**Definition of Research**

Research in simple terms refers to search for knowledge. It is a scientific and systematic search for information on a particular topic or issue. It is also known as the art of scientific investigation.

According to Clifford Woody research comprises defining and redefining problems, formulating hypotheses or suggested solutions, collecting, organizing and evaluating data, making deductions and reaching conclusions, and finally, carefully testing the conclusions to determine whether they fit the

formulated hypotheses. Thus, research is an original addition to the available knowledge, which contributes to its further advancement. It is an attempt to pursue truth through the methods of study, observation, comparison and experiment. In sum, research is the search for knowledge, using objective and systematic methods to find solution to a problem.

Objectives Of Research:

The objective of research is to find answers to the questions by applying scientific procedures. In other words, the main aim of research is to find out the truth which is hidden and has not yet been discovered. Although every research study has its own specific objectives, the research objectives may be broadly grouped as follows:

1. To gain familiarity with new insights into a phenomenon (i.e.,

formulative research studies)

1. To accurately portray the characteristics of a particular individual,

group, or a situation (i.e., descriptive research studies)

1. To analyze the frequency with which something occurs (i.e.,

diagnostic research studies)

1. To examine the hypothesis of a causal relationship between two

variables (i.e., hypothesis-testing research studies).

**Scientific Research**

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| Scientific research involves a systematic process that focuses on being objective and gathering a multitude of information for analysis so that the researcher can come to a conclusion. This process is used in all research and evaluation projects, regardless of the research method (scientific method of inquiry, evaluation research, or action research). The process focuses on testing hunches or ideas in a park and recreation setting through a systematic process. In this process, the study is documented in such a way that another individual can conduct the same study again. This is referred to as replicating the study. Any research done without documenting the study so that others can review the process and results is not an investigation using the scientific research process. The scientific research process is a multiple-step process where the steps are interlinked with the other steps in the process. If changes are made in one step of the process, the researcher must review all the other steps to ensure that the changes are reflected throughout the process. Parks and recreation professionals are often involved in conducting research or evaluation projects within the agency. These professionals need to understand the eight steps of the research process as they apply to conducting a study.  **Steps of scientific research**  **Step 1: Identify the Problem**  The first step in the process is to identify a problem or develop a research question. The research problem may be something the agency identifies as a problem, some knowledge or information that is needed by the agency, or the desire to identify a recreation trend nationally. http://www.humankinetics.com/AfcIcon/Icons/Blank.gif |
| **Step 2: Review the Literature**  Now that the problem has been identified, the researcher must learn more about the topic under investigation. To do this, the researcher must review the literature related to the research problem. This step provides foundational knowledge about the problem area. The review of literature also educates the researcher about what studies have been conducted in the past, how these studies were conducted, and the conclusions in the problem area.  **Step 3: Clarify the Problem**  Many times the initial problem identified in the first step of the process is too large or broad in scope. In step 3 of the process, the researcher clarifies the problem and narrows the scope of the study. This can only be done after the literature has been reviewed. The knowledge gained through the review of literature guides the researcher in clarifying and narrowing the research project. In the example, the programmer has identified childhood obesity as the problem and the purpose of the study. This topic is very broad and could be studied based on genetics, family environment, diet, exercise, self-confidence, leisure activities, or health issues. All of these areas cannot be investigated in a single study; therefore, the problem and purpose of the study must be more clearly defined.  **Step 4: Clearly Define Terms and Concepts**  Terms and concepts are words or phrases used in the purpose statement of the study or the description of the study. These items need to be specifically defined as they apply to the study. Terms or concepts often have different definitions depending on who is reading the study. To minimize confusion about what the terms and phrases mean, the researcher must specifically define them for the study. In the obesity study, the concept of “individual’s health” can be defined in hundreds of ways, such as physical, mental, emotional, or spiritual health. For this study, the individual’s health is defined as physical health. The concept of physical health may also be defined and measured in many ways. In this case, the programmer decides to more narrowly define “individual health” to refer to the areas of weight, percentage of body fat, and cholesterol. By defining the terms or concepts more narrowly, the scope of the study is more manageable for the programmer, making it easier to collect the necessary data for the study. This also makes the concepts more understandable to the reader.  **Step 5: Define the Population**  Research projects can focus on a specific group of people, facilities, park development, employee evaluations, programs, financial status, marketing efforts, or the integration of technology into the operations. For example, if a researcher wants to examine a specific group of people in the community, the study could examine a specific age group, males or females, people living in a specific geographic area, or a specific ethnic group. Literally thousands of options are available to the researcher to specifically identify the group to study. The research problem and the purpose of the study assist the researcher in identifying the group to involve in the study. In research terms, the group to involve in the study is always called the population. Defining the population assists the researcher in several ways. First, it narrows the scope of the study from a very large population to one that is manageable. Second, the population identifies the group that the researcher’s efforts will be focused on within the study. This helps ensure that the researcher stays on the right path during the study. Finally, by defining the population, the researcher identifies the group that the results will apply to at the conclusion of the study. In the example in table 2.4, the programmer has identified the population of the study as children ages 10 to 12 years. This narrower population makes the study more manageable in terms of time and resources.  **Step 6: Develop the Instrumentation Plan**  The plan for the study is referred to as the instrumentation plan. The instrumentation plan serves as the road map for the entire study, specifying who will participate in the study; how, when, and where data will be collected; and the content of the program. This plan is composed of numerous decisions and considerations that are addressed in chapter 8 of this text. In the obesity study, the researcher has decided to have the children participate in a walking program for six months. The group of participants is called the sample, which is a smaller group selected from the population specified for the study. The study cannot possibly include every 10- to 12-year-old child in the community, so a smaller group is used to represent the population. The researcher develops the plan for the walking program, indicating what data will be collected, when and how the data will be collected, who will collect the data, and how the data will be analyzed. The instrumentation plan specifies all the steps that must be completed for the study. This ensures that the programmer has carefully thought through all these decisions and that she provides a step-by-step plan to be followed in the study.  **Step 7: Collect Data**  Once the instrumentation plan is completed, the actual study begins with the collection of data. The collection of data is a critical step in providing the information needed to answer the research question. Every study includes the collection of some type of data—whether it is from the literature or from subjects—to answer the research question. Data can be collected in the form of words on a survey, with a questionnaire, through observations, or from the literature. In the obesity study, the programmers will be collecting data on the defined variables: weight, percentage of body fat, cholesterol levels, and the number of days the person walked a total of 10,000 steps during the class.  The researcher collects these data at the first session and at the last session of the program. These two sets of data are necessary to determine the effect of the walking program on weight, body fat, and cholesterol level. Once the data are collected on the variables, the researcher is ready to move to the final step of the process, which is the data analysis.  **Step 8: Analyze the Data**  All the time, effort, and resources dedicated to steps 1 through 7 of the research process culminate in this final step. The researcher finally has data to analyze so that the research question can be answered. In the instrumentation plan, the researcher specified how the data will be analyzed. The researcher now analyzes the data according to the plan. The results of this analysis are then reviewed and summarized in a manner directly related to the research questions. In the obesity study, the researcher compares the measurements of weight, percentage of body fat, and cholesterol that were taken at the first meeting of the subjects to the measurements of the same variables at the final program session. These two sets of data will be analyzed to determine if there was a difference between the first measurement and the second measurement for each individual in the program. Then, the data will be analyzed to determine if the differences are statistically significant. If the differences are statistically significant, the study validates the theory that was the focus of the study. The results of the study also provide valuable information about one strategy to combat childhood obesity in the community.  As you have probably concluded, conducting studies using the eight steps of the scientific research process requires you to dedicate time and effort to the planning process. You cannot conduct a study using the scientific research process when time is limited or the study is done at the last minute. Researchers who do this conduct studies that result in either false conclusions or conclusions that are not of any value to the organization. |