

Fundamentals of research

Science



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Fundamentals of Research Fundamentals of Research This paper will discuss the connection between scientific methods and research in the human services field. By comparing and contrasting, qualitative and quantitative research as well as the describing steps involved in scientific method is answered using realistic examples that may be used in the human service field. The pros and cons of the mixed methods are identified are relevant in the human service environment. The Scientific Method and Human Services

" A scientific method is described a scientific approach to research and mainly depends on empirical reasoning; which discusses the use of combining logic and the use of careful observation and measurement that is accessible to other researchers" (Rosnow & Rosenthal, 2008, p. 20). In other words, scientific method is a method to gather information, conduct an experiment, and produce a hypothesis. Researchers use the data from different sources, such as a survey, questionnaire, interview, or polls to formulate hypothesis or an educated guess). Descriptive, relational, and experimental research can be used in the human services field. For example, " descriptive research consists of researching how things are. Relational researching describes how things are in relation to other things. Experimental research is a combination of descriptive and relational research" (Rosnow & Rosenthal, 2008, p. 20). The hypothesis is a base for discovering who did what and why. For example, researchers in the human services field can use descriptive research to look at the characteristics of an alcoholic teenager. They may also focus on how it may affect the teenager's relationships with others, behavior, performance in school, and obtaining, and maintaining his or her first job. Scientific methods are valuable assets within the human service and related fields because; the method helps

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determine new and improved ways to assist a client with his or her crisis.

Steps in the Scientific Method The steps included in scientific methods are identifying research, reviewing literature, specifying a purpose for the study, data collection, analyze or interpret the collection of data, as well as report and evaluate the research (Creswell, 2008). For example, contributing factors in a student's poor performance in school.

Step 1: Identifying the research A student has poor performance in school.

Step 2: Reviewing literature. Select and research the statistics have contributing factors that lead to the poor performance in school.

Step 3: Specifying the purpose for the study. Student's poor performance is because of unexpected circumstances.

Step 4: Data Collection Approximately 25% of students in school encounter uncontrollable circumstances before and during a course of study.

Step 5: Analyzing or interpreting Data Poor performance may be due to financial, mental, emotional, or physical difficulties.

Step 6: Report and Evaluate results of Research The research has found that the poor performance before and during a course of study is typically among students who are affected by one or more of the above instances. This occurs in about 100 out of 500 students.

Quantitative and Qualitative Research Quantitative researchers decide what is necessary to study by asking specific or constricted questions by the collection of numerical data from participants. For example, the 25% of students display negative affects through some sort of difficulty during at least one course of study. Qualitative research relies on the opinion through answers to general questions during data collection from participants. " This occurs when researchers describe and analyze these words for premise; and conducts the inquiry in a subjective, biased manner" (Creswell, 2008, p. 46). The determining factors focus on deciding what type

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of research to use, such as the type of problem, the audience, and personal experiences. Most students describe the poor performance as frustrating and overwhelming. Some students may begin to cry or lose eye contact during the interviewing process. Methodology “ Methodologies suggest how inquiries are formed by demonstrating problems worth investigating, how to frame a problem, how to develop suitable creation of data collection, and how to make the logical link between them" (Jackson, 2007, p. 23).

Combining both forms of data uses quantitative or qualitative data to gain more improved understanding of a research problem than each one separately. Qualitative research data typically comes from field work (Morse, 2005). Collected data is through interviews, direct observation, and written documents. Morse states that data from an interview is the participant's exact words; relating to his or her experience, opinions, feelings, and knowledge (Morse, 2005). The observation of data is gathered from the behavior of the participant. Some examples of written documents are correspondence, questionnaires, and surveys. Mixed Method Research “ A mixed methods research design is a procedure for collecting, analyzing, and mixing both quantitative and qualitative research and other methods in a single study to understand a research problem" (Creswell, 2008, p. 552). Sometimes qualitative research data is also used during mixed methods (Caracelli & Greene, 1993). To study a larger spectrum, combining multiple methods is feasible. Triangular design, embedded design, explanatory design, and exploratory design are just a few examples of mixed method research. Conclusion When the human service professional uses scientific method, they typically use empirical reasoning to explain the results of data collection. Scientific research helps human service professionals identify

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trends and indifferences among clients to enhance the quality of his or her life. The research also suggests methods to suppress the negative outcomes in the lives of the clients and their family. This is done by using qualitative data using numbers and quantitative data collection using personal experiences, surveys, or polls. References Caracelli, V. J., and Greene, J. C. (1993). Data Analysis Strategies for Mixed-Method Evaluation Designs. Educational Evaluation and Policy Analysis. 15(2) Creswell, J. W. (2008). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (3rd ed.). Upper Saddle River, NJ: Pearson/ Merrill Prentice Hall. Jackson, R. L., Drummond, D. K., & Camara, S. (2007). What Is Qualitative Research?. Qualitative Research Reports In Communication, 8(1), 21-28. doi: 10. 1080/17459430701617879 Morse, J. M. (2005). Qualitative research. In Carl Mitcham (Ed.), Encyclopedia of Science, Technology, and Ethics (pp. 1557-1559). Detroit, MI: Macmillan Reference USA. Rosnow, R. L., & Rosenthal, R. (2008). Beginning behavioral research: A conceptual primer (6th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.