Characteristics of Research

1. Research involves gathering new data or using existing data for a new purpose from primary or first-hand sources. An individual is assigned to a so-called “research project” that involves writing a paper dealing with the life of a prominent person. The individual is expected to read a number of encyclopedias, books, or periodical references and synthesize the information in a written report. This is not research, for the data are not new. Merely reorganizing or restating what is already known and what has already been written is not research, valuable as it might be as a learning experience. It adds nothing to what is known.

2. Research is directed toward the solution of a problem. A problem states a relationship between two or more variables. One variable may be an effect. Research always involves an analysis of the relationships between causes and effects which imply the possibilities of empirical testing. Certain interesting problems do not lend themselves to research procedures because they are metaphysical, they cannot be tested empirically. Research rejects revelations and dogma as methods of gaining reliable knowledge and accepts only what can be verified by observation. Research is more than information retrieval - the simple gathering, computation and organization of statistical information. Although many school research departments gather and tabulate factual information that may be useful in decision making, these activities are not properly termed research.

3. Although research activity may, at times, be somewhat unsystematic, it is more often characterized by carefully designed procedures, always applying rigorous logical analysis. Although trial and error are often involved, research is rarely the result of blind shotgun investigation - trying something to see what happens.

4. Research places emphasis upon the development of sound theories or upon the discovery of general principles that will be helpful in predicting future occurrences. Research goes beyond the specific objects, groups, or situations investigated, and infer qualities of a target population from those observed in a sample group.

5. Research requires expertise. The researcher knows what is already known about the problem under investigation. He/She has searched the related literature carefully. He/She is thoroughly grounded in the terminology, the concepts, and the technology necessary to understand and analyze the problem.

6. Research involved accurate observation and description. The researcher uses quantitative, numerical measuring devices, the most precise means of description. He/She selects or
devices valid data-gathering instruments, and employs appropriate mechanical, electronic, or psychometric devices to improve on the accuracy of human observation, recording, computation, and analysis of data.

7. Research is logical and objective, applying every possible test to validate the procedures employed, the data collected, and the conclusions reached. The researcher strives to eliminate personal feeling and bias. There is no attempt to persuade or to prove an emotionally-held conviction. The emphasis is on testing (probing) rather than on proving the hypothesis. Although absolute objectivity is probably as elusive as pure righteousness, the researcher tries to suppress bias and emotion in the analysis.

8. Research is characterized by patient and unhurried activity. Research is rarely a spectacular activity and the researcher must expect disappointment and discouragement in pursuing the answers to difficult questions. The researcher must suspend judgment to permit the logical analysis of data to lead to sound conclusions.

9. Research sometimes requires courage. The researcher must be willing to follow procedures to conclusions that may be unpopular and that may bring social disapproval. The Polish scientist Copernicus (1473-1543) condemned by church authorities when he announced his conclusion not the earth, was the centre of the solar systems is in direct conflict with the older Ptolemaic theory, angered supporters of prevailing religious dogma, who viewed his theory as a denial of the story of creation as described in the book of Genesis.

10. Research is carefully recorded and reported. Every important term is carefully defined, limiting factors are recognized, procedures are described in detail, references are carefully documented results are faithfully recorded and conclusions are presented cautiously and with scholarly restraint. The written report with accompanying data is made available for the report will have the information necessary to analyze and evaluate the process and the conclusions reached. The report will be presented in sufficient detail so the investigation could be replicated for the purpose of verification.