

CNE 787(2 & 3)
WORKSHOP IN COUNSELOR EDUCATION STATISTICS
FALL 2007

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Classrooms: The University Center Assigned rooms



Location and Time: Dr. Slate: Wednesday, 6 pm – 8:50 pm
Dr. Onwuegbuzie: Saturday, 1:00 pm – 4:50 pm

Required Materials:

American Psychological Association. (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington, DC: Author.

Morgan, G. A., Leech, N. L., Gloeckner, G., & Barrett, K. C. (2007). *SPSS for introductory statistics* (3rd. ed). Hillsdale, NJ: Lawrence Erlbaum. (ISBN: 0805860274)

SPSS Inc. (2007). *SPSS 15.0 for Windows*. [Computer software]. Chicago, IL: SPSS Inc. (Student Version available using your SHSU bookstore and through remote access through SHSU).

Online Reading Sources:

<http://davidmlane.com/hyperstat/index.html>
<http://www.statsoft.com/textbook/stathome.html>
<http://www.onlinestatbook.com/>
<http://www.socialpsychology.org/methods.htm#onlinetexts>
<http://wise.cgu.edu/>

SUGGESTED MATERIAL

Johnson, R. B., & Christensen, L. B. (2004). *Educational research: Quantitative, qualitative, and mixed approaches*. Boston, MA: Allyn and Bacon.

Prerequisites: Methods of Research

Course Goal: This course is designed to familiarize doctoral students with the logic and dynamics of the research process in education and provide students with the opportunity to develop skills in posing research questions, designing studies, collecting and examining data, and interpreting and reporting research results. In particular, students will be taught how to use a variety of introductory-level statistical techniques to analyze quantitative data in educational research in general and the areas of educational leadership and/or counselor education in particular. A strong focus will be placed on the use of statistical software (e.g., SPSS, GPOWER) to analyze data.

Course Objectives:

By the end of the semester, it is expected that the student will be able to:

1. Define terms and concepts commonly utilized in quantitative research.
2. Write researchable quantitative-based questions.
3. Demonstrate how to utilize effectively the library and its resources (e.g., electronic information-retrieval systems) as part of the research process.
4. Identify major sampling schemes
5. Use software (e.g., GPOWER) to conduct an a priori statistical power analysis to determine an appropriate sample size.
6. Understand the concept of psychometric properties of quantitative instruments (e.g., score reliability, score validity)
7. Identify quantitative research designs.
8. Identify the criteria for selection of research designs
9. Identify the major procedures for collecting quantitative data
10. Identify the major threats to the internal validity and external validity of findings.
11. Differentiate between independent and dependent variables.
12. Distinguish levels of data (i.e., nominal, ordinal, interval, and ratio).
13. Differentiate between grouping variables and measuring variables.
14. Write null hypotheses directly related to research questions.
15. Write nondirectional hypotheses directly related to research questions.
16. Write directional hypotheses directly related to research questions.
17. Use Statistical Package for Social Sciences (SPSS) to code data, enter data, define variables, run analyses, and interpret printouts.
18. Explain basic concepts and terminology pertinent to statistical methods.
19. Identify and compute basic measures of central tendency (e.g., mode, median, mean) by hand and through the use of SPSS.
20. Identify and compute basic measures of variability (e.g., range, variance, standard deviation) by hand and through the use of SPSS.
21. Identify and compute basic measures of position (e.g., *t*-scores, *z*-scores, percentiles) and through the use of SPSS.
22. Identify basic measures of distributional shape (e.g., skewness, kurtosis) through the use of SPSS.
23. Test assumptions to determine whether parametric or non-parametric statistics should be used.
24. Using SPSS, graph data (e.g., bar charts, histograms, pie charts).

25. Identify, compute, and interpret statistical analytic methods of determining parametric and nonparametric bivariate relationships (e.g., Pearson product-moment correlation coefficient, Spearman rank order correlation coefficients, Chi-square analysis).
26. Create and interpret scatterplots directly related to correlational procedures.
27. Write, in appropriate APA style, an interpretation of correlational results, both for Pearson r s and for Spearman ρ s.
28. Identify, compute, and interpret statistical analytic methods of determining relationships through the use of simple linear regression.
29. Create and interpret scatterplots directly related to simple linear regression procedures.
30. Write, in appropriate APA style, an interpretation of simple linear regression results.
31. Identify, compute, and interpret statistical analytic methods of determining mean differences through the use of parametric and nonparametric t -tests (i.e., one-sample, independent samples, and dependent samples) in SPSS.
32. Write, in appropriate APA style, an interpretation of a parametric and nonparametric one-sample t -test result.
33. Write, in appropriate APA style, an interpretation of a parametric and nonparametric independent samples t -test results.
34. Write, in appropriate APA style, an interpretation of a parametric and nonparametric dependent samples t -test results.
35. Identify, compute, and interpret statistical analytic methods of determining mean differences through the use of parametric and nonparametric analysis of variance (i.e., simple and factorial) in SPSS.
36. Write, in appropriate APA style, an interpretation of parametric and nonparametric analysis of variance (i.e., simple and factorial) results.
37. Calculate and interpret effect sizes for each statistical procedure.
38. Demonstrate knowledge of the major steps involved in conducting a quantitative research study.
39. Identify ethical and legal considerations involved in conducting and reporting educational research.
40. Apply guidelines for presenting papers professionally.

Format for class:

- Mini lectures and demonstrations based on your reading assignments.
- Application of topics discussed using SPSS on the computer.
- Interpretation of statistical analyses.
- Class discussions

Tentative Schedule for Saturday Course**First Class Meeting on August 25th**

Introduction to Research Design/Statistics

Research Questions

Inductive Reasoning versus Deductive Reasoning

Theories and Hypotheses

Quantitative Approaches

Purpose of Research (i.e., basic research, applied research, evaluation research, research and development, and action research)

Important Terms (i.e., independent variable, dependent variable, levels of measurement, dichotomous variable, categorical variable, continuous variable).

Readings:

http://www.southalabama.edu/coe/bset/johnson/dr_johnson/lectures/lec1.htm

http://www.southalabama.edu/coe/bset/johnson/dr_johnson/lectures/lec2.htm

<http://www.csulb.edu/~msaintg/ppa696/696intro.htm#696intro>

<http://www.csulb.edu/~msaintg/ppa696/696meas.htm#696meas>

http://www.southalabama.edu/coe/bset/johnson/dr_johnson/lectures/lec11.pdf

Morgan, Leech, Gloeckner, & Barrett (2007) text Chapter 1

Variables, Research Problems and Questions

Research Problems

Variables

Research Hypotheses and Questions

A Sample Research Problem: The Modified High School and Beyond (HSB) Study
Interpretation Questions

Powerpoints to be Covered:

SelectingaResearchProblem

IntroductiontoEducationalResearch

QuantitativeResearchQuestionsandHypotheses

Sample Quantitative Research Questions

Research Question Quantitative

TheScientificMethodandtheRoleofTheory

Assignment for Second Class Meeting on September 8th

*Develop quantitative-based research question

Email proposed research topic areas and tentative questions for feedback prior to second class meeting

Required Readings for Second Class Meeting on September 8th

http://www.southalabama.edu/coe/bset/johnson/dr_johnson/lectures/lec3.pdf

<http://www.csulb.edu/~msaintg/ppa696/696meas.htm#696meas>

http://www.southalabama.edu/coe/bset/johnson/dr_johnson/lectures/lec11.pdf

- Onwuegbuzie, A. J., & Collins, K. M. T. (2007). A typology of mixed methods sampling designs in social science research. *The Qualitative Report*, 12(2). Retrieved [Retrieved August 19, 2007], from <http://www.nova.edu/ssss/QR/QR12-2/onwuegbuzie2.pdf>
- Onwuegbuzie, A. J. (2003). Expanding the framework of internal and external validity in quantitative research. *Research in the Schools*, 10(1), 71-90. (Handout)
- Onwuegbuzie, A. J., & Daniel, L. G. (2002). A framework for reporting and interpreting internal consistency reliability estimates. *Measurement and Evaluation in Counseling and Development*, 35, 89-103. (Handout)
- Onwuegbuzie, A. J., & Daniel, L. G. (2004). Reliability generalization: The importance of considering sample specificity, confidence intervals, and subgroup differences. *Research in the Schools*, 11(1), 61-72. (Handout)
- Weems, G. H., & Onwuegbuzie, A. J. (2001). The impact of midpoint responses and reverse coding on survey data. *Measurement and Evaluation in Counseling and Development*, 34, 166-176. (Handout)
- Weems, G. H., Onwuegbuzie, A. J., Eggers, S. J., & Schreiber, J. B. (2003). Characteristics of respondents who respond differently to positively- and negatively-worded items on rating scales. *Assessment and Evaluation in Higher Education*, 28, 587-607.

Second Class Meeting on September 8th

Types of quantitative research designs (i.e., historical, descriptive, correlational, causal-comparative/quasi-experimental, experimental)

Selection of a Sample (random sampling vs. non-random sampling)

Selection of Measuring Instruments (score reliability, score validity)

Internal and External Validity

Powerpoints to be Covered:

DescriptiveResearch
 CorrelationalResearch
 Causal-ComparativeResearch
 ExperimentalResearch
 SamplingSchemesandSampleSizes
 Reliability.SHSU
 Internal-externalvalidity

Research Proposal Guidelines

Assignment to be Electronically Submitted by September 15th

Quantitative research prospectus on which you will receive feedback prior to the next class meeting on September 22nd

Required Readings for Next Class Meeting on September 22nd

http://www.southalabama.edu/coe/bset/johnson/dr_johnson/lectures/lec14.pdf

<http://faculty.ncwc.edu/toconnor/308/308lect02.htm>

<http://www.uh.edu/~srama/Research%20Basics/keyideas.htm>

<http://www.uh.edu/~srama/Quantitative%20Methods/Quant%20Methods%20Overview.htm>

Leech, N. L., Onwuegbuzie, A. J., & Daniel, L. G. (2007). Arithmetic mean definition. In N. J. Salkind (Ed.), *Encyclopedia of Measurement and Statistics* (pp. 43-44). Thousand Oaks, CA: Sage. (Handout)

Onwuegbuzie, A. J., Daniel, L. G., & Leech, N. L. (2007). Measures of central tendency. In N. J. Salkind (Ed.), *Encyclopedia of Measurement and Statistics* (pp. 586-591). Thousand Oaks, CA: Sage. (Handout)

Third Class Meeting on September 22nd

Statistics Glossary of Terms

<http://www.stats.gla.ac.uk/steps/glossary/index.html>

Measurement

<http://www.psychstat.smsu.edu/introbook/sbk06.htm>

<http://vassun.vassar.edu/%7Elowry/webtext.html>

<http://vassun.vassar.edu/%7Elowry/webtext.html>

Frequency distributions

<http://www.psychstat.smsu.edu/introbook/sbk07.htm>

Distribution models

http://davidmlane.com/hyperstat/normal_distribution.html

<http://www.psychstat.smsu.edu/introbook/sbk10.htm>

<http://www.psychstat.smsu.edu/introbook/sbk11.htm>

Statistics

http://davidmlane.com/hyperstat/desc_univ.html

<http://www.psychstat.smsu.edu/introbook/sbk12.htm>

<http://www.psychstat.smsu.edu/introbook/sbk13.htm>

SPSS

<http://www.ats.ucla.edu/stat/spss/sk/default.htm>

<http://www.psych.utoronto.ca/courses/c1/spss/toc.htm>

<http://www.indiana.edu/~statmath/stat/spss/win/index.html>

http://www.richland.cc.il.us/james/lecture/spss/data_editor/

Morgan, Leech, Gloeckner, & Barrett (2007) text Chapter 2

Data Coding, Entry, and Checking

Plan the Study, Pilot Test, and Collect Data

Code Data for Data Entry

Problem 2.1. Check the Completed Questionnaires

Problem 2.2. Define and Label the Variables

Problem 2.3. Display Your Dictionary or Codebook

Problem 2.4. Enter Data

Problem 2.5. Run Descriptive and Check the Data
 Interpretation Questions
 Extra SPSS Problems

Morgan, Leech, Gloeckner, & Barrett (2007) text Chapter 3
 Measurement and Descriptive Statistics
 Frequency Distributions
 Levels of Measurement
 Descriptive Statistics and Plots
 The Normal Curve
 Interpretation Questions

Powerpoints to be Covered:
 DescriptiveStatistics.SHSU

Assignment to be Electronically Submitted by September 29th

*Prepare application to Institutional Review Board (IRB) on which you will receive feedback prior to the next class meeting

Required Readings for Next Class Meeting:

- Onwuegbuzie, A. J., Daniel, L. G., & Leech, N. L. (2007). Pearson's product moment correlation coefficient. In N. J. Salkind (Ed.), *Encyclopedia of Measurement and Statistics* (pp. 750-755). Thousand Oaks, CA: Sage. (Handout)
- Onwuegbuzie, A. J., Leech, N. L., & Daniel, L. G. (2007). Spearman's rho. In N. J. Salkind (Ed.), *Encyclopedia of Measurement and Statistics* (pp. 927-933). Thousand Oaks, CA: Sage. (Handout)
- Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation coefficient. *Research in the Schools*, 9(1), 73-90. (Handout)

Fourth Class Meeting on October 6th

Morgan, Leech, Gloeckner, & Barrett (2007) text Chapter 4
 Understanding Your Data and Checking Assumptions
 Exploratory Data Analysis (EDA)
 Problem 4.1. Descriptive Statistics for the Ordinal and Scale Variables
 Problem 4.2. Box Plots for One Variable and Multiple Variables
 Problem 4.3. Box Plots Split by a Dichotomous Variable
 Problem 4.4. Descriptives for Dichotomous Variables
 Problem 4.5. Frequency Tables a few Variables
 Interpretation Questions
 Extra SPSS Problems

Relationships
 Pearson Product Moment Order Correlation
 Spearman rank order correlation

Readings:

http://davidmlane.com/hyperstat/desc_biv.html

<http://www.statsoft.com/textbook/stathome.html>

<http://www.psychstat.smsu.edu/introbook/sbk17.htm>

<http://www2.sjsu.edu/faculty/gerstman/StatPrimer/correlation.pdf>

Regression

Readings:

<http://davidmlane.com/hyperstat/prediction.html>

<http://vassun.vassar.edu/%7Elowry/webtext.html>

<http://www.psychstat.smsu.edu/introbook/sbk16.htm>

Morgan, Leech, Gloeckner, & Barrett (2007) text Chapter 8

Correlation and Regression

Problem 8.1. Scatterplots to Check Assumptions

Problem 8.2. Bivariate Pearson and Spearman Correlations

Problem 8.3. Correlation Matrix for Several Variables

Problem 8.4. Internal Consistency Reliability with Cronbach's Alpha

Problem 8.5. Bivariate or Simple Linear Regression

Interpretation Questions

Extra SPSS Problems

Powerpoints to be Covered:

CorrelationStatistics2.SHSU

CorrelationalResearch2.SHSU

Required Readings for Next Class Meeting:

Leech, N. L., Daniel, L. G., & Onwuegbuzie, A. J. (2007). Paired samples t test. In N. J. Salkind (Ed.), *Encyclopedia of Measurement and Statistics* (pp. 723-726). Thousand Oaks, CA: Sage. (Handout).

Fifth Class Meeting on October 20th

Mean differences: t -tests

Hypothesis testing

http://davidmlane.com/hyperstat/logic_hypothesis.html

<http://www.psychstat.smsu.edu/introbook/sbk18.htm>

<http://www.psychstat.smsu.edu/introbook/sbk26.htm>

Sampling

<http://www.psychstat.smsu.edu/introbook/sbk19.htm>

t -tests

<http://www.statsoft.com/textbook/stathome.html>

<http://www.psychstat.smsu.edu/introbook/sbk24.htm>

<http://www.psychstat.smsu.edu/introbook/sbk25.htm>

<http://vassun.vassar.edu/%7Elowry/webtext.html>

<http://vassun.vassar.edu/%7Elowry/webtext.html>

Confidence intervals

http://davidmlane.com/hyperstat/confidence_intervals.html

Power

<http://davidmlane.com/hyperstat/power.html>

Morgan, Leech, Gloeckner, & Barrett (2007) text Chapter 9

Comparing Groups with t Tests and Similar Nonparametric Tests

Problem 9.1. One-Sample t Test

Problem 9.2. Independent Samples t Test

Problem 9.3. The Nonparametric Mann-Whitney U Test

Problem 9.4. Paired Samples t Test

Problem 9.5. Using the Paired t Test to Check Reliability

Problem 9.6. Nonparametric Wilcoxon Test for Two Related Samples

Interpretation Questions
Extra SPSS Problems

Powerpoints to be Covered:

ttest.SHSU
GeneralLinearModel.SHSU

ASSIGNMENT DUE:

Parametric Correlation Statistics Report
Nonparametric Correlation Statistics Report

Class Meeting on November 3rd

Mean differences: ANOVA

Readings:

http://davidmlane.com/hyperstat/intro_ANOVA.html

<http://vassun.vassar.edu/%7Elowry/webtext.html>

<http://www.psychstat.smsu.edu/introbook/sbk27.htm>

<http://www2.chass.ncsu.edu/garson/pa765/anova.htm>

Morgan, Leech, Gloeckner, & Barrett (2007) text Chapter 10
Analysis of Variance (ANOVA)

Problem 10.1. One-Way (or Single Factor) ANOVA

Problem 10.2. Post Hoc Multiple Comparisons Tests

Problem 10.3. Nonparametric Kruskal-Wallis Test

Problem 10.4. Two-Way (or Factorial) ANOVA

Interpretation Questions

Extra SPSS Problems

ASSIGNMENT DUE:

Parametric independent samples t -test Report

Nonparametric independent samples t -test Report

Parametric dependent samples t -test Report

Nonparametric dependent samples t -test Report

Class Meeting on November 17th

Nonparametric statistics

Chi-square

http://www.stats.gla.ac.uk/steps/glossary/categorical_data.html#chigof

<http://vassun.vassar.edu/%7Elowry/webtext.html>

<http://www.statsoft.com/textbook/stathome.html>

<http://www.psychstat.smsu.edu/introbook/sbk28.htm>

Morgan, Leech, Gloeckner, & Barrett (2007) text Chapter 7

Cross Tabulation, Chi-Square, and Nonparametric Measures of Association

Problem 7.1. Chi-square and Phi (or Cramer's V)

Problem 7.2. Other (Nonparametric) Associational Statistics

Problem 7.3. Cross-tabulation and Eta

Problem 7.4. Cohen's Kappa for Reliability with Nominal Data

Interpretation Questions

Extra SPSS Problems

ASSIGNMENT DUE:

Parametric one-way analysis of variance Report
Nonparametric one-way analysis of variance Report

Assignment for Final Class Meeting:

Complete Quantitative Research Report
Prepare for Oral Presentation of Quantitative Research Report
Prepare for Poster Presentation of Quantitative Research Report

Final Class Meeting on December 1st

Final Examination:

Oral Presentation of Quantitative Research Report

ASSIGNMENT DUE:

Quantitative Research Report
Poster Presentation of Quantitative Research Report
Chi-square Report
Parametric two-way analysis of variance Report

Evaluation Guidelines

The final course total comprises six components. Each is described below.

1. Each student will be assigned to a cooperative learning group comprising 2-3 students. Each group will write a quantitative research prospectus. This prospectus will represent an abbreviated version of a quantitative research proposal. It is encouraged that the study proposed is in the students' area of research and, if possible, represents a potential dissertation/thesis topic. The proposed investigation MUST provide sufficient information about the statement of the problem, list of potential topics and/or headings for the literature review section, theoretical framework/conceptual framework, rationale of the study, statement of the purpose, research questions, hypotheses, educational significance, population, sampling frame, selection criterion, participants, instruments, procedures, and analyses. "The main body of the quantitative research prospectus (i.e., not including reference pages and appendices) must not exceed 10 pages double-spaced using 12-point font and 1-inch margins. Please note that complete and consistent references must be provided." Please note that the quantitative research prospectus will not be scored; however, detailed feedback will be given to help each student conduct and write a quality research report.

2. Each student will maintain a statistics notebook that will be handed on a weekly basis. In total, the following 10 statistics procedures will be assigned: (1) parametric correlation, (2) nonparametric correlation, (3) parametric independent samples *t*-test, (4) nonparametric independent samples *t*-test, (5) parametric dependent samples *t*-test, (6) nonparametric dependent samples *t*-test, (7) chi-square, (8) parametric one-way analysis of variance, (9) nonparametric one-way analysis of variance, and (10) parametric two-way analysis of variance. A scoring rubric will be used. Each statistics notebook assignment is worth 20 points.
3. Each group will submit one journal-ready research report using real data. *It is strongly encouraged that archival data be used.* Each research report is worth 100 points. The goal is to allow students to practice conducting reviews of the literature, and collecting, analyzing, and interpreting quantitative data. That is, the research report should contain all the major elements of a traditional published research article. It is expected that, upon completion of the report, students will be very familiar with the research process. As such, the research project will play a major role in *demystifying the research process*. A scoring rubric will be used. The journal-ready research report is worth 100 points. For each individual, his/her group score will be weighted by the participation score, such that if he/she receives 100% of the participation points available, his/her individual score will be exactly equivalent to the group score. If the student receives 90% of the participation points available, his/her individual score will be worth 90% of the group score, and so on.
4. Each group will conduct a 15-minute professional presentation of the journal-ready research report. The goal is to give students an opportunity to present their research findings in a formal setting. Detailed feedback will be given via a scoring rubric. The presentation is worth 50 points. For each individual, his/her group score will be weighted by the participation score, such that if he/she receives 100% of the participation points available, his/her individual score will be exactly equivalent to the group score. If the student receives 90% of the participation points available, his/her individual score will be worth 90% of the group score, and so on.
5. Each person will participate in a poster session, which will be presented to students and/or faculty at Sam Houston State University. The goal is to give students an opportunity to share their research findings to fellow academicians. The poster presentation is worth 50 points. For each individual, his/her group score will be weighted by the participation score, such that if he/she receives 100% of the participation points available, his/her individual score will be exactly equivalent to the group score. If the student receives 90% of the participation points available, his/her individual score will be worth 90% of the group score, and so on.
6. Each student will maintain a reflexive journal. This journal labeled, "CNE 787 Reflections," should be updated on at least a weekly basis. Indeed, it should consist of experiences, thoughts, reflections, opinions, and attitudes towards the CNE 787 course. In particular, students are encouraged to delineate their experiences both

within and outside the classroom. These journals, which must be typed (e.g., Word document), are worth 100 points. All information will be kept confidential.

GRADES

A = 500-450

B = 449-400

C = 399-350

D = 349-300

F = Below 300

FOR YOUR INFORMATION

- ✓ If you are a student with a disability that may affect your academic performance, please contact the professor as soon as possible or you may contact the Director of the Counseling Center as chair of the Committee for Continuing Assistance for Disabled Students at 294-1720.
- ✓ Academic honesty is expected in this class. Plagiarism is a violation and will result in course failure.
- ✓ Attendance. Spring & Fall attendance policy. Students are permitted to miss one class (4 hours) with no penalty, but a call to the professor of the class is expected. A second absence will require that the student submit a letter to the Department of Educational Leadership & Counseling Faculty explaining the circumstances of the absence. The faculty will decide if the second absence should be excused. If it is not excused, a deduction of a letter grade for the course will occur. Subsequent absences will result in automatic letter grade reductions. Summer attendance policy is different. You will be permitted one excused absence (one class period). Subsequent absences will result in a deduction of one letter grade per absence.
- ✓ Religious Holidays. An institution of higher education shall excuse students from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence. A student who plans to miss a class or required activity to observe a religious holy day should inform the professor in writing prior to planned absence.
- ✓ Late assignments will be penalized by one letter grade for each 24-hour- period they are not turned in.
- ✓ The syllabus is subject to change pending notification.

PLAGIARISM: WHAT IT IS

The following comments are taken verbatim from Campbell, Ballou, and Slade's (1986) book entitled, Form and Style Theses, Reports, Term Papers (7th ed.).

"Quotations in a research paper, thesis, or dissertation can be of two types: indirect (paraphrased or summarized), or direct (verbatim). Both indirect and direct quotations must be documented. That is, you must indicate the source either with parenthetical documentation accompanied by a list of works cited...

Plagiarism-the use of another person's ideas or wording without giving proper credit-results from the failure to document fully and accurately. Ideas and expressions of them are considered to belong to the individual who first puts them forward. Therefore, when you incorporate ideas or phrasing from any other author in your paper, whether you quote them directly or indirectly, you need to be honest and complete about indicating the source to avoid plagiarism. When intentional or unintentional, plagiarism can bring serious consequences, both academic, in the form of failure or expulsion, and legal, in the form of lawsuits. Plagiarism is a violation of the ethics of the academic community.

Any fact or opinion that you read in one of your sources, whether you first discovered the idea there or have assimilated it so thoroughly that it seems to be your own, should be documented in your paper. Two exceptions are facts that are common knowledge (e.g., John Hancock signed the Declaration of Independence) and facts that can be verified easily and would not differ from one source to another (the headquarters of the Common Market are in Brussels, Belgium). Under most circumstances, these kinds of materials would not need to be documented. On the other hand, material available in only one source or a limited number of sources (a fact about changes in the birth rate in China) should usually be documented." (p. 59).

In reference to note taking, Campbell, Ballou, and Slade (1986) state: "When you write a summary during note taking, you must be careful to avoid inadvertently using the author's wording. Changing an occasional word or reversing the order of phrases or sentences does not result in an adequate summary. A good discipline is to try to write a summary without looking at the source. After writing a summary, look at the original and make a critical comparison, checking for duplication of wording and accuracy in statement of the ideas. If you find that you have used more than two consecutive words from the original (with the exception of articles or prepositions), place them in quotation marks. Carelessness in writing a summary can result in unintentional plagiarism...Even though the summary contains your own words, you will want to give credit for the ideas if you use them in your paper. Be as careful about recording the author's name and page numbers for a summary or paraphrase as you would be for a direct quote." (p. 14-15).

Commenting about paraphrasing, Campbell, Ballou, and Slade (1986) add: "Your paraphrase or summary should represent the source's ideas accurately, avoiding distortion through misstatement or improper emphasis. At the same time, your summary should be

stated entirely in your own words. Avoid imitating sentence structure, rearranging words and phrases, and borrowing phrases even of two or three words, since these constitute plagiarism. If you find that you cannot avoid using a phrase from the original, place the words in quote marks. Even when you have restated a passage completely in your own words, indicate that you encountered the information in your reading by " (p. 59-60) citing the reference and including the reference on your reference page.