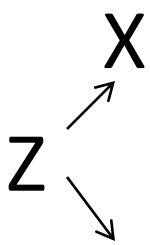
  X 4 Type of Neighborhood

  X 5 Past Victimization Experience



Time Ordering

- Antecedent Variables
  - X – Delinquency
  - Y – Days Truant
  - Z - Living Below Poverty Line



ZX-Y =10%r

ZY – X = 20%r

XY = 0%r

Intervening Variables

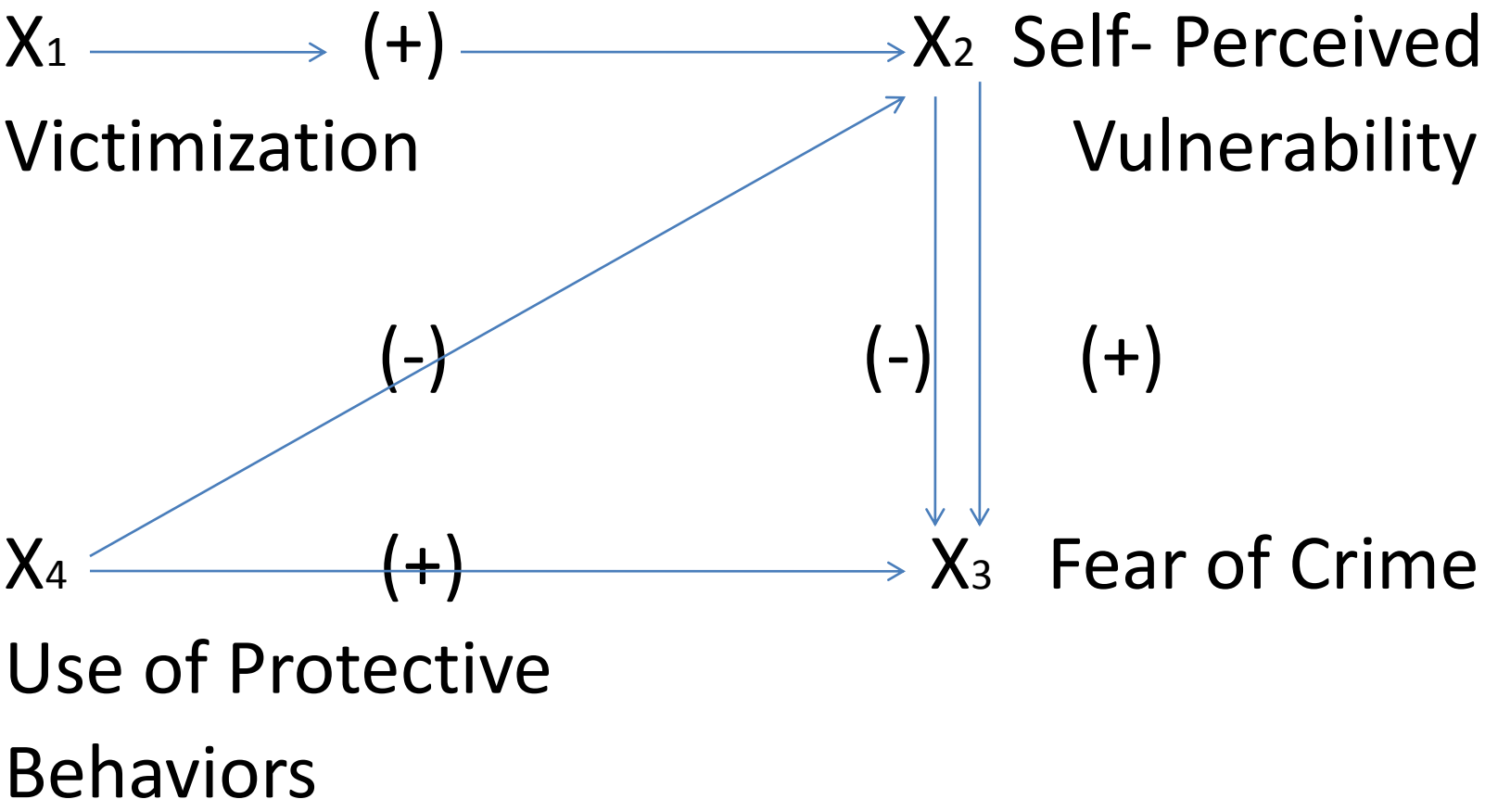
- X – Alcoholism
- Y – Domestic Violence
- Z- Divorce

  $X \longrightarrow Y \longrightarrow Z$

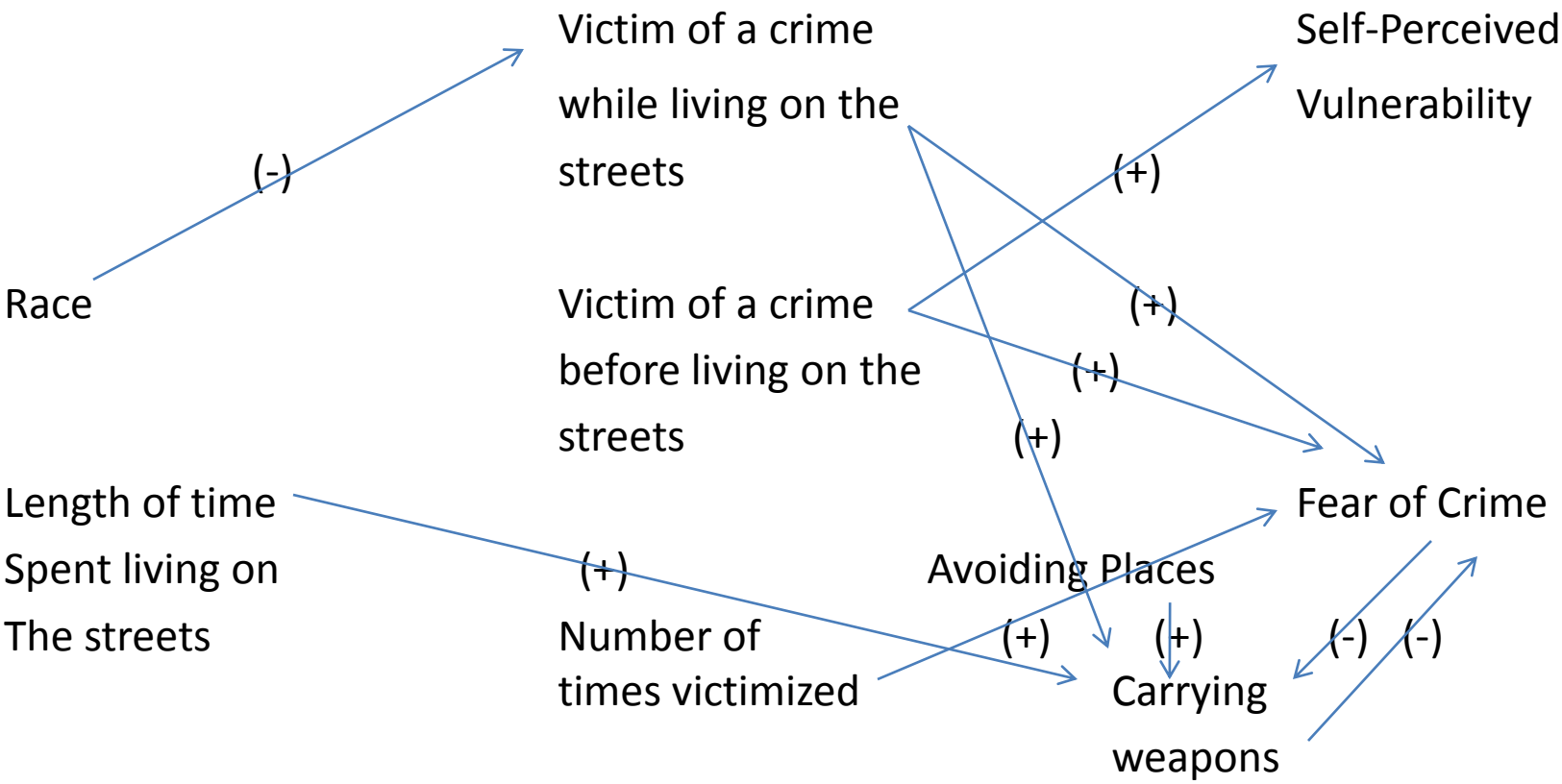
- X- Income — XY=10%r
- Y – Truancy — YZ=10%r
- Z- Delinquency — XZ=0%r

  $X \longrightarrow Y \longrightarrow Z$

Multiple Variables (Time Ordering)



Picture of Correlated Variables



Science is characterized as:

Logic – Empirical

Science Involves:

1. Theory
2. Aggregates not individuals
3. Attributes
4. Variables
5. Independent Variables (X)
6. Dependent Variables (Y)

Fear of crime (Y) is influenced by: Sex (X1), Age (X2), Race (X3)

Juvenile Delinquency (Y) is influenced by:

Broken homes (X1), Lack of Parental Discipline (X2), Poverty (X3)

Opinions on the Death Penalty (Y) are influenced by:

Political party orientation (X1), Age (X2), Sex (X3), Education (X4), Income (X5)

Review of Literature

Hypothesis(es)

- Research Hypothesis (H1)
- Alternative Hypothesis (H0) A.K.A. Null Hypothesis

Intersubjectivity

Shared Meaning of Concepts

Models of Explanation

Idiographic

Nomethetic

Wealth $\longrightarrow$ Conservatism

(x) (Y)

Indicators of;

Exercise:

Scholar's have shown that prior criminal record, Education and sex are excellent predictors of the sentencing severity for these present offenses.

- ID X's
- ID Y
- H_1
- H_0
- Attributes of Variables
- Subset of Hypothesis

H_1 There is such a thing as a criminal career

H_0 There is no such thing as a criminal career

Inductive and Deductive Logic

- Reality
- Subjectivity
- Intersubjectivity
- Observations

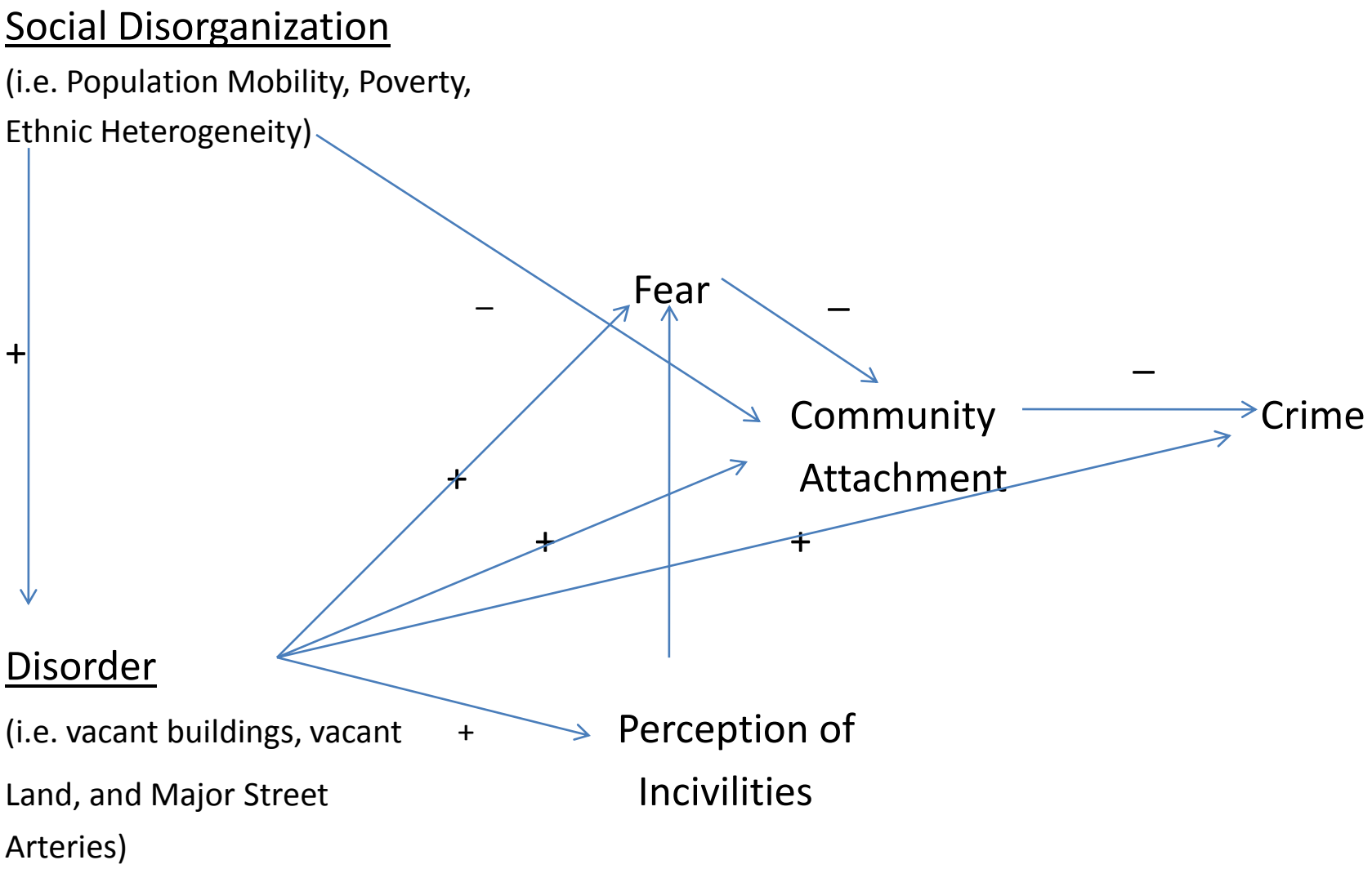
People who smoke Marijuana tend to get poor grades in school

Cite	Research Hypothesis	Independent Variables	Measurement of I.V.
Coston, C.(1992) "Fear Among the Elderly". Social Problems. Vol.16, No. 4, 100-110.	Older people>Fear Females > Fear Minorities > Fear	Age Sex Race	18-99 M=1; F=1 M=0; NM =1

Dependent Variable	Measurement Of D.V.	Research Method	N	Description of N
Fear of Crime	How much do you worry about becoming the victim of a crime?	Survey	2000	Residents in New York City

Statistics	Limitations	Findings
& Chi Square	Cannot Generalize to the entire State of NY nor the entire US	0>Y F>M M> NM

Integrated Theory Model



Research Methods

Section 2

Research Methods

Purposes of Research

- Exploration
- Description
- Explanation

Units of Analysis

- Ecological Fallacy
- Reductionism

Time Dimension

-Cross-Sectional

- Longitudinal
    - Trend
    - Cohort
    - Panel

Conceptualization

H1 There is such thing as a Criminal Career

HO There is no such thing as a Criminal Career

Attributes (Real Definition)

Nominal Definition

Operational Definition

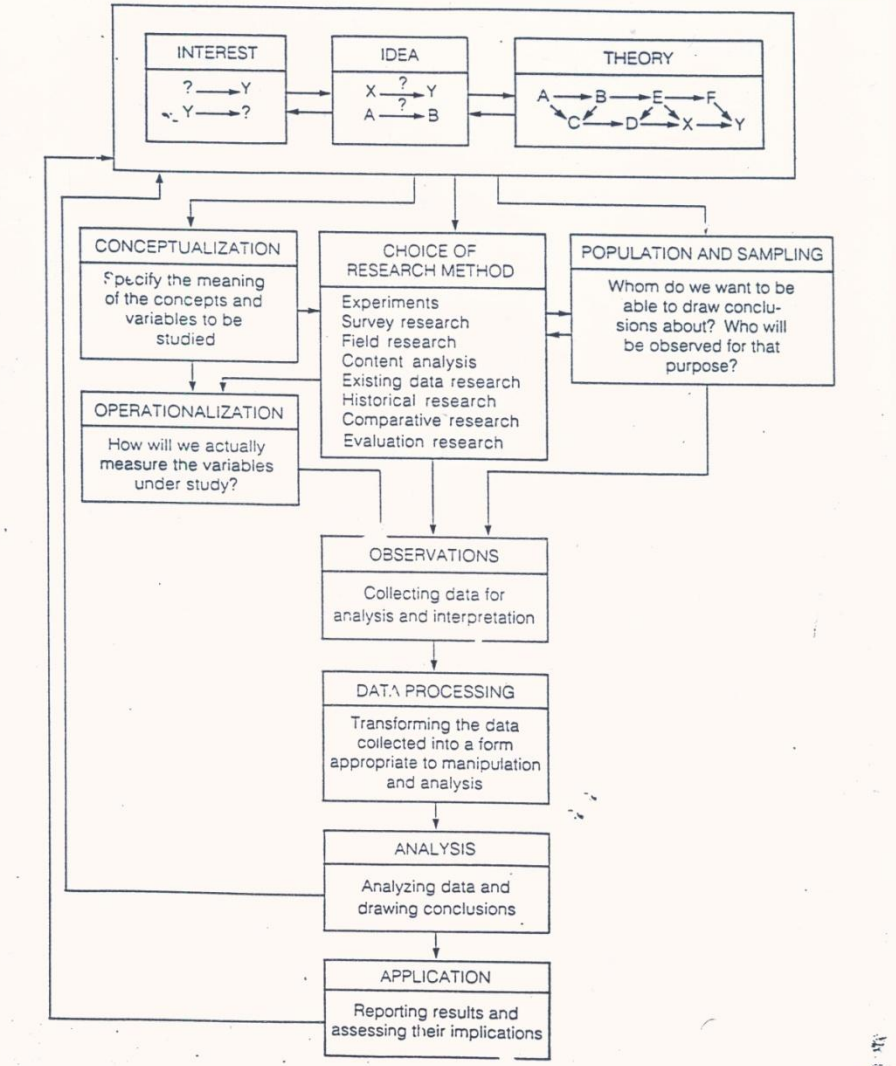
--Precision

-- Accuracy

-- Reliability

-- Validity

Figure 4-1 The Research Process



Appendix A: Questionnaire/Coding Scheme Instructions

Case Identification	_____	1-3
What is your age?	_____	4-5
Sex 0 = Male 1 = Female 2= Other (Please specify)	_____	6
Race 0 = Non-Minority 1= Minority	_____	7
Type of Neighborhood 0 = Urban 1= Suburban 2 = Rural	_____	8
Have you ever been the victim of a Crime? 0 = No 1= Yes	_____	9

YAHOO! Research

Welcome, and thanks for taking our survey!

This short survey should take you just a few minutes to complete.

As a thank you for your participation, when you complete the survey, you'll have the opportunity to enter our monthly sweepstakes for a chance to win $1,000! No purchase is necessary; sweepstakes is open only to U.S. residents 18 and older. Please see the Official Rules for full details.

Surveys like these help Yahoo! and its advertisers understand how people like you are using the World Wide Web and certain products.

Yahoo! will not release any of the personal information collected from you in this survey or use it to advertise or sell to you. (Please read Yahoo's privacy policy to learn how we use the personal information collected in this survey.)

When you submit your completed survey, you will have the opportunity to submit an online entry for the sweepstakes. You must answer ALL questions on the survey, as well as provide all information required in the sweepstakes entry form, to be eligible to enter the sweepstakes online (click here to learn how to enter the sweepstakes without taking the survey).

Please note that if you choose to enter the sweepstakes, Yahoo! will use the personal information you provide in the sweepstakes entry form as outlined in the official sweepstakes rules.

By participating in this survey, you affirm that you are at least 13 years of age.

OK, let's get started!

Operationalization

Levels of Measurement

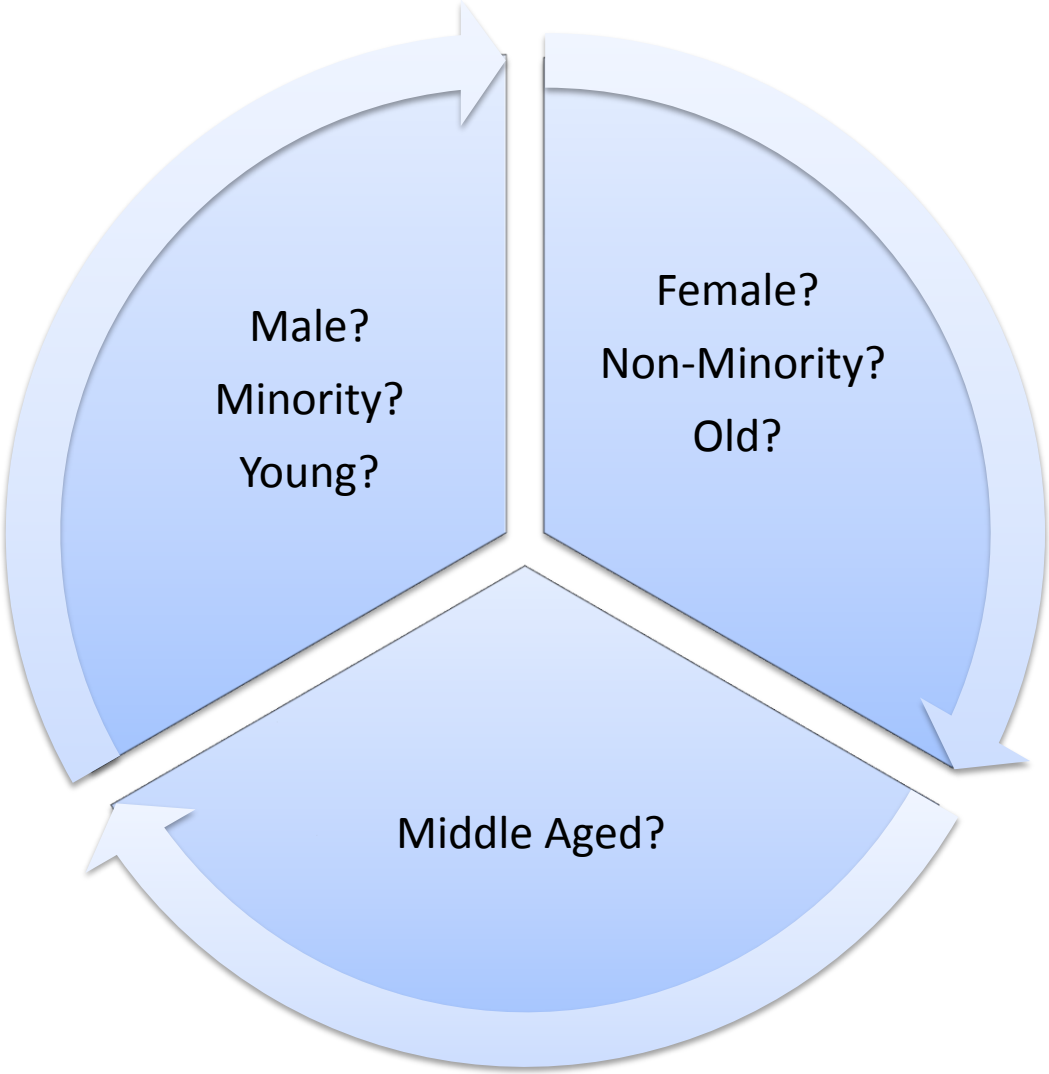
- Nominal
  - Mutually Exhaustive Categories
  - Mutually Exclusive Categories
- Ordinal
- Interval
- Ratio

Guidelines for asking questions:

- Questions and Statements
- Open-Ended and Closed-Ended
- Make items clear
- Short items
- Avoid Biased Items
- Avoid Double-Barreled Questions

Social Desirability

Table 1: Pie Chart for Age, Race, and Sex

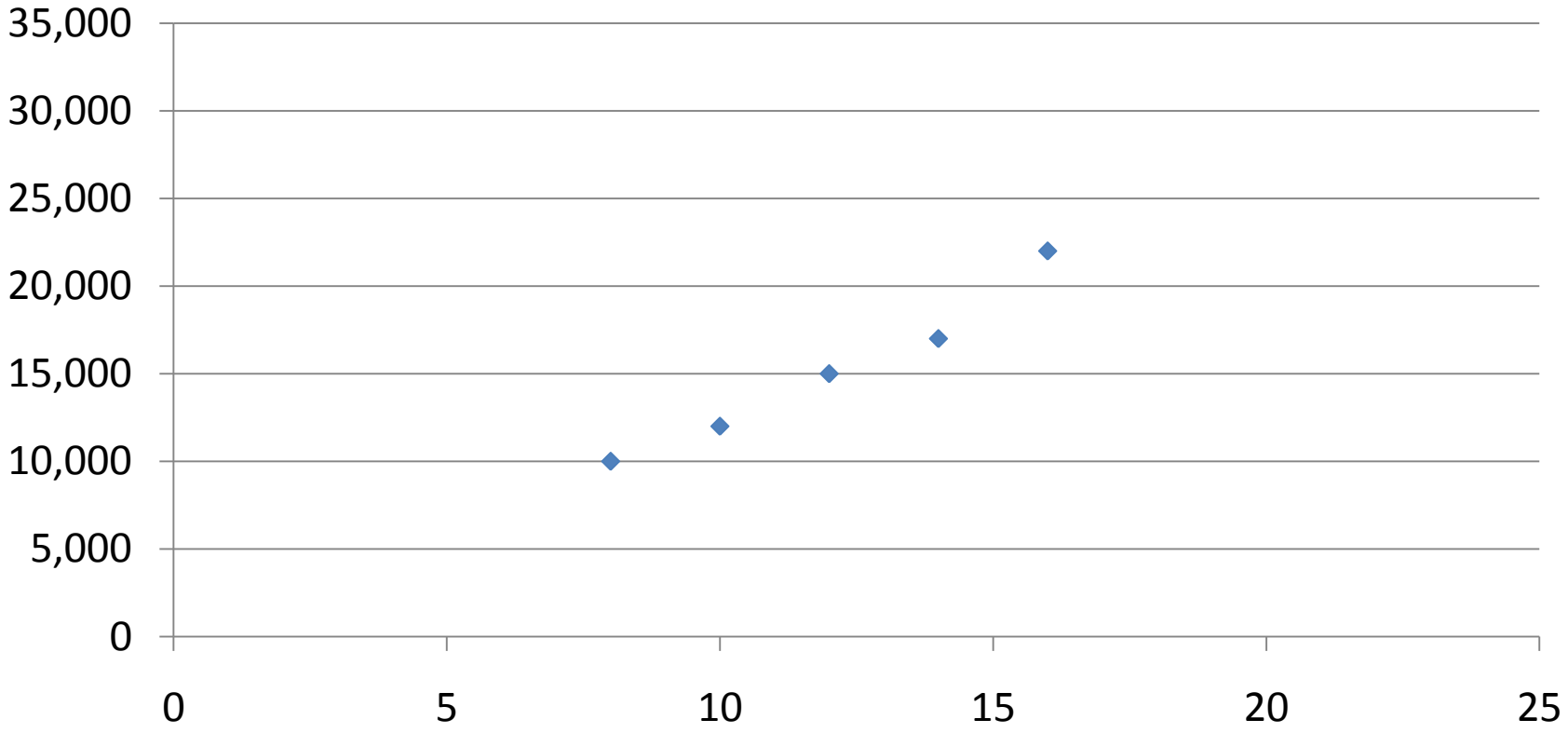


Graphs

Ratio/Interval Level Data

X Education (In Years)	Y Income ($ Per Year)
8	10,000
10	12,000
12	15,000
14	17,000
15	18,000
16	22,000

Y-Income



(X) = Education

(+) Positive Relationship

Aggression by Gender

	Gender		
Aggression	Male	Female	Total
Low	15	50	65
High	50	15	65
Total	65	65	130

Tables

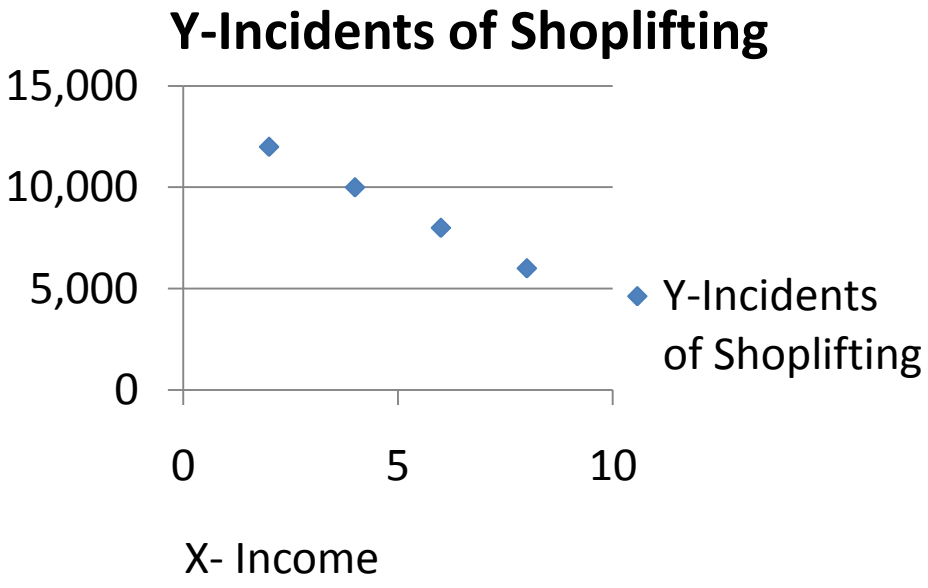
Nominal & Ordinal

Table 1: Political Party Orientation by Opinions on the Death Penalty

Opinions on Death Penalty (Y)	Political Party (X) Age/Sex Liberal/Young Male	Age/Sex Conservative/Old Female	Total
Oppose	500	250	750
Favor	250	500	750
Total	750	750	1500

Incidents of Shoplifting By Combined Family Income

(x) Income	(Y) Incidents of Shoplifting
2000	12
4000	10
6000	8
8000	6



Inverse Relationship

Types of Scales & Indices

Likert Scale:

Strongly Agree, Agree, Disagree, Strongly Disagree, Undecided

Semantic Differential:

Bogardus Social Distance Scale:

Are you willing to permit homosexuals to:

5=Live in your country

5= Live in your state

4= Live in your community

3= Live in your neighborhood

2= Live next door

1= Would you object to your son or daughter being involved with a homosexual

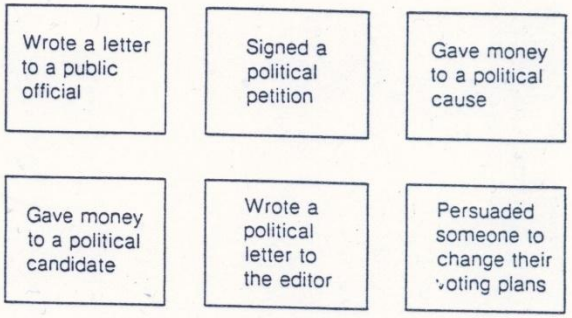
Thurstone Scaling

Guttman Scaling

Figure 15-1 Indexes versus Scales

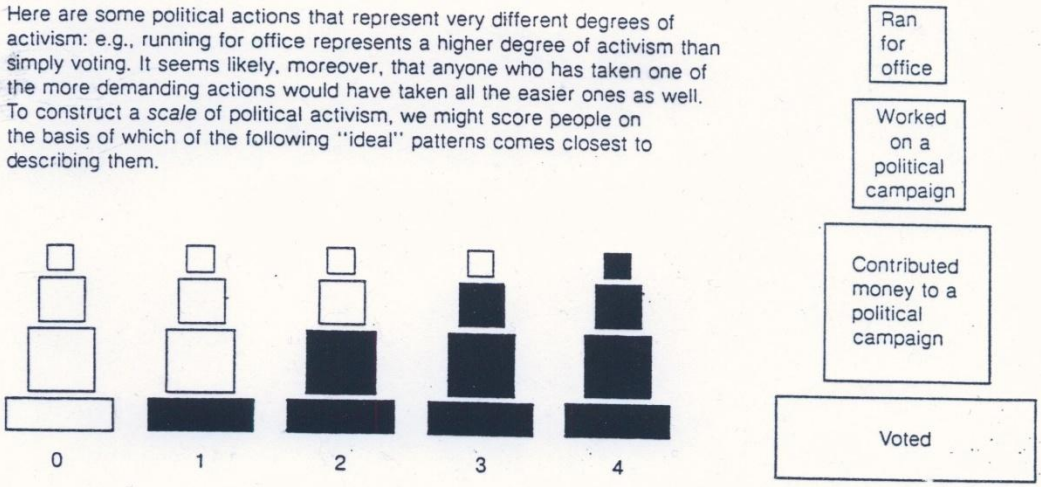
Index-Construction Logic

Here are several types of political actions people may have taken. By and large, the different actions seem to represent similar *degrees* of political activism. To create an *index* of overall political activism, we might give people 1 point for each of the actions they've taken.



Scale-Construction Logic

Here are some political actions that represent very different degrees of activism: e.g., running for office represents a higher degree of activism than simply voting. It seems likely, moreover, that anyone who has taken one of the more demanding actions would have taken all the easier ones as well. To construct a *scale* of political activism, we might score people on the basis of which of the following "ideal" patterns comes closest to describing them.



Appendix Of Survey Examples

Research Methods

Section Three

Survey Research

Advantages

Disadvantages

Types of Surveys

- Self-Administered
- Interviewer
- Telephone

Unobtrusive Research Methods

Content Analysis

- -Advantages
- -Disadvantages
- -Manifest and Latent Content

Historical and Comparative Analysis

Secondary Analysis

Existing Statistics

Evaluation Research

Experimental Research

Classical Experiment:

3 Pairs of Components
Independent and Dependent Variables
Experimental and Control Groups
Pretesting and Post Testing

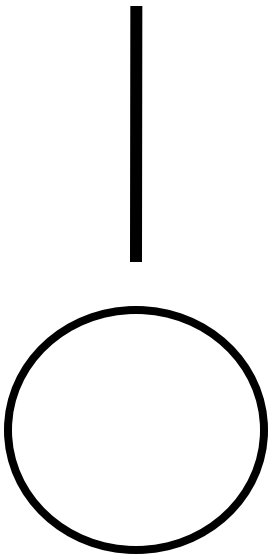
1. Independent and Dependent Variables

H_1 Anti-Black prejudice depends upon the lack of knowledge about the contribution of blacks.

$$X \longrightarrow Y$$

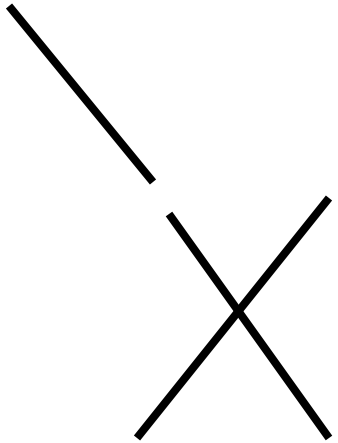
2. Pretesting and Post Testing

Prejudice



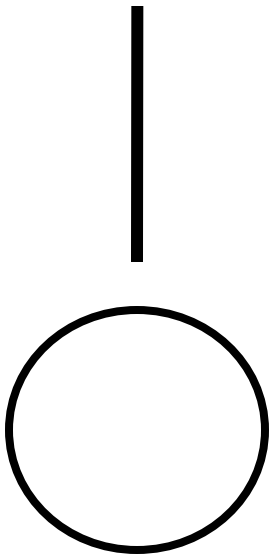
Pretesting

Film About Contributions Of Blacks



Intervention

Prejudice



Post Test

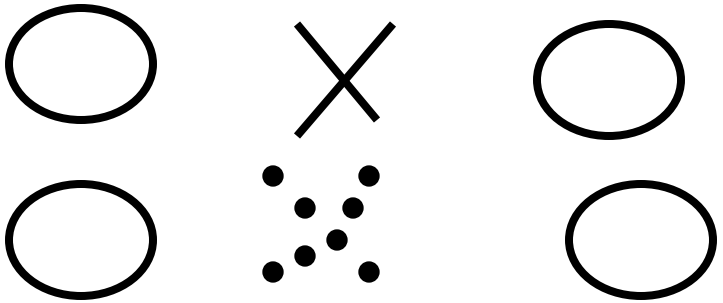
3. Experimental and Control Groups

-Experimental Group

-Control Group

Hawthorne Effect

Placebo Effect



Double-Blind Experiments

Problemed Studies

X O – One Shot Case Study

O X O – One Group Pretest/ Post Test

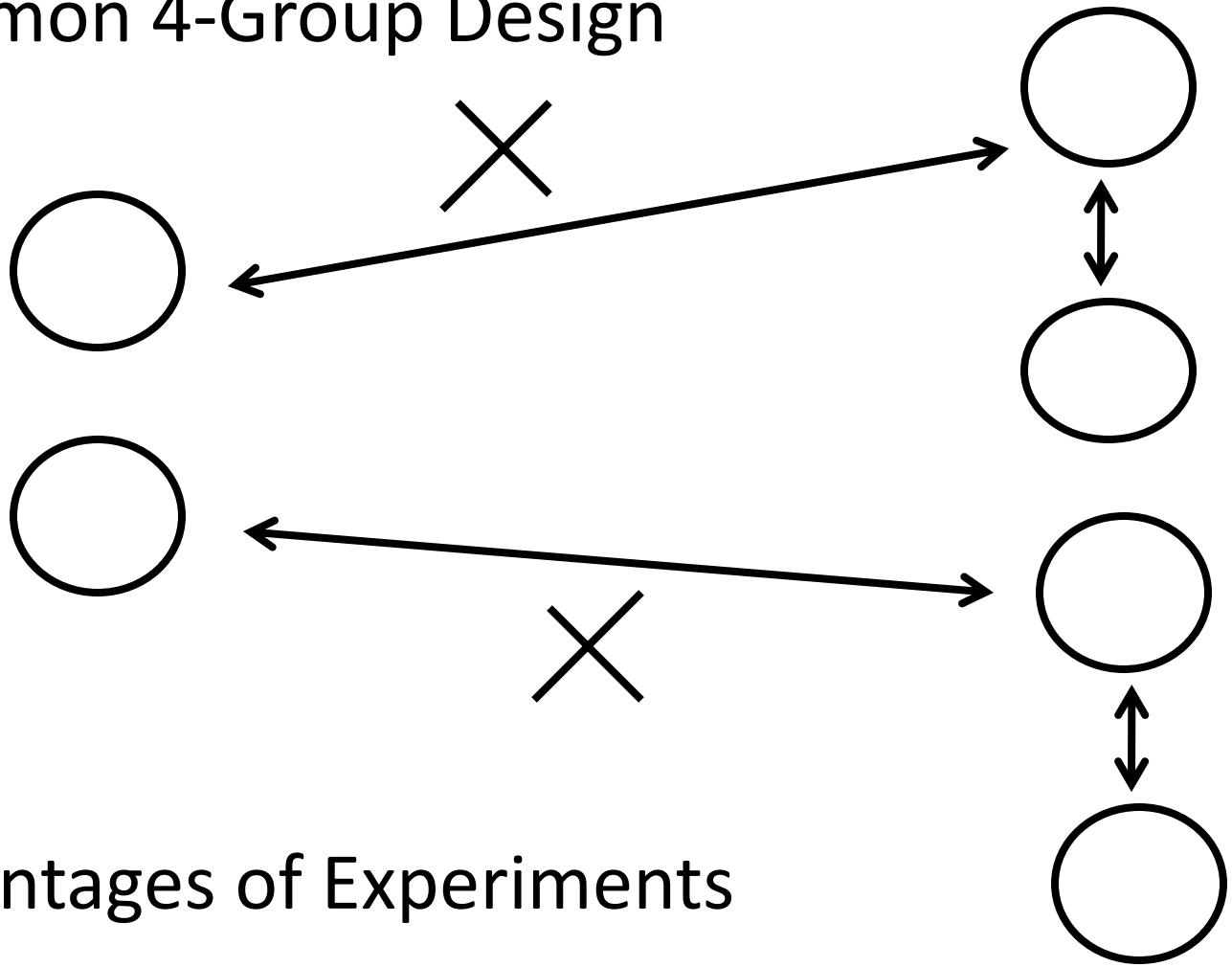
X O – Static Group Comparison

O

Internal Validity

External Validity

Solomon 4-Group Design



Advantages of Experiments

Disadvantages of Experiments

Field Research

Advantages
Disadvantages

Roles of the observer
- Complete Participant
- Participant-As-Observer
- Observer-As-Participant
- Complete Observer

Tearoom Trade

Phenomenology
-Verstehen -Weltan Schaung - Ethnography
-Tabula Rasa - Lebenswelt

Research Methods

Section Four

Appendix D: Proposed Time Frame of Activities

Month One Through Three

- Meet with funding source
- Purchase office supplies
- Set up research office
- Review applications for coders and secretary and make selection
- Train secretary and coders
- Administer Pilot Study
- Send quarterly report to funding source
- Conduct literature review

Appendix D: Proposed Time Frame of Activities Continued

Month Four Through Six

- Further train coder in computer programs if needed
- Develop Research Strategies
- Consult with BMV, Board of Elections, and Cleveland County Tax Offices for sampling population
- Develop a list of the participants and their addresses of the survey and put in database
- Send quarterly report to funding source

Appendix D: Proposed Time Frame of Activities Continued

Month Seven Through Nine

- Contact postal services for needed supplies
- Obtain business reply permits
- Finish developing final aspects of questionnaire
- Send quarterly report to funding source

Appendix D: Proposed Time Frame of Activities Continued

Month Ten Through Twelve

- Mail questionnaires to appropriate residents
- Obtain vouchers in preparation of mailing.
- Send quarterly report to funding source

Appendix D: Proposed Time Frame of Activities Continued

Month Thirteen Through Fifteen

- Prepare for incoming questionnaires
- Familiarize coders with computer software
- Do trail test to insure computer software reliability
- Send quarterly report to funding source

Appendix D: Proposed Time Frame of Activities

Month One	• Finalize contract for office space
	• Obtain funds and begin purchase of office equipment and supplies
	• Office equipment/ furniture in place no later than mid-month
	• Make selection of staff and conduct staff orientation:
	  • Benefits
	  • Salary
	• Telephone service connected
	• Copy machine and computer equipment in place and operating
	• Prepare and submit all letters of request for access to official records
	• Meet with Charlotte-Mecklenburg Chief of Police to gain access to personnel list and records

Appendix D: Proposed Time Frame of Activities

Month Two	• Train research assistants on coding for/code book • Follow up letters to agency for access to information • Prepare and submit research design • Begin recording data from records. This will be done in the human resources conference room at the Law Enforcement Center (records must not be removed for the police department)

Appendix D: Proposed Time Frame of Activities

Month Three End of First Quarter	• Prepare and submit quarterly report of activities during the first quarter • Meet with funding source (Charlotte-Mecklenburg Police Department) and present oral report for quarterly activities • Critique/feedback session with staff to assess further training need, or other issues

Appendix D: Proposed Time Frame of Activities

Month Four	• Continue to record data • Input coded data into computer (data entry specialist) • Prepare and submit a financial status report to the the Charlotte/ Mecklenburg Police Department (funding source)

Appendix D: Proposed Time Frame of Activities

Month Five	• Finalize all input of data • Compile final data • Begin to analyze data • First draft of final report

Appendix D: Proposed Time Frame of Activities

Month Six
 	
End of Second Quarter
	• Prepare final report
	• Present report to Funding source
	• Make all travel arrangements to Louisville, Kentucky
	• Present report to the annual meeting of the Academy of Criminal Justice Sciences in Louisville, Kentucky
	• Close down research operation
	  • Release staff member/issue final salary payment
	  • Turn in all leased equipment
	  • Turn over all other office furniture, computer equipment, supplies o the university.

Appendix D: Proposed Time Frame of Activities Continued

Month Sixteen Through Eighteen

- Start processing data from received questionnaires
- Use appropriate time to insure processing reliability
- Send quarterly report to funding source

Appendix D: Proposed Time Frame of Activities Continued

Month Nineteen Through Twenty-One

- Finish processing data from received questionnaires
- Check for errors within data
- Send dollar vouchers to appropriate respondents
- Send quarterly report to funding source

Appendix D: Proposed Time Frame of Activities Continued

Month Twenty-Two Through Twenty-Four

- Develop a consensus from data collected
- Determine if main hypothesis was accurate or form an alternative hypothesis
- Present findings to appropriate sources
- Meet with funding source for final conference
- Send final quarterly report to funding source
- Prepare journal article
- Go to Conference of American Society of Criminology in Atlanta, Georgia
- Present Research Paper

The Mean

$\sum$

Sum Of

$\frac{X}{N}$

-Each Observation

-Sample Size

Example: # of Hours of TV watched per week

3
5
3
4
5

20

$\overline{X}$ = 4 Hours of TV

(20 divided by 5)

Example: Average Age

20
21
23
21
18
23
126

$\bar{X}$ = 21

(126 divided by 6)

Variance and Standard Deviation

$$\sum \frac{(X - \bar{X})^2}{N} = S^2 \qquad \sqrt{S^2} = S$$

$(X - \bar{X})$	X
20 – 21 = 1	1
21 – 21 = 0	0
23 – 21 = 2	4
21 – 21 = 0	0
18 – 21 = 3	9
23 – 21 = 2	4
	18

18 divided by 6 = 3 = S^2 (Variance)

$\sqrt{S} = \sqrt{3} = 1.73 = S$

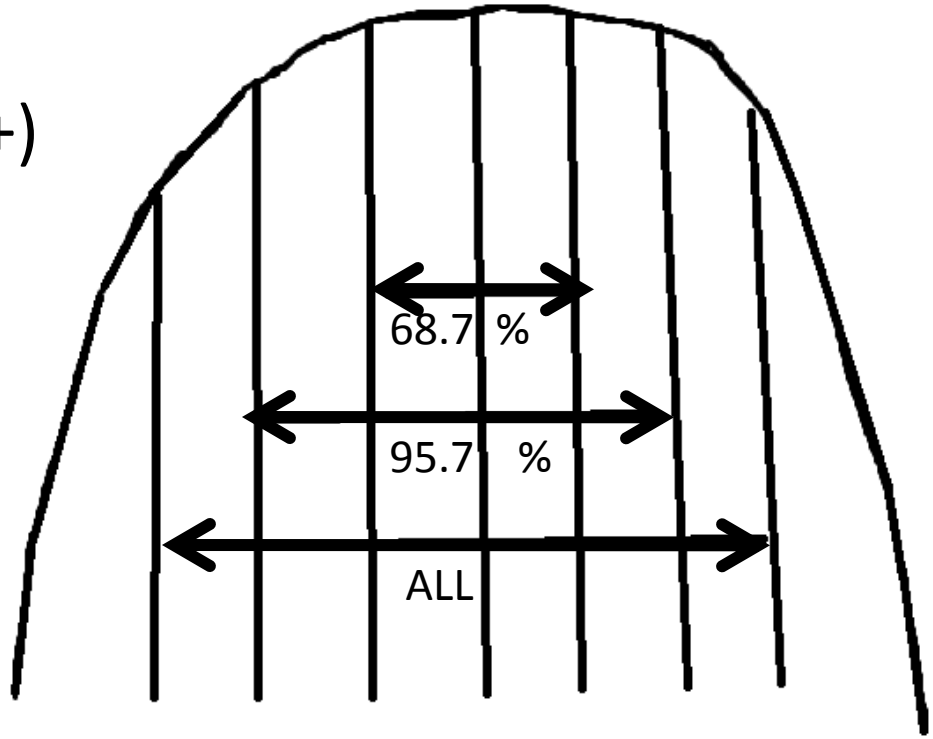
Sampling

Probability sampling methods:

- Randomness
-Representativeness
-Generalize

Empirical Rule

(-) ⟵ X - Mean ⟶ (+)



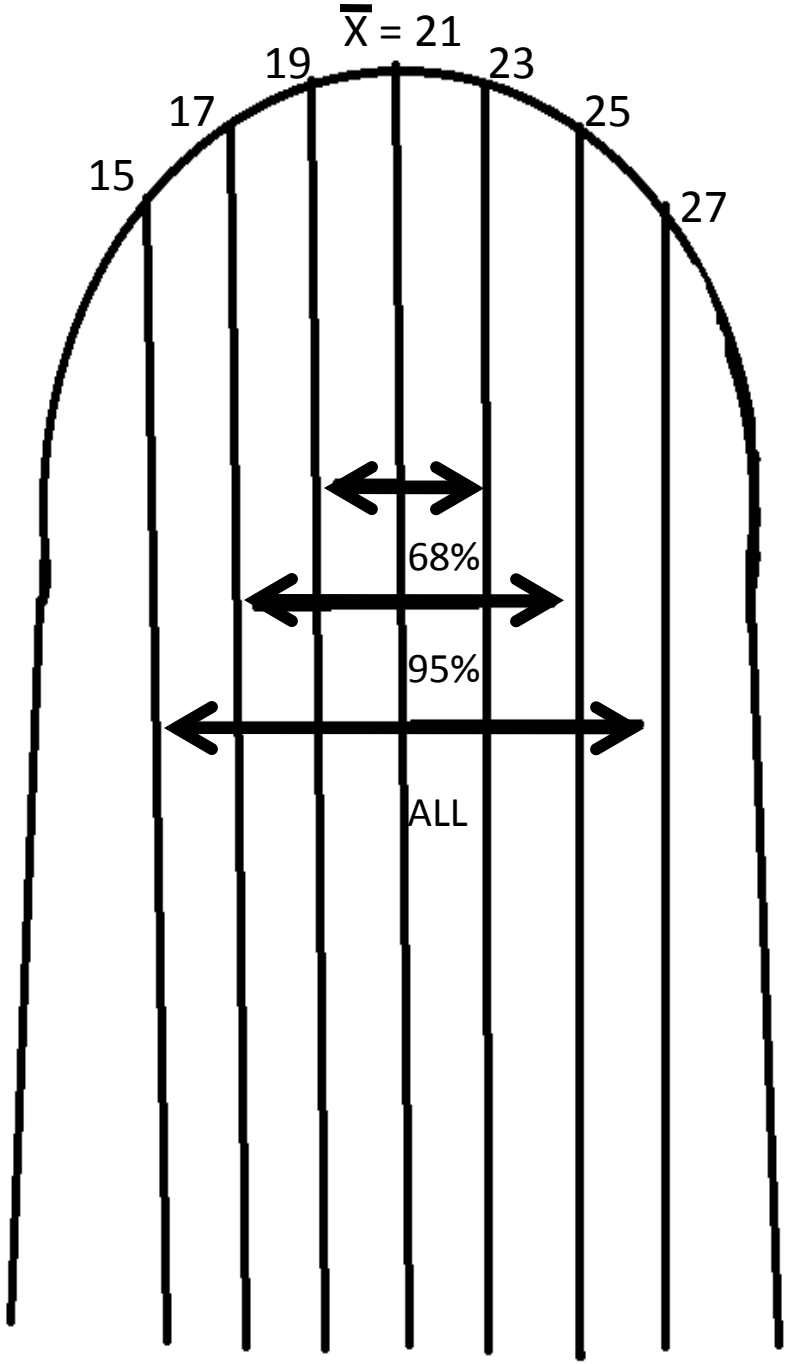
Central Limit Theorem

$\overline{X}$ = 21 years old

S = 2

Likelihood of someone who is 30 years old in the sample?

Not likely since the 3rd standard deviation contains ages from 15-27.



The less serious the felony, the less the amount of jail time.

Seriousness of Felony (Least serious = 1, To most serious =7) X		Jail Time (In months) Y
•Murder	7	30
•Rape	3	20
•Robbery	5	25
•Agg. Assault	6	28
•Burglary	1	12
•Larceny/	2	14
•Grand Theft Auto	4	22

↓ ↓ (-)

Negative Relationship

Research Methods

Section 5

Table of Contents

Statement of the Problem	1
Review of the Literature	1
Conceptualization	3
Operationalization	4
Research Method	4
Sampling	5
Observations	5
Data Processing	5
Data Analysis	6
Limitations of the Research	6
Bibliography	7

Table of Content Continued

Appendix A: Proposed Coding Scheme 8

Appendix B: Proposed Budget 9

Appendix C: Human Subjects Form 10

Appendix D: proposed Time Frame for Activities 13

Appendix E: Pie Chart and Inferential Statistics Table 14

Appendix F: Approval Sheet for Research Proposal and Plagiarism Sheet 15

Analysis of the Data

Theory → Research → Statistics

Statistics
- Descriptive
- Inferential

Statistical Inference

2 Types of Statistical Variables
- Quantitative
- Qualitative

Descriptive Statistics:

Ratio, Proportion, Percentage, Rate

of males in federal prison = 16,000

# of females in federal prison = 10,000

Total = 26,000

# of residents in Cincinnati, Ohio = 10,000

# of murders in Cincinnati, Ohio in 1992 = 100

Ratio of Males to Females = 16,000/ 10,000

for every 160 males there are 100 females, or 1.6 to 1

Proportion of males/females =

$$\frac{\text{\# of males}}{\text{\# of males and females}} \qquad \frac{\text{\# of females}}{\text{\# of males and females}}$$

$$\frac{16{,}000}{26{,}000} = .62 \qquad \frac{10{,}000}{26{,}000} = .38$$

Percentage =

100 x .62 = 62%

100 x .38 = 38%

Table 1

Demographic Characteristics Of the Sample

Characteristic	Percent	N
Race		
White	46%	92
Black	44%	88
Other	5%	10
Education		
HSG	61%	122
EUT	46.5%	93
Some College	30%	59
College Degree	11.5%	23

Measures of Central Tendency

Locate the Center

Example: 62,73,73,78,86,89,90,95

Mode: 73

Median:

Odd number of measurements-

Take out 73 and it is 86

Even number of measurements-

Take 2 middle scores $\frac{78 + 86}{2} = 82$

Mean: $\frac{\sum X}{N} = 646/8 = 86$ $\bar{X} = 86$

Measures of Dispersion

Describe the spread of observations around the mean.

Range: Difference between the highest and the lowest measure - 95 – 62 = 33

Variance: The deviation of the scores form their mean. (S^2)

$(X - \overline{X})$	X^2
95 – 86	
90 – 86	
89 – 86	
86 – 86	
78 – 86	
73 – 86	
73 – 86	
62 – 86	

$$\sum \frac{?}{8} = S^2$$

Standard Deviation: on the average how much of a difference is there form the mean.

$$S = \sqrt{S^2}$$

Murder Rate in Cincinnati, Ohio For 1992

$$\frac{\text{\# of Actual occurrences of murder}}{\text{\# of Possible occurrences of murder}}$$

$$\frac{100}{10{,}000} = 10$$

Levels of Measurement

Nominal
Ordinal
→ Tables, Charts, Maps

Interval
Ratio
→ Graphs

Table 1a: Pie Chart for Involvement in Animal Cruelty, Age Gender, Race History of Family abuse and Family Status

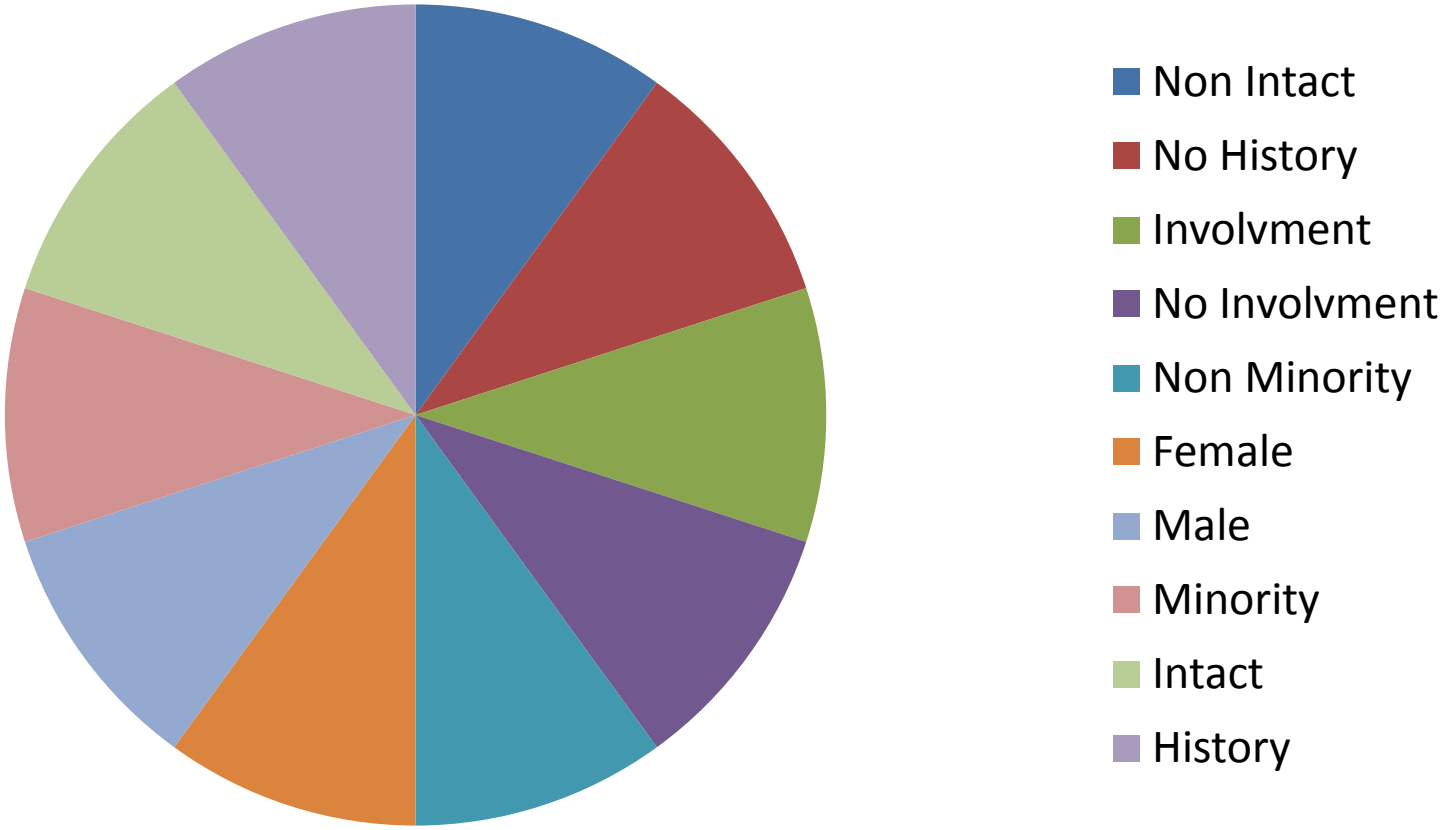


Figure 2: Distributions for Education & Age (Interval Ratio & Ratio Level Data) OK to use Ordinal Level data if units are 5 or more

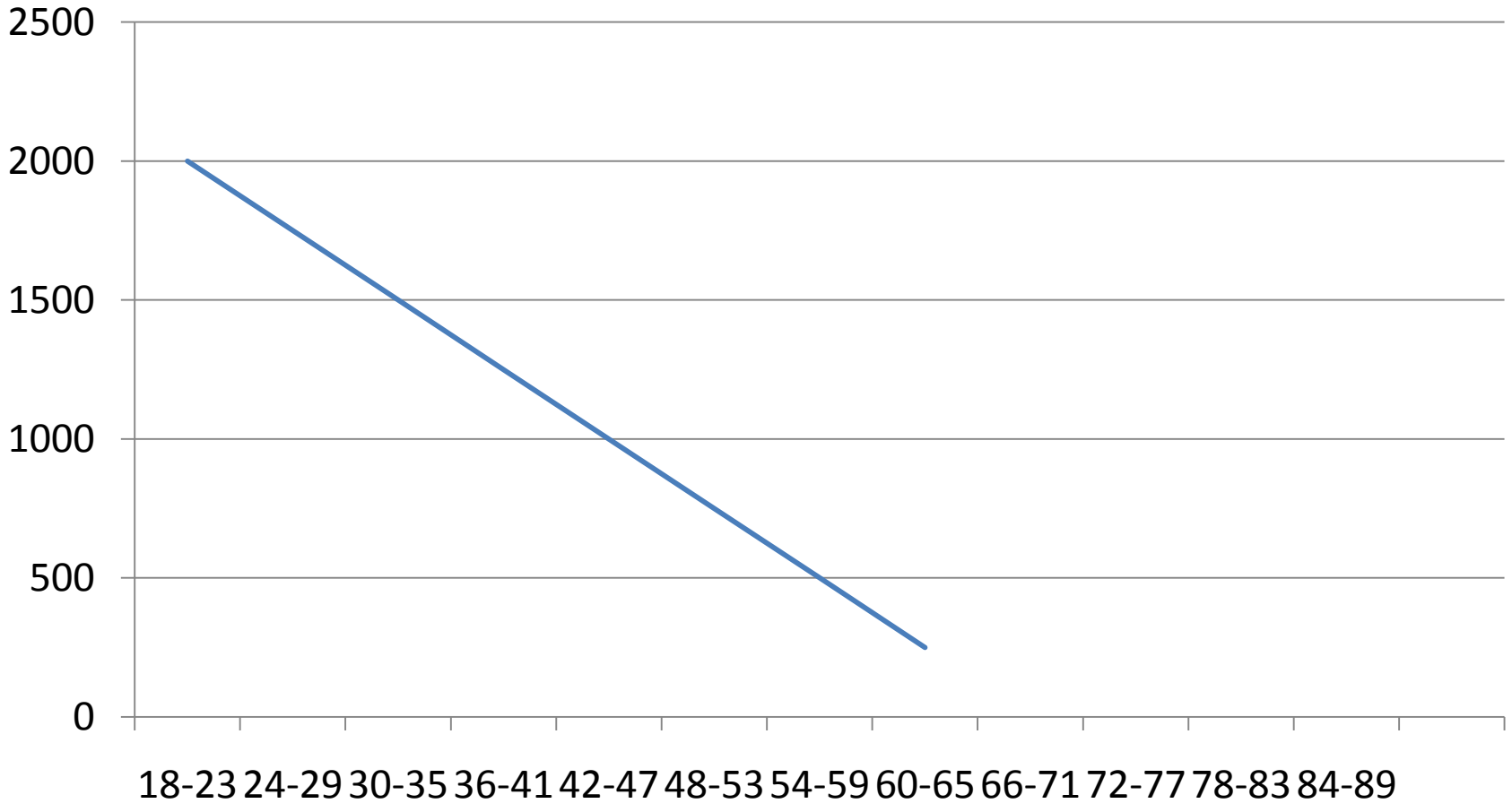
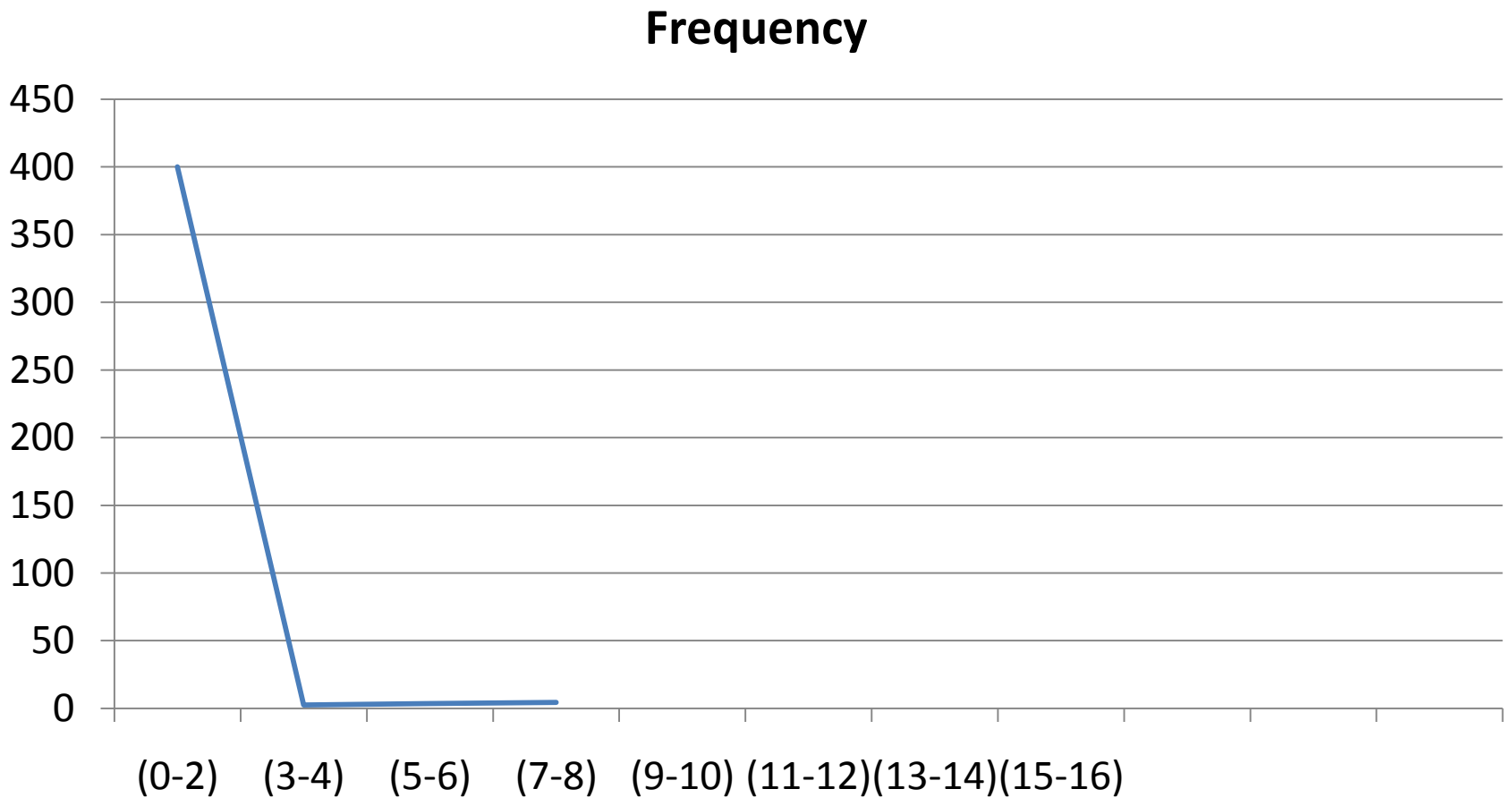
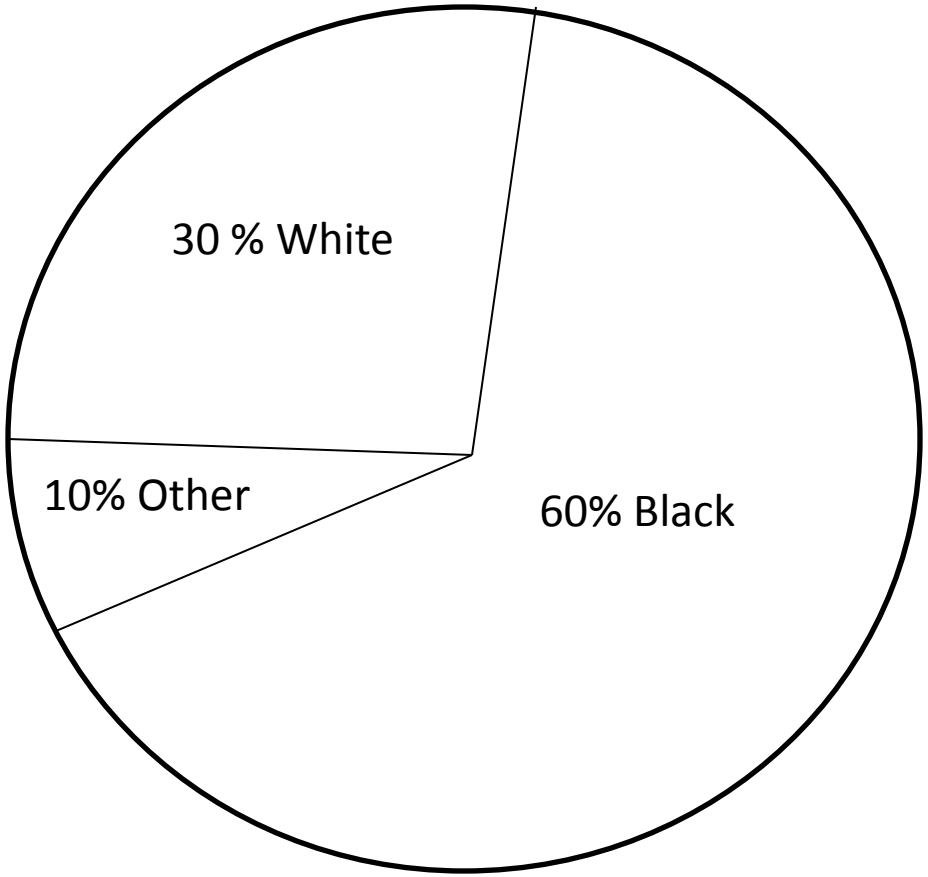


Figure 1b: Age Distribution



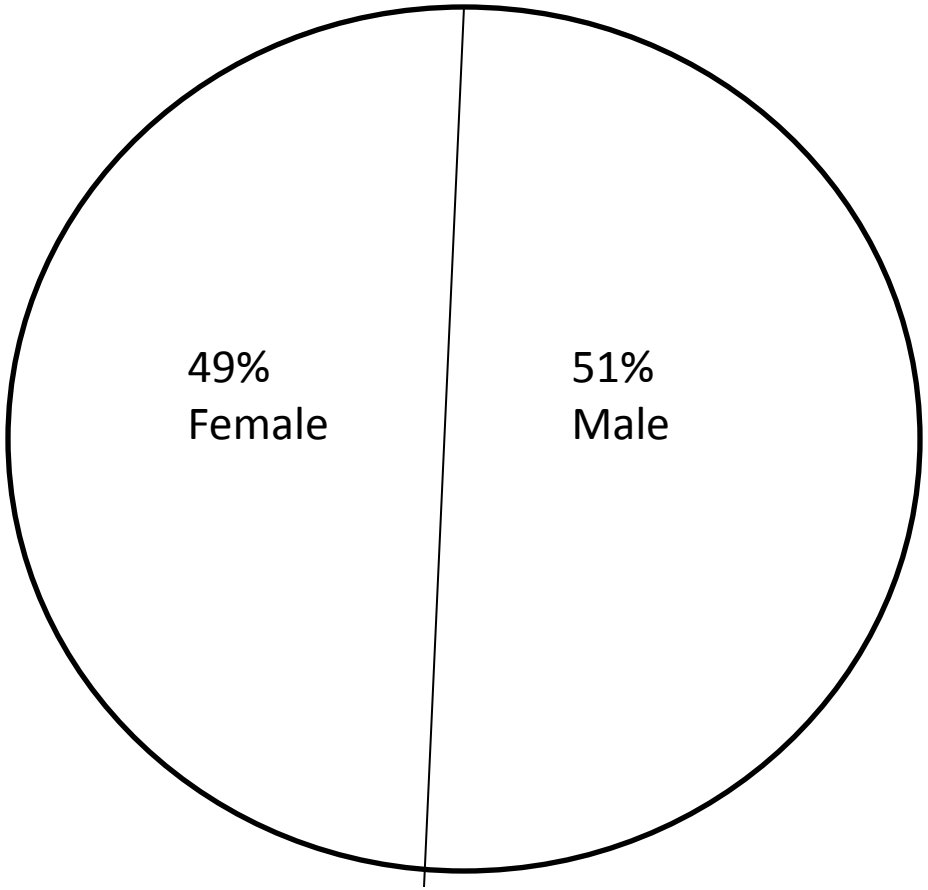
Pie Charts

Figure 1: Pie Chart for Race



Pie Charts

Figure 2: Pie Chart for Gender



Inferential Statistics

4 Parts of a statistical test

H_1 - Males > aggressive that females

H_0 - There is no relationship between gender and aggression

Test Statistic - $X = \sum \frac{(f_o - f_€)^2}{f_€}$

Rejection Region - .05 at 1df

Aggression	Gender		
	Male	Female	Total
High	200	200	400
Low	150	450	600
Total	350	650	1000

X^2 = ; .05 at 1df; ϕ =

Relationship Between Animal Abuse and Child Physical Abuse in Mecklenburg County Based Upon Involvement in Animal Abuse, Race, Family Status, Age, Gender and History of Family Physical Abuse.

Child Physical Abuse		Total
	Young	Old
	Male	Female
	No History	History
	No Involvement	Involvement
	Non Minority	Minority
	Non Intact	Intact
Not Involved		
Involved		

$X^2 = ?$ .05 at 1 df = .00373 0 = ?

Step 1

200	200	400
150	450	600
350	650	1000

You have f_o (Observed cell counts)

You need to find $f^{€}$ (Expected cell counts)

$$\frac{CT \ X \ RT}{GT}$$

200 (140)	200 (260)
150 (210)	450 (390)

$$\frac{350 \ X \ 400}{1000} = 140$$

$$\frac{650 \ X \ 400}{1000} = 260$$

$$\frac{350 \ X \ 600}{1000} = 210$$

$$\frac{650 \ X \ 600}{1000} = 390$$

Step 2

$$\sum \frac{(200-140)^2}{140} + \frac{(200-260)^2}{260} + \frac{(150-210)^2}{210} + \frac{(450-390)^2}{390} = 25.71 + 13.85 + 17.14 + 9.23$$

$$= 65.9$$

$$X^2 = 65.9^2$$

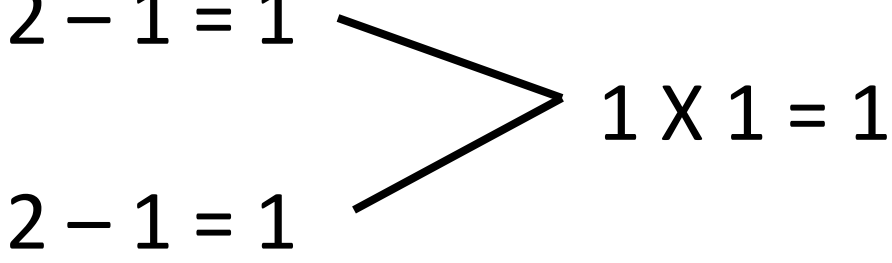
Step 3

Rejection Region

# of Rows minus 1

Times

# of Columns minus 1



1 at .05

X larger than book value (3.8)

Yes! There is an association!

Inferential Statistics

Table 1: Opinions on homosexual behavior between consenting adults based upon political party orientation.

Opinions on Homosexual Behavior	Political Party Orientation: Liberal (0123)	Conservative (4567)	Total
Favor	500 (67%)	250 (33%)	750
Oppose	250 (33%)	500 (67%)	750
Total	750 (100%)	750 (100%)	1,500

Step 4

Reject H_o

Accept H_1

How Strong is the relationship?

0 ϕ Phi

$$\sqrt{X^2 / N} = \sqrt{65.9 / 1000} = 25.67 \text{ or } 26\%$$

Appendix E-2: Inferential Table – The Opinions on the Death Penalty based upon Age, Gender, Race, Education, and Political Party Orientation.

Table E-2

Opinion on the Death Penalty
-Age
-Gender
-Race
-Education
-Political Party Orientation

Opinion on the Death Penalty

Oppose	Young		Old
	Male		Female
Favor	Non-Minority		Minority
	Low		High
	Liberal	Moderate	Conservative
			Total: 60,000

Total

X2 – (age, gender, race, and education) = ?; 1df @ .05, phi =?

V – (political party orientation) = ?; 2df @ .05, phi = ?

Ethics/Politics

Constraints on Research Projects

Ethics

- Voluntary Participation
- No Harm to Participants
- Anonymity and Confidentiality
- Researcher's Identity
- Analysis and Reporting

Zimbardo	Politics
Milgram	Human Subjects Form

Appendix C: Human Subjects Informed Consent

See Proposal Attached

Your participation is completely voluntary and may be discontinued at any time without prejudice to you.

If you have any questions or concerns about your safety or crime in your neighborhood, please feel free to contact the Charlotte-Mecklenburg Police Department, David 3 District Community Policing Unit at 704-336-2829.

UNC Charlotte is eager to ensure that all research participants are treated in a fair and respectful manner. If you have any concerns or questions about your treatment as a subject in this project, contact Dr. David Test, Department of Teaching Specialties, Charlotte, NC 28223 (704) 547-2531.

X _____
(Signature)

X_____
(Date)