

# Fundamentals of the scientific method and research

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Webster dictionary defines scientific method as the collection of data through observation and experiment, and the formulation and testing of hypotheses. Basically, the scientific method has five steps, in which each step is crucial to finding answers. The Scientific method is used in the Human Service industry to help find solutions to social through Quantitative and Qualitative research which this paper will thoroughly discuss. The first step in the Scientific method is to define the problem. In order to find solutions to a problem the problem must be pinpointed and then ways to observe and measure must be determined. The second step is to state a hypothesis. This was something from a long time ago and it doesn't have to be done this way but stuck in my head. My middle school science teacher taught us that this is a question. It should start with " If", and finish with " then" so that it is turned from an assumption into a question. A good example ago but would be, if we made more employment seeking services available to those receiving unemployment checks, food stamps, and other assistance and put more strict weekly guidelines on searching for employment then would it reduce the time that they will be unemployed or on government assistance? The third step would be to reason the outcome through deductive reasoning in order to find ways to determine if the hypothesis is true. The fourth step is to begin collecting data. In this case that I mentioned there will need to be some experimenting with new programs and new guidelines, then observation. We will also need to begin researching new and old information on this topic. The fifth and last step would be to confirm or reject the hypothesis. We can do this by measuring the success rate and a timeframe of seeking unemployment. This study could take months to conclude, and

would probably include different objectives to see which one is the most beneficial. People are very complex and when conducting research on social situations and problems there is no way to “prove” a hypothesis, in my opinion this is because some things are not directly observable, such as certain values or attitudes that are verbally spoken. Every person is different and acts differently according to the situation. Therefore, we can say what is likely or what seems to be determined from the hypothesis, but know that it may not be the solution for everyone experiencing the same problem.

Qualitative Research is defined as the type of research that is applied in sociology, psychology, social sciences in general. Qualitative Research is considered a non-numerical data experimentation and assessment.

Quantitative Research is the numerical data experimentation and assessment. It is the type of research generally applied to the natural sciences field, e. g. Mathematics, Chemistry, Physics, etc. Qualitative research is best when used in social situations because it is not limited to just numbers and one word data tracking. However, we can combine both Qualitative and Quantitative research in some situations to get the best collection of data for that particular topic. An example of this would be the above situation when discussing those on unemployment or government assistance. When collecting data there is both room for numerical gathering such as how many months assistance was given, and then room for detailed explanation on how well the program worked for each individual and what factors were contributed. I read an article that gave some examples on when to use quantitative and qualitative research. Here I will cite some examples, “What is the effect of crossing legs on blood pressure measurement (Keele-

Smith & Price Daniel, 2001)". The answer would be Quantitative. " What are the experiences of black fathers concerning support for their wives/partners during labor? (Sengane and Cur, 2009). " This example would be Qualitative. Mixed method research is when both quantitative and quantitative research is used. " Many researchers argue that the worldviews/paradigms that underpin qualitative and quantitative research are so opposing that this cannot be done. Many others believe that using methods from both paradigms can be very complimentary and enriching". I have to agree that many times the type of research will fall under one category however; I see the benefits from using both in many situations. Like the one I mentioned, and also a study showing the statistics of single parent families and the cause. Scientifically sound research does support functions of a human service manager. In this field there will always be continuous research on ongoing and new topics and situations. Sound research is evidence based therefore it is safe to use the information obtained through research and apply it the best way. When research is done and then used correctly it will strengthen the quality of the services being offered. References Jones, ., & Barlett, . (). Quantitative or Qualitative Research or both. , (), Chapter 3 Rosnow, R. L., & Rosenthal, R. (2008). Beginning behavioral research: A conceptual primer (6th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.