
The Role of a Variety of Research Studies on Problem Management

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Abstract

In the process of finding the truth, factual information is needed, starting from simple methods such as good time management in reading, listening and asking questions, until complex ways of research. So, researchers must understand what types of research can be used as references, to facilitate researchers in doing problem management properly, the results of which are able to solve problems and obtain factual information. This paper describes 7 (seven) different types of research, there are research based on approaches, functions, purpose, characteristics, problem characteristics, research process, and measurement techniques and data analysis. The explanation's purpose of the variety of research is to provide insight into the management of the problems that occur with the planning carried out by the researcher, especially in terms of literature, so that before considering various stages of planning and doing research, researchers can also consider the main features of certain forms of research that are well compiled and reported. So, problem management can be done as well as possible to produce valid steps in solving problems.

Keywords: *Variety of Research, Literature, Factual Information, Problem Management.*

1. Introduction

Current technological developments, make human's mindset to information desperately needed [1]. In all aspects of life today, many problems must be sought for truth, so that they can be solved. Need to be considered in the management of existing problems, one of which is to know and understand the variety of research that is developing at this time. Appears a wide range of research management theories that provide benefits for researchers [2]. However, it is very possible for researchers to conduct research, without having to have detailed knowledge about various management research or management problems along with their approach or form of research. Thus, there is no knowledge of various approaches that can provide insight into the planning of researchers regarding literature. Current technological developments, many educational communities such as lecturers and students who contribute to scientific writing such as digital journals or articles [3]. Thus, there is no knowledge of various approaches that can provide insight into the planning of researchers regarding literature. Current technological developments, many educational communities such as lecturers and students who contribute to scientific writing such as digital journals or articles.

Education is one area of life that give a great contribution to the success of a nation [4]. No doubt, many universities are trying to provide good service [5], which is a priority in improving the performance of universities [6] as evidenced by achievement in the form of accreditation a college [7]. It is accompanied by a quality management education is a causal invalidity of the assessment system of the quality and effectiveness of learning methods were applied [8]. Every learning method that is applied indirectly contributes greatly to the research. Every student is required to contribute through research. The contribution given nothing but a

form of learning from the management of the problem was solved by a study [9]. Which is where the final step is to produce good management decisions through the results of information from the research conducted [10].

At present, there are many types of research that can be used as references in problem management. This depends on the objectives, approaches, linearity of science and so on [11]. Each variety of research chosen has different research methods and approaches in data collection. Data collection can use 2 (two) ways, there are literature study method and observation method (direct observation) [12]. But there is no approach that determines or automatically reject a certain method. Quantitative research is conducted by management in gathering facts and investigating the relationship of one set of facts with other facts, using techniques that produce conclusions that can be quantified and if possible can be generalized. While research that uses a qualitative perspective is more focused on understanding individual perceptions about the world [13]. Researchers try to find problem management through insight rather than statistical perceptions of the world. Researchers doubt whether social facts exist and question whether scientific approaches can be used in management of problems when it comes to humans. However, there are opportunities when qualitative researchers base themselves on quantitative techniques or vice versa.

The classification of approaches into quantitative or qualitative, ethnographic, survey, action research, or whatever, does not mean that once an approach is chosen, researchers should not move from methods related to the form of the approach [14] [15]. Each approach has advantages and disadvantages [16], and each one fits a certain context. The approach used and the method of data collection chosen depends on the characteristic of the study and the type of information needed.

From the explanation above, the author is interested in doing research that can provide adequate information about several forms of neatly arranged research. Although the author is aware, that writing in several pages has not been able to provide maximum results, but at least the following explanation will provide a basis for further reading and may provide thoughts about approaches that researchers might want to use in their own investigative investigations. So, with this the author raises the title " The Role of a Variety of Research Studies on Problem Management"

2. Research Method

This paper uses the literature review method, to look for the theoretical basis of previous studies [17] which can be used for problem management. This method is used to gather information and data from multiple sources (literature), books, and journals for literature relevant to the needs of the writing of this paper [18] [19]. There are 5 (five) literature reviews that are used, there are:

1. Research conducted by Indri Handayani, Hendra Kusumah, and Nursohit in 2018 with the title "Prototype Detection of Rainfall and Information Systems Based on ESP8266 on BMKG Tangerang Class I Geophysical Climatology". The study describes 5 (five) research methods used in research, as data collection methods such as observation, interviews, and literature. Analysis method, in this method the author analyzes the existing system with several points of consideration. Design method, through the stages of design through the stages of making a flowchart program and system flowchart with hardware design. The prototype method, using the evolutionary prototype. And the testing method, which is used as an analysis of a system identity to detect, evaluate conditions and desired features [20].
2. Research conducted by N. Walliman in 2017 with the title "Research methods: The basics". The study explained that the research method is the basic material, initial capital, engineering or management in conducting research. Definition of research is a type of investigation carried out with the aim of revealing truth, interesting new facts, and the end result is expected to be in the form of quality information that will be well managed, in order to develop or improve the results of the project being carried out [21].

3. Research conducted by Roni Berger in 2015 with the title "Now I see it, now I don't: Researcher's position and reflexivity in qualitative research". The study explained the potential effects of reflexivity of the social position of researchers such as age, gender, race, immigration status, personal experience, and professional beliefs which are the main strategies in the quality control of qualitative research, where it is important in a study. This study illustrates some examples of cases such as reflexivity when researchers share experiences with study participants, reflexivity when researchers move from outside to inside which is a journey of learning, and reflexivity when researchers have no experience of what has been learned [22].
4. Research conducted by P. Irawan and L. Aslichati in 2014 with the title "Social Research Methods". The study presents 5 (five) basic principles of knowledge and research, such as the basic concepts of science, the basic concepts of scientific research, social research ethics, social research ethics that apply among scientists, and ethical principles in carrying out research. This study also explained that, scientific explanations have special characteristics, there are systematic, verifiable, can be generalized, and have the ability to predict. Scientific research must also be carried out correctly according to research ethics [23].
5. Research conducted by F. Nugrahani and M Hum in 2014 entitled "Qualitative Research Methods". This study explains the problems faced by students and intellectuals in carrying out qualitative research assignments. This research is presented systematically or sequentially in accordance with the steps of implementing research management. Starting from the knowledge of the characteristic of qualitative research to the preparation of research reports that include problem analysis, determining data and data sources, data collection techniques and data analysis techniques [24].

From the 5 (five) literature studies above, the author gained knowledge about the scope of research, starting from the method to the writing of research reports. But through this research, the author wants to explain the variety of studies that can be seen from several perspectives, which can be used as references or used in the management of other researchers' problems.

3. Results and Analysis

From the existence of complicated problems and problem solving, then presented seven (7) a variety of research in management issues, as:

3.1. Research Based on Approaches

Broadly, based on the approach can be divided into 2 (two) types of research, there are quantitative and qualitative research. Both have different research assumptions, characteristics and procedures [25].

a. Assumptions About Reality

Quantitative research is based on the concept of positivism which departs from the assumption that reality is single, fixed, stable, independent of individual beliefs and feelings. Reality consists of parts and elements that are separated from each other and can be measured using instruments. Qualitative research is based on the concept of constructivism, which has the view that reality is plural, comprehensive and is a unit that cannot be separated. Reality is open, contextual, socially including perceptions and individual and collective views, examined by using humans as instruments.

b. Research Purposes

Quantitative research aims to find relationships and explain the causes of change in measurable social facts. Qualitative research is more directed at understanding social phenomena from a participant's perspective. This is obtained through participatory observation in the lives of the people who are participants.

c. Research Methods and Process

Quantitative research has a series of steps or standard procedures that are the responsibility of the researchers. Qualitative research uses research strategies and procedures that are very flexible. Qualitative research uses an emergent design that is refined during data collection. Quantitative research using a closed research design, has been perfectly arranged from the start.

d. Typical Study

Quantitative research uses experimental or correlational research designs as typical studies (prototypical studies) to reduce errors, biases, extraneous variables. Qualitative research uses ethnographic studies to understand the diversity of perspectives in the situation under study, as its trademark. In quantitative research bias and subjectivity are greatly avoided, while in qualitative research subjective matters are included in data collection and analysis.

e. Role of Researchers

In quantitative research, researchers regardless of the object under study, they are prevented from even having a relationship or influence from the researcher. In qualitative research researchers immerse (immersed) with the situation under study. The researcher is a data collector, a person who is an expert and has full readiness to understand the situation, he is a researcher as well as an instrument. Qualitative research is also called "disciplined subjectivity" or "reflective research", researchers conduct critical self-examination (critical self examination) during the research process.

f. The Importance of Context in Research

Qualitative research instead believes in the influence of the situation on things that are observed. A social researcher will not be able to understand human behavior without understanding the life framework of the situation in which the people are. They think, feel and act in the context of their life framework. Qualitative research develops generalizations in the unity of context. Quantitative and qualitative research have different philosophical concepts and assumptions and concepts. Some researchers view both of them as two extremes that are very popular. Nowadays some experts have other views, that both are not impossible to be reunited even put together. The difference between the two approaches is not absolute. The researchers experienced can combine the two approaches, namely quantitative and qualitative research to examine a research problem [25].

3.2. Research Based on Functions

In general and basic three types of research can be distinguished, namely basic research or basic research, applied research or applied research and evaluation research or evaluative research [26].

Basic research has a huge contribution in developing the stem of science or "a scientific body of knowledge". Generalization is an extension of the findings of a study as knowledge for the population and other situations. Basic research findings can enrich the theory. Applied and evaluative research is intended to examine practice, examine the application of theory or evaluate the implementation of programs and activities. The results of these studies can be used to improve educational practices.

a. Basic Research

Basic research is also called pure research or fundamental research, directed at testing theory, with little or no linking the results in the interest of practice. Research covering basic science or technology development. Basic research is the search for something because there is attention and curiosity about the results or an activity [27]. Research that includes the development of science [28]. This research contributed

greatly to the development and testing of theories. Starting from a theory, basic principles or generalizations, basic research is directed at knowing, explaining and predicting natural and social phenomena. Theories can be supported or not supported by experience. Theories supported by empirical facts are called scientific law.

The objectives and benefits of basic research are: 1. As a development and evaluation of theoretical concepts. 2. Can contribute to the development of theory. Basic research can then be classified based on the approach used in the development of theories, namely: 1. Deductive Research. It is a type of research that aims to test hypotheses through theory validation or application theory testing in certain circumstances. 2. Inductive research. It is a type of research that has the purpose of developing a theory or hypothesis through disclosure of facts. This type of research emphasizes disclosure of facts.

b. Applied Research

Applied research is concerned with practical facts, the application and development of knowledge produced by basic research in real life. Basic research functions to produce knowledge to find solutions to common problems, applied research functions to find solutions to problems in a particular field. Applied research is a careful, systematic, and continuous investigation of a problem with the aim of being used immediately for certain purposes[28]. Applied research was also identified as research involving theory to solve certain problem [29].

J.W Creswell (2004) divides 3 (three) types of applied research, as:

1. Research Evaluation. Evaluation research (evaluation research) is research that is expected to provide input or support decision making about the relative value of two or more alternative actions.
2. Research and development. Research aimed at developing products to have higher quality.
3. Action Research. Research carried out to be immediately used as a basis for existing problem solving actions.

This research examines the benefits of scientific theories, knows empirical and analytical relationships in certain fields. The implications of applied research are stated in general formulas, not recommendations which are direct actions. Applied research as well as basic research is abstract and general in certain fields, using language that is prevalent in the field. This research focuses on theoretical and practical knowledge in certain fields, not universal knowledge. The results of applied research add to research-based knowledge in certain fields. The impact of applied research is felt after a certain period of time. After a number of study results are published and discussed within a certain period of time, that knowledge will affect practitioners' thinking and perceptions. Applied research encourages further research, suggests new theories and practices and encourages the development of methodologies.

c. Evaluation Research

Evaluation research is focused on an activity in a particular unit (site). These activities can take the form of programs, processes or results of work, while the unit can be in the form of a place, organization or institution. This study can assess the benefits or uses, contributions and feasibility of an activity in one unit. Does an activity, program or work provide benefits, contributions or results as expected? Is something worthy of activities, programs or work seen in terms of costs, development costs, implementation and distribution, costs for materials, places, staff development, community support.

The implementation of evaluation research requires the ability to communicate with practical language according to the situation under study, but also focuses on aspects that are meaningful to policy makers. Evaluation research helps leaders to

determine policies. The results of evaluation research are not generalized, because evaluation is more related to activities that take place in a particular unit. Evaluation research can increase knowledge about specific activities, and can encourage further research or development. A number of evaluation studies in similar activities carried out in different units can increase knowledge in the applicable fields.

Of three (3) types of research above, the difference is as:

Table 1. Differences between basic, applied, and evaluation research

	Basic Research	Applied Research	Evaluation Research
Field of Research	Physical, behavioral, and social research	Application field: Medicine, engineering, education	Implementation of various activities, programs at various places and institutions
Purpose	-Test theories, arguments, basic principles. -Determine empirical relationships between phenomena and make analysis generalizations	-Test the usefulness of theory in a particular field. -Determine empirical relationships with analytical generalizations in certain fields	Measuring benefits, contributions and feasibility of certain programs or activities.
Level of Generalization	Abstract, General	General but in specific fields	Concrete, specific in certain aspects. Applied in the practice of certain aspects
Use of Result	Add scientific knowledge to certain basic principles and laws. Improve search methodology and methods	- Add knowledge based on research in certain fields. - Improve methodological research in certain fields	- Add knowledge based on research on certain practices. -Increasing research and methodology regarding specific practices. -Help in determining

			decisions in certain fields.
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3.3. Research Based on Characteristic

Based on characteristic, there are 3 (three) types of research reviewed from the type of data, as: First, opinion research. Opinion research is a study of the facts of people's opinions or opinions (respondents). The data studied can be in the form of individual opinions or group opinions. The purpose of opinion research is to investigate the views, or assessments of respondents to a particular problem in the form of respond responses to the respondent or environmental conditions and changes. Second, empirical research. Empirical research is a study of empirical facts obtained based on observation or experience. Empirical research generally places more emphasis on investigating behavioral aspects of opinion. The object under study was emphasized on the actual events rather than people's perceptions of the incidence of case studies and the field and experimental research was an example of this type of research.

Third, archival research. Archive research is a study of written facts (documents) or in the form of data archives. Archived documents based on their sources can come from internal (archives and original records obtained by an organization) or come from external data, namely publication of data obtained through other people.

3.4. Research Based on Purposes

In addition to its approach and function, research also can be distinguished based on its purpose. Based on the purposes distinguished between descriptive research, predictive, explanatory, experimental research, ex post facto research, participation research, and development research.

a. Descriptive Research

Descriptive research is intended to describe a situation or phenomena as they are. Descriptive research is a study of problems in the form of current facts of a population which includes activities to assess attitudes or opinions of individuals, from a population that includes activities to assess attitudes or opinions of individuals, organizations, circumstances, or procedures.

b. Predictive Research

This study is intended to predict or predict what will happen or take place in the future based on the results of the analysis of the current situation. Descriptive research is carried out through correlational studies and trends (trend studies). Through correlational research, besides being able to find correlation between two or more than two variables, the regression can also be calculated. Through this regression calculation, both partial and multiple regression can be predicted the impact or contribution of one or more variables to other variables.

c. Explanatory Research

Explanatory research aims to describe a generalization or explain the relationship between one variable and another variable. Therefore, explanatory research uses a hypothesis. To test the hypothesis, inferential statistics are used. For the development and improvement of explanatory research theory has better credibility than descriptive, namely credibility by measuring and testing the causal relationship of two or several variables using inferential statistical analysis.

d. Experimental Research

Experimental research is the only research method that can really test hypotheses regarding causal relationships. Experimental methods can represent the most valid approach to solving problems, both practically and theoretically[30]. In experimental research, what researchers must pay attention to is the problem of the presence of foreign or exstraneous variables that must be strictly controlled[31]. Understanding of

extraneous variables is very important because this variable can be threatening or confusing in explaining the pattern of the causal relationship of independent variables to the dependent variable.

3.5. Research Based on Problem Characteristics

The quality of research can be determined by the extent and depth of the problems faced. The number of problem formulations is one of the broad indicators and in problems. However, it does not mean that the more the problem is formulated, the more research quality. If the researchers' thoughts are only about a problem, then there is no need to describe it in many formulations of the problem. Problem formulation should be consistent or most irrelevant to the background of the problem. Formulation of the problem should contain variables that will be clearly examined and identified and it is estimated that there are alternative solutions. There are 4 (four) studies in terms of the characteristics of the problems studied as follows[32]:

a. Historical Research

Historical research is a study of problems related to past phenomena which include investigation, understanding, and explanation of past conditions. This research is important especially in describing or photographing past events or events which are then used to become a process of learning now.

b. Case and Field Study

Case study and field studies are research with the characteristics of problems related to the background and current conditions of the subject being studied and their interactions with the environment. The purpose of the case study is to conduct an in-depth investigation of a particular subject to provide a complete picture of a particular subject. Case studies or case studies are a method of research that is carried out intensively, in detail, and in depth about a case, social symptoms, or a specific social unit. Cases in this case can be interpreted as a concept, activity, time, object (one's work), policy, social class, organization, country, region, or other specific phenomena.

c. Correlational Research

Correlational research is a type of research with the characteristics of a problem in the form of a correlational relationship between two or more variables. The purpose of correlation research is to determine whether there are associations between two or more variables and how far the correlation exists between the variables studied. This type of research emphasizes the determination of the level of relationships that can also be used to make predictions. Correlation research relates to data collection to determine whether or not there is a relationship between two or more variables and how high the relationship is. Here, the level of relationship is expressed as a correlation coefficient.

d. Causal-Comparative Research

Penelitian kausal komparatif adalah penelitian yang menunjukkan arah hubungan antara variabel bebas dengan variabel terkait, di samping mengukur kekuatan hubungannya. Penelitian ini merupakan tipe penelitian ex post facto, yaitu penelitian terhadap data yang dikumpulkan setelah terjadinya suatu fakta atau peristiwa. Tujuannya adalah peneliti dapat mengidentifikasi fakta atau peristiwa tersebut sebagai variabel yang dipengaruhi (variabel dependen) dan melakukan penyelidikan terhadap variabel-variabel yang mempengaruhi (variabel independen).

3.6. Research Based on Research Process

a. Action Research

Operation research (action research) which is better known as action research is a research conducted by someone who works on something that is being carried out without changing the system of its implementation [33].

The purpose of action research is: 1. It is one of the strategic ways to improve services and work results in an institution. 2. Develop an action plan to improve what

has been done now. 3. Realizing a research process that has multiple benefits both for researchers who in this case they obtain information relating to the problem and the subject under study in obtaining direct benefits of real action. 4. Achieving the learning context of the parties involved, namely the researchers and the subject being studied. 5. The emergence of a culture of research related to the principle while working can do research in the field in which it is engaged. 6. The awareness of the subjects under study as a result of concrete actions to improve quality. 7. Obtained real experience that is closely related to efforts to improve the quality of professionals and academics.

b. Survey Research

Survey research is a type of research that uses questionnaires as the main data source. Survey research is a research activity that collects data at certain times with three important objectives, namely: a. Describe the natural state of life at that time. b. identify the current conditions to be compared, and c. Determine the relationship of something that lives between specific events.

Research using survey models is also a good method of measuring people's attitudes and orientation in a large population of social cases. In the field of education, the implementation of survey research may vary in terms of its level of complexity, from only using simple frequency analysis techniques to the use of relationship analysis calculations among complex variables.

3.7. Research Based on Measurement Techniques and Data Analysis

a. Qualitative Research

Qualitative research is research that attempts to analyze social life by describing the social world from the viewpoint or interpretation of individuals (informants) the natural background. In other words, complicated research seeks to understand how an individual sees, interprets or describes his social world. This understanding is the result of social interaction. Understanding is the essence of qualitative research. Simply put, the process of understanding is very easy to say, but actually it is very difficult to do it in truth.

b. Quantitative Research

Quantitative research is a study that uses quantitative methods, namely a research method that aims to describe social phenomena or symptoms quantitatively or analyze how social phenomena or phenomena that occur in society are related to each other [34]. Quantitative methods that usually use deductive logic try to find order in human life, by separating the social world into empirical components called variables.

c. Combination Research

Combined research method is a research method that combines or combines quantitative methods and qualitative methods to be used together in a research activity, so that more comprehensive, valid, reliable and objective data is obtained [35]. Comprehensive data is complete data which is a combination of quantitative and qualitative data.

4. Conclusion

There are 7 (seven) conclusions from the study of various studies, as:

1. The classification of approaches into quantitative or qualitative, ethnographic, survey, action research, or whatever, does not mean that once an approach is chosen, the researcher must not move from a method related to the form of the approach. Each approach has advantages and disadvantages, and each one fits in with a particular context in order to manage a problem.
2. The approach used and the method of data collection chosen depends on the characteristic of the study and the type of information needed. The types of research based on the approach are quantitative and qualitative research. Both have different research assumptions, characteristics and procedures.

3. Research based on its functions is basic research, applied research, and evaluation research.
4. Based on the objectives distinguished between descriptive research, predictive, explanative, experimental, ex post facto, participation research, and development research.
5. Research based on the characteristic and purpose, there are 3 (three) types of research reviewed from the type of data, namely: opinion research, empirical research, and archival research.
6. The variety of studies in terms of the characteristics of the problems studied: historical research, case and field research, correlational research, and comparative causal research.
7. Research based on research process, namely action research and survey research. Based on data measurement and analysis techniques, namely qualitative research, quantitative research and combination research.

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