
Improved Management Understanding of Research Through Concepts and Preliminary Studies for Empirical Problem Solving

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Abstract

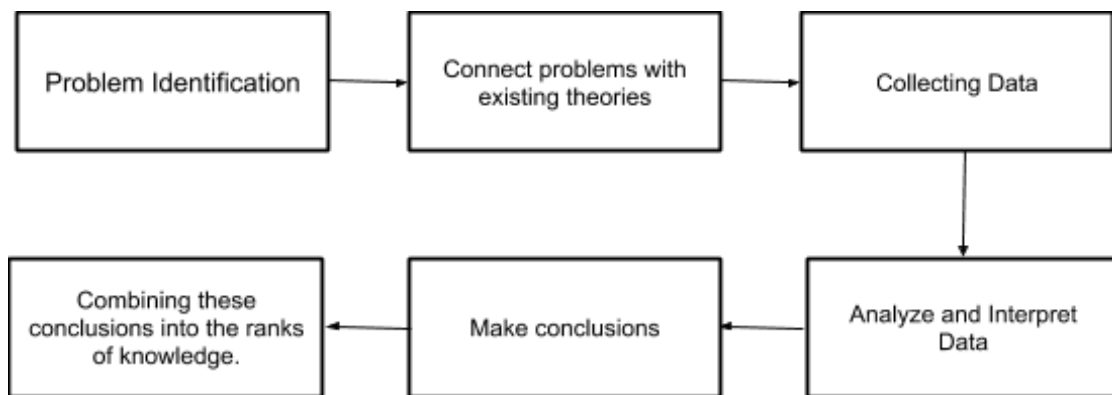
In the process of job management, many problems are faced. So that good management is needed, which is required to provide problem solving. Problem solving is done by conducting research on objects, in order to produce quality management. Research is a way to objectively seek truth, where truth here is not only conceptually or deductively obtained, but also must be tested empirically. The purpose of this paper is to provide an understanding of 10 (ten) basic research, as a form of research management, namely the understanding of research, research, research steps, motivation and research objectives, research processes, characteristics of research, preliminary studies, benefits and objectives preliminary studies, how to conduct preliminary studies, concepts of research methods and methodologies.

Keywords: *Research Management, Research Methodology, Empirical Testing, Problem Solving.*

1. Introduction

The progress of management science is currently growing very rapidly, starting from research, theory testing, or problem solving. It is perfectly obvious that the problem must exist in every management job and has been known that resolving the issue is very important. The problem is not an ordinary problem in the sense that the solution can be obtained directly. Research is a series of activities to find and express truth with the characteristics of objectivity, the truth produced is not only deductively or conceptually, but must be tested empirically[1]. Empirical means that the data obtained from direct observation of a person or group.

For example in the case of management that is so complex and large, namely financial management, various accounting systems emerged with the aim of providing significant progress, namely systems that started manually or offline, could run online from a wide internet network that could provide convenience to users[2]. The developing system needs to be researched first, prepared with good procedure management, also considering whether the system can solve the problems that occur or not, because doing a research is an organized investigation to present an information in an effort to solve problems and produce management quality[3].



Picture. Stages of Research

Figure 1 explains that research can be said to be systematic if it follows the 6 (six) steps above. Scientific research management was controlled, unlike the problems that might be solved only in passing. In the management of scientific research, each step is planned so that the guesswork or hypothesis is not contained in it. Thus the recommendations put forward are based on findings and conclusions. The conclusions made can be used as a basis in making a decision[4]. In making a decision, analysis is needed first of the process of identifying data that is owned by management, where the result is a very important information because it is a substitution of constraints, resulting in a wise decision[5].

In general, research management is defined as a step or process of collecting and analyzing data that is carried out systematically and logically to achieve certain goals. Data analysis can be done using a method of collecting data in the form of observation, interviews and literature review[6]. Data collection and analysis can use scientific methods, both quantitative and qualitative, experimental or non-experimental, interactive and non-interactive[7]. These methods have been intensively developed, through various trials so that they have standard procedures. The research method is sometimes also called "research methodology"[8] in a broader sense it can mean "design" or research design. This design contains the formulation of the object or subject to be studied, techniques for collecting data, procedures for collecting data until the analysis process with regard to the focus of a particular problem.

In the current disruptive era, there are many research management that prioritize systematic procedures or steps in order to produce good quality management, one of which is the business intelligence management system (BIS). The Business Intelligence System (BIS) is a collection of procedures and resources used by managers to obtain information regularly about the development of the company, with the aim of providing quality management that is in line with expectations of achievement. BIS has been used by various organizations in managing data and information with the support of decision making and will become a company's basic needs in the future. The existence of BIS will help the organization in achieving the desired conditions, in the form of improving the management process and service process (service delivery process)[9].

From the explanation above, the author intends to provide an understanding of research management, so that it can be used as a consideration in management decision-making. So that every problem faced, can be arranged systematically using research management rules, to be able to produce quality management. So, with this, the author takes the research title **"Improved Management Understanding of Research Through Concepts and Preliminary Studies for Empirical Problem Solving"**.

2. Research Method

Writing this research management literature study method, which could be used as the basis of research, through a variety of previous studies that have a correlation direction of the research will be discussed[10]. There are 10 (ten) studies used, as follows:

1. The research conducted by Asep Hermawan in 2005 with the title "Quantitative Business-Paragidm Research". This study aims to provide a study in the form of understanding the preparation of research specifically for thesis students in the field of business, the discussion of this study focused on the research process with a quantitative paradigm. The quantitative paradigm research is an objective research approach, which includes collecting and analyzing quantitative data, and using statistical testing methods[11].
2. Research conducted by Arikunto in 2010 with the title "Action Research". Explained that research is a process that consists of several steps that must be considered. This step is not something sequential or steps that must be followed rigidly. The research process is something interactive between researchers with logic, problems, design and interpretation. Starting from identifying problems, formulating and limiting problems, conducting library studies, formulating hypotheses, determining design and research methods, compiling instruments and collecting data, analyzing data and presenting results, and interpreting findings and giving suggestions and conclusions[12].
3. The research conducted by ER Babbie in 1998 with the title "The Practice of Social Research". This study explained that the research method is basically a scientific way to obtain data with the purpose and usefulness. The scientific method has rational, empirical, and systematic characteristics. Rational means that research is conducted in reasonable and affordable ways of human reasoning or logic. Empirical means that research is carried out based on facts in the field that can be tested by other people or other parties. Then, systematic research means a certain logical process[13].
4. The research was conducted by Peter M Nardi in 2018 with the title "Doing survey research: A guide to quantitative methods". This research guides readers to understand the components of research, and learn how to carry out research. Aims in making decisions about which statistics are used, and analyze statistical findings with the goal of everyone in the world that is oriented to current research. It was also explained that questions about the reliability and validity of data from studies or public opinion polls appeared regularly and needed critical review[14].
5. The research conducted by A Bryman and E Bell in 2015 with the title "Business Research Methods". This research is the latest empirical research that provides a thorough introduction to business research methods for broader issues in the fields of business and management, including quantitative and qualitative research, and to assess the significance of differences in methods of the research. Show readers how to do a research project and how to compile the research writing[15].
6. The research was conducted by Untung Rahardja, Qurotul Aini, and Fitri Faradilla in 2018 with the title "Viewboard Implementation Based on Javascript Interactive Charts in Lecture Valuation Systems". This study explained that there are several things that must be considered so that deficiencies and problems that occur can be handled, there are 7 (seven) research methods that can be used in problem solving, namely problem formulation, research design, data collection, data processing, data presentation, data analysis, as well as research reports[16].
7. Research conducted by Henderi, Indri Handayani, and Meta Amalia Dewi in 2012 with the title "Business Intelligence Development Model Using Star Schema Methodology". This study describes the business intelligence system that uses a research methodology in solving the problem, the method of measurement of star schema as a more optimal performance of the company. Business intelligence using star schema methodology created to display data such as charts, graphs, and tables making it easier to analyze and make decisions well. By using a star schema, the implementation of a model for multi-dimensional data analysis is easy. In addition, database operations with a relational structure are also still possible[17].

8. The research conducted by Sri Haryati in 2012 with the title "Research and Development (R & D) as one of the research models in education". This study explains that the research methods used to produce a solution to the problem, with up to test its effectiveness. The first is to identify needs, secondly develop the research, third test the effectiveness of the methods produced. This method can be in the form of models, patterns, procedures, books, packages or programs[18].
9. The research conducted by Mulyatiningsih in 2016 was titled "Development of Learning Models". This study describes the role of research methods in the development of learning systems, each research method used must have a different research model, the learning system research model can choose one of the system components but in its application must consider the other system components[19].
10. Research conducted by HP Setyosari in 2016 with the title "Educational research & development methods". This study explains that, the results of research and conceptual thinking as outlined in the form of reference or guide will assist the work of the management. With regard to research activities and thoughts conveyed by others it is very demanding for management in terms of research skills to support these professional activities[20].

3. Results and Analysis

From the problems that have been explained in the previous discussion, an understanding of 10 (ten) basic studies is needed, which is a form of research management, as:

3.1 Definition of Research

Research is an attempt to develop knowledge, and test theory. There are five (5) steps in the development of knowledge through research, are (1) identify research problems, (2) conduct empirical studies, (3) carry out replication or repetition, (4) integrate or synthesize and review, (5) use and evaluate by the implementer. When the data is collected, the empirical evidence now been obtained to then support or reject hypotheses formulated before. This empirical data is used as the basis for drawing conclusions. The ultimate goal of a science is to develop and test theory. A theory can explain and predict natural phenomena. From behaviors or activities regardless of what is done by students or teachers for example, researchers can provide a general explanation of the relationship between behaviors or learning activities. From these general explanations basic principles, propositions, constructs, propositions are formed, all of which will make a theory.

Research is essentially a scientific activity to obtain correct knowledge about a problem. The knowledge obtained in the form of facts, concepts, generalizations, and theories that allows humans to understand phenomena and solve problems. Problems that will be answered through research are called research problems. Research problems can arise due to many things. Problems arise because humans experience difficulties in life, namely the existence of discrepancies or gaps between the expected and actual reality (das sein with das sollen).

3.2 Research

Scientific search (scientific inquiry) is an activity to find knowledge by using methods that are systematically organized, in collecting, analyzing, and interpreting data. Scientific understanding is different from science. Science is a structured body or structure of knowledge, while science is a way of developing knowledge. The scientific method is a method of assessment that contains a process with certain steps. According to McMillan and Scumacher (2001), the scientific method is divided into 4 (four) steps, there are:(1) Define a problem, (2) State the hypothesis to be tested, (3) Collect and analyze data, and (4) Interpret the results and draw conclusions about the problem[21].

3.3 Research Steps

Research is a process consisting of several steps. This step is not something sequential or steps that must be followed rigidly. The research process is something interactive between researchers with logic, problems, design and interpretation. According to Arikunto (2010), there are 8 (eight) steps of research[12]:

- a. **Problem identification:** Research activities begin by identifying important, actual, and crucial issues and problems faced today, and which have the most meaning or usefulness if the issue or problem is examined.
- b. **Defines and limits the problem:** The problem formulation is the formulation and mapping of factors, or variables related to the focus of the problem. These factors or variables are underlying or caused by the focus of the problem. Because the factors or variables associated with the focus of the problem are quite a lot, then there needs to be management in the form of limiting factors or variables, which are limited to the dominant factors or variables.
- c. **Study Literature:** It is an activity to study theories that form the basis of research, both theories relating to the field of study and methodology. In the literature study also examined things that are empirical based on the findings of previous research.
- d. **Formulating hypotheses:** The main things you want to get from research are formulated in the form of hypotheses or research questions. The hypothesis formulation is made if the research uses a quantitative approach by processing inferential statistical data.
- e. **Determine the design and method of research:** The design of the study contains the formulation of the steps of the study, using approaches, research methods, data collection techniques, and certain data sources and the reasons for using the method.
- f. **Develop instruments and collect data:** data collection activity begins with determining technique, preparation and testing of data collection instruments that will be used. In the data collection exercise, in addition to the objectivity and accuracy of the data to be acquired, aspects of legal and ethical in the implementation process needs to be addressed.
- g. **Analyze the data and present the results:** The data describes the technique and the steps taken in processing or analyzing data.
- h. **Interpreting the findings, make conclusions and suggestions:** The results of the data analysis is still shaped the findings that have not been given meaning. Giving meaning or significance of the findings made by interpretation. Interpretation is made by looking at the meaning of the relationship between findings with one another, between findings with contexts or things that are the background, with theories that support it or with the possibility of its application. The conclusion is the generalization of the results of the interpretation of the research findings.

3.4 Motivation and Research Objectives

To understand the nature of research, we must first understand the motivations of researchers in research. Each researcher certainly has different goals and motivations, even the research profession determines the differences. A consultant, student, lecturer, business practitioner, or teacher certainly has different motivations and goals in research. However, basically every researcher has the same motivation and purpose, which is to solve the problem and satisfy the curiosity of every phenomenon that is faced.

When dealing with phenomena that attract attention, humans will try to find facts to explain the phenomenon. Many questions that come to mind would be pushing it sought answers by collecting a number of facts. A collection of facts is called data and will be analyzed with certain techniques so that he can draw conclusions. That conclusion is expected to be able to provide an explanation of the phenomenon. So, the nature of research can be explained as follows: making observations of facts (phenomena), identifying problems, and trying to collect data through theoretical studies by reviewing literature and through empirical studies by observing the field to answer these problems. The purpose of the research is to obtain knowledge in order to be able to answer questions or get solutions to problems faced.

3.5 Research Characteristics

According to Kerlinger (2006), there are 3 (three) characteristics of research, there are: (1) the purpose of research, (2) research methods, and (3) the relationship between research and science[22].

3.6 Research Process

The process of research in general can be summarized as follows: (1) determine the problem of the study, (2) conduct a theoretical analysis, and (3) do the testing of facts. The problem discovery process involves identifying problem areas, selecting or finding the subject matter, and ending with the formulation of the problem.

3.7 Preliminary Studies

According to Sangaji (2010), the preliminary study is a two-step exploration, there are discovery and experience. The first step in a research activity is to choose a problem. Then, immediately before the actual research, researchers need to conduct a prospective pilot study. Pilot study was conducted to discover more about the problem. With the discovery and experience of the issues to be investigated, then researchers can determine the likelihood of the continuation of the work examined. So, a preliminary study also aims to find information needed by researchers so that the position of the problem is clearer[23]. In this study, a prospective researcher must obtain and collect as much information as possible about the problem to be studied. In the field assessment, researchers must pay attention to 4 (four) of the following: a. Conducting formal and informal relationships. b. Getting permission. c. Cultivating mutual respect and trust. d. Identify respondents as informants.

Preliminary studies include the introduction of a study. The study itself is a process of systematically looking for something in a relatively long time to use the scientific method as well as the rules and regulations. Research also requires an introduction. With the introduction, a reader can find out effort or intent of the researchers. In the introduction there are elements to clarify the problem and the reason researchers want to solve the problem you want investigated. From the introduction, prospective researchers can clarify the statements in question. If there are earlier studies of prospective researchers, the prospective researchers can provide arguments make it clear that research is worth doing. Then, prospective researchers must be able to make a preliminary study that is truly real and not artificial. So research can provide many assumptions for readers.

3.8 Benefits and Objectives of the Preliminary Study

According to F. Hair. Jr et al (2008), the main objective in the discussion of the preliminary study was to facilitate the prospective researcher to explore and clarify the problems to be studied, then a preliminary study was also conducted to achieve the following objectives: 1. Knowing the reasons for the need or should do research. 2. Knowing how a candidate will perform research investigators. 3. Knowing who will benefit from the research. 4. Comparing the problems that have been with previous studies[24].

3.9 How to Conduct Preliminary Studies

According to Brannen (2005), a preliminary study was carried out by gathering information from 3 (three) objects that must be contacted, seen, researched or visited, there are: 1. Paper; documents, books, magazines or other written material, whether in the form of theories, research reports, or previous inventions. The study is also called literature study or literature. 2. Person; meet, ask questions, and consult with experts or human resources to obtain information. 3. Place; conduct a review of the place or location of the study to see objects or events[25].

3.10 Concept of Method and Research Methodology

The research method consists of 2 (two) words: methods and research. The method is derived from the Greek meaning *methodos* way or road to reach the goal or objective in solving a problem. The word that follows is *research* which means an attempt to achieve something with a certain method, by means of careful, systematic and perfect to the problems being faced. Thus, the research method is a method or procedure for *memperoleh* solutions to the problems being faced. Research methods include research tools and procedures. The research method guides the researcher according to the sequence of research work from the beginning of the study to the end of a study.

The research methodology comes from the word *method* which means the right way to do something and *logos* which means science or science. So, the methodology means how to do something by using the mind carefully to achieve a goal. The research methodology is a branch of science that discusses or questions ways to carry out research based on facts or symptoms scientifically.

More broadly it can be said that research methodology is the study of ways of making observations with the right thinking in an integrated manner through the stages that are arranged scientifically to find, compile and analyze and conclude data so that it can be used to find, develop and test the truth of a knowledge. So, research methodology is the knowledge of the path that is passed to reach the understanding of the road must be determined with scientific accountability and the data sought to build or obtain understanding must be through the requirements of accuracy, meaning that the truth must be trusted.

4. Conclusion

After describing the explanation above, there are 4 (four) conclusions can be drawn in this study:

- a. There are 8 (eight) steps in the research that need to be considered as a reference in good research management, so that it can produce problem solving from the problems faced.
- b. The first step in research is to determine the problem.
- c. Before conducting real research, prospective researchers need to conduct a preliminary study. Preliminary studies are conducted to explore further about the problem. Preliminary studies also aim to find information needed by researchers so that the position of the problem is clearer.
- d. The preliminary study is a form of study of documents and literature on textbooks and other articles. Everything is examined in the description of the material, the language used, examples of descriptions, and illustrations. Furthermore, various library sources were analyzed and then the results of the preliminary study were compiled.

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