



Concept of Quantitative Research Methodology and Its Implications on Methods in Islamic Education

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ABSTRACT

Keywords:

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In the world of educators, it is inseparable from research carried out as an effort to find the truth or to find out something new by collecting, processing, and analyzing data using data analysis methods that are in accordance with the type of research. The purpose of this study is to describe the concept of quantitative research methods and their interactions in Islamic education research. The method in this type of research uses literature on the descriptive-analytical literature method. This study uses data analysis techniques, namely the content analysis method (Content Analysis) to obtain valid and reproducible references based on the context. The results of the study show a correlation between quantitative concepts and the concept of Islamic education, namely the experimental method and the tajribi method which have similarities, but in tajribi a systematically planned plan in finding facts or symptoms based on Islamic teachings guided by the Qur'an and Hadith.



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A. INTRODUCTION

Research and science are like two sides of a coin that cannot be separated from each other. Scientific research is used for the needs of science. On the other hand, science will not develop if it leaves the tradition of scientific research, this mutualistic symbiotic position has the consequence that research and science are in one scientific system, and both of them are equally magnifying the system to an unlimited extent (Bungin Burhan, 2013) Analysis of the development of Islamic education and formulating alternative methodologies of Islamic thought, as the formulation of a way out of all criticism of the history of Islamic thought. The implication of the method referring to Islamic education is a major project for Muslims that leads to the renewal of the research methodology (Saihu, 2020).

Research is derived from the English word research which is a combination of the words re and search which means to repeat or search repeatedly. In essence, research has several meanings, as follows: (1) Research is a process or activity that is carried out systematically, logically, and plans to collect, process, analyze data, and conclude by using certain methods or techniques to find answers to questions. problems that arise, (2) Research (research), especially in the empirical sciences, generally aims to find, develop, or test the truth of a knowledge, (3)

Research (research) can be defined as an effort a systematic way to find the truth that is not yet known through the scientific method, (4) Research is an attempt to find something according to the scientific method so that research has three important elements, namely: goals, efforts to achieve goals, and the scientific method (Supriyanto dan Djohan, 2012).

From some of the definitions above, it can be concluded that research is a systematic effort to find the truth or to find out something new by collecting, processing, and analyzing data using data analysis methods according to the type of research. The roles or functions of research are: (1) helping humans acquire new knowledge, (2) obtaining answers to a question, (3) providing solutions to a problem. Research is useful for investigating certain circumstances and providing a basis for activities from all aspects of development. The scientific method is defined as an activity based on scientific principles, namely rational, empirical and systematic.

In accordance with the steps of scientific thinking, there are essential steps that must be mastered by a researcher. These steps include: (1) Determining the object or subject of research (2) Limiting the object of research (3) Collecting the necessary data or information (4) Processing and analyzing data and drawing conclusions (5) Formulating and reporting the results (6) Determining the implications of the investigation. So it can be concluded that research is an objective activity in an effort to find and develop, and test knowledge based on principles, theories that are systematically arranged through an intensive process of generalization development (Umar Sidiq, Choiri, 2019) Research has several types, namely qualitative, quantitative, research and development research and classroom action research. In writing this article, we will discuss the types of quantitative research. Quantitative research is one type of research whose specifications are systematic, well-planned and clearly structured. Quantitative research methods are defined as methods based on the philosophy of positivism used to examine certain populations and samples (Sugiyono, 2017).

The quantitative method is a method that is considered intact and applicable because it meets all the requirements in testing cause-and-effect relationships (Kusuma, 2021). Although this method is considered a method that has a high scientific level, according to Martono in his book it is said that the quantitative method is one method that is considered difficult to do compared to other types of research methods (Martono, 2014).. Therefore, studies on this method also need to be continuously updated in order to continue to exist for use in the field of educational research and in other fields.

In the field of educational research methods in quantitative there are several types of methods, one of which is the experimental method which has different characteristics from other types of methods. This method is considered the purest because all the principles and rules in research can be applied through this method (Asep Saipul Hamdi & Bahrudin, 2018). So, through quantitative methods, the form of research experiments in education will produce pure new theories as well.

The application of research methods in education needs to continue to be developed, especially in the field of Islamic education which has experienced a decline in the past. In the Islamic world, it is also known that several types of methods are used in finding new theories. This method has been used by Islamic scientists at that time. One of the well-known Islamic scientists is Ibn Rushd who has provided a paradigm of integration between science and religion. In this epistemology, Ibn Rushd developed it through the use of bayani, burhani, and tajribi methods which have scientific and rational nature (Attaftazani & Setiawan, 2021).

Based on the explanation above regarding quantitative research and the need to provide concepts that give priority to the importance of using quantitative methods that are able to

produce a theory with a high level of scientific knowledge, especially in the field of Education research. So in this case it also provides an overview of the research methods used in Islamic education. With the hope that this research can provide a clear picture and become a reference as well as efforts to encourage the implication of quantitative research methods in Islamic education research.

B. METHODS

This research uses library research method or literature study with descriptive-analytical literature method. Library research is a series of activities related to the method of collecting library data both in physical and digital form which is a research activity in collecting data from several sources related to the phenomena discussed. Data were analyzed descriptively through editing which refers to qualitative data analysis (Nurdin, 2021) This type of research uses Library Research on the descriptive-analytical literature method. A series of activities related to the method of collecting library data both in physical and even digital form, reading and recording and even managing research materials is called library research. This is in line with the ideas of Sari and Asmendri which state that research activities are carried out in the way of collecting information and data with the help of various materials, such as manuals, relevant previous research results, articles, and even various journals related to the background of the problem. Activities are carried out systematically by collecting, managing and drawing conclusions using certain methods and techniques in order to find answers to existing problems (Sari & Asmendri, 2018).

The subjects in this research are books and articles that are relevant to the focus of this research. Such as books that discuss quantitative research methods and also research that discusses research methods in Islam. As for the variables in library research are elements or aspects that are in the title or topic of the research problem. Then the variables of the research are the concept of quantitative research methods and research methods in Islam. And the focus in collecting data regarding this research is the concept of quantitative research and its implications in research methods in Islamic studies.

In this study using data analysis techniques, namely the method of content analysis (Content Analysis). This data analysis method can obtain valid references and can be re-examined based on the context. With this analysis, the process of determining, comparing, uniting and sorting various meanings will be carried out to find the relevant one draw conclusions that apply in general (Mirzaqon, 2018) The sources in this study came from journals and books related to the concepts of quantitative research methodology and its implications for Islamic education.

C. RESULT AND DISCUSSION

1. Basic concepts

According to the Big Indonesian Dictionary (KBBI) quantitative has the meaning of number or number. While research is an activity of collecting, processing, analyzing, and presenting presented systematically and objectively to solve a problem and try a hypothesis to develop deductive principles (Development Team of the Language Center of the Ministry of National Education, 2008) Quantitative research is a science related to procedures (methods) of data collection, data analysis and interpretation of the results of the analysis to be able to obtain information and be able to draw conclusions and make decisions (Solimun, Armanu, 2020) The quantitative approach departs from data collection which is analogous to raw materials in a

factory, this data will then be processed into valuable information that is useful for decision making. According by Imam Santoso's book, quantitative research is a scientific approach by collecting and analyzing numerical data to be able to describe and control various existing problems. This distinguishes it from other studies, namely the use of more numerical data is required. In addition, the statement of hypotheses and specific research procedures are used in the research process. Researchers also monitor contextual factors that will obtain identification data of a sample of participants that are useful in providing statistical data so that in the quantitative research process there are fewer interactions with participants (Imam Santoso, 2021).

Based on the basic concept above that quantitative research is very different from other research. The distinction is based on epistemological assumptions about the nature of scientific knowledge and how that knowledge is obtained. In detail, quantitative research has the following characteristics: (1) Assumptions of social reality are objective, (2) view the relationship between social phenomena from a mechanistic perspective, (3) act objectively, meaning that they are not bound to research participants and participants' backgrounds, (4) examines populations and samples, (5) investigates observed behavior and phenomena, (6) examines social reality in the form of variables, (7) uses previous concepts and theories to determine what data to collect, (8) produces numerical data interpreting social phenomena, (9) using statistical methods for data analysis, (10) using statistical procedures to generalize research findings from the sample to the population, (11) reporting objective research results and there is no influence of the researcher's personal factors (Erwin Widiasworo, 2019) So it can be concluded that in principle each research has its own characteristics, but in general, Large-scale research must be carried out objectively by following guidelines that contain steps for research carried out systematically and logically so that it can investigate behavior and social phenomena and produce relevant conclusions, in the case of quantitative research produced in the form of numerical data. According to Edi Purwanto, quantitative methods are grouped into 2 according to the activities carried out by researchers in an effort to obtain the truth, namely experimental and non-experimental research. Non-experimental research is divided into 3 types, namely description, correlation, and comparative (Edi Purwanto, 2016) While experimental research, one of which is quasi-experimental (Samsu, 2017).

a. Descriptive

Descriptive research is research that describes a problem in the field. The collected data is classified according to its type, nature or condition. As for another understanding which says that descriptive type of quantitative research is a research conducted with the main objective to provide an overview or description of a situation objectively. So it can be said that descriptive research is conducted to describe a set of events or conditions of the current population. There are several types of descriptive research, namely: (1) surveys, (2) case studies, (3) correlation studies, (4) comparative studies, (5) prediction studies, (6) evaluation studies. Survey research is a method of narrative research that is carried out on a set of objects that are generally quite large at a certain time. The purpose of the survey is to evaluate a condition and the current implementation of a program and the results are used to develop an improvement plan for the program. In detail, the objectives of descriptive research are as follows: (1) produce an accurate picture of a problem, (2) describe the mechanism in a process and relationship, (3) provide a complete picture in verbal and numerical form, (4) present basic information about a relationship, (5) explaining a set of stages or processes, (6)

storing contradictory data or information about the research subject (Erwin Widiaworo, 2019).

b. Correlative

Correlation research is research that involves data collection activities to determine whether there is a relationship and the degree of correlation between two or more variables. Correlation research is conducted to find out whether or not there is a strong or weak correlation of variables related to a particular object. According to Sukardi, correlation research has the following characteristics: (1) correlation research is appropriate if the variables are complex and the researcher does not allow to manipulate and control variables as in experimental research, (2) allows variables to be measured intensively in a real environment, (3) allows researchers to obtain significant associations.

c. Associative

Associative is a type of quantitative research that is asking the relationship between two or more variables. in step with Sugiyono, associative studies is research that goals to determine the relationship between two or greater variables, looking for roles, influences, and causal relationships, namely between independent variables and dependent variables. Through this research, a theory can be built that functions to explain, predict, control a symptom (Jaya, 2020) This research is studies that seeks to find a relationship between one variable and another. The relationship can be symmetrical, causal or interactive. Symmetrical relationship is the relationship between two variables that are parallel or equal. Causal relationship is a causal relationship or one variable (independent) affects another variable (dependent). And interactive relationships are relationships that influence each other (Endra, 2017).

d. Experiment

Experimental research is a quantitative type of research in which researchers manipulate and control one or more variables. In addition, it is said that experimental research is a systematic method to build relationships that contain causal phenomena (Kusuma, 2021) It is concluded that the experiment is a research that is used to find the effect of certain treatments on others to find a causal relationship (causal relationship) between two factors that are deliberately caused by researchers. Thus, the experimental method is intended to examine causal relationships by manipulating one or more variables in one (or more) experimental groups, and comparing the results with the control group that did not experience manipulation. As for what is meant by manipulation means systematically changing the properties (values) of the independent variables. After being manipulated, the independent variable is usually called a treatment (Payadnya & Jayantika, 2018).

The purpose of experimental research is to investigate whether there is a causal relationship and how large the causal relationship is by giving certain treatments to several experimental groups and providing controls for comparison. In the world of education, experimental research is a research pastime that objectives to evaluate the impact of an educational treatment on pupil behavior or to test hypotheses about the effect of that action when compared to other actions. Actions in the experiment are called treatments, and are defined as all moves, all variations or conditions on the way to be assessed to know their effect. Meanwhile, what is meant by assessing is not limited to measuring or describing the effect of the

treatment being tried, but also wanting to test the level of significance (significance or not) of the impact when in comparison to the equal organization however given distinct treatment.

2. Implications on Islamic Education

The research method of Islamic education can be interpreted as an attempt to find the truth of phenomena, facts, or symptoms in a scientific way to solve problems or develop knowledge, especially in the field of Islamic education based on the Qur'an, Sunnah and Ijtihad. Therefore, in conducting research in the field of Islamic education, a Muslim researcher must solve problems and develop his knowledge must be based on Islamic teachings. There are four kinds of research methods in Islamic studies, as follows (Hidayat & Asyafah, 2018):

- a. The bayāni method is a research method to find knowledge with maximum effort by reading, studying, understanding and reviewing the explanations of the Qur'anic verses and adīś.
- b. The burhani method is a research method that relies on the ability to think logically with certain rules in a sequential and systematic manner.
- c. The tajribi method, which is a research method, in addition to playing the ability to think logically, is also followed by experimental actions, observations and other forms of methods known as scientific methodologies.
- d. The 'irfāni method is a research method that relies on al-Taqarub ila Allah or al-Ittiṣāl bi al-Ilāhi by performing certain steps starting from isti'dad, tazkiyah al-Nafs. The technique is to do riyāḍoh, namely exercises in the sense of carrying out continuous practices both individually and in groups.

Based on the description above, it can be understood that research in the scope of Islam is an activity or a systematic effort to search for phenomena, realities, facts or symptoms in a scientific way to solve problems or develop knowledge based on Islamic teachings. The research methodology in terms of Islamic education has 4 types, namely the bayāni method, the burhāni method, the tajribi method and the 'irfāni method.

Analyze the development of Islamic education and formulate alternative methodologies of Islamic thought, as a formula for a way out of all criticism of history Islamic thought. The implication of the method referring to Islamic education is a major project for Muslims that leads to the renewal of the research methodology (Saihu, 2020) The Islamic education research method is a research methodology that solves existing problems using the perspective of the Islamic paradigm. In conducting research, a researcher who uses the Islamic paradigm will have implications for the research he does, both related to research in the natural sciences, social sciences and humanities. Research based on the Islamic paradigm will have implications for the research process from beginning to end, whether it is related to research intentions, formulating the background of the research problem, determining the problem formulation, research objectives, research benefits, formulating theoretical studies, determining research methodology. Likewise, in processing data, analyzing data, making conclusions, publishing research to research facilities and everything related to research, it must always associated with the applicable rules and regulations.

3. Implications of Quantitative Methods in Islamic Education Methods

Quantitative research is one type of research method that has a broad scope and has a dichotomy of experimental and non-experimental groups. From this dichotomy, there are types

of research in quantitative methods, including descriptive, correlative, associative and experimental research. This is as explained in the explanation of the quantitative methodology concept above. In quantitative research, the method commonly used is the experimental method. Experimental methods are the core method in quantitative research methods (Kusuma, 2021) In addition, based on the level of naturalness in experimental research, it is one of the methods in the quantitative approach used in educational research (Arifin, 2020).

In educational research, especially in Islamic education, there is also an experimental method. Experimental methods in Islamic education research methods have different terms or names. The experimental method is known as the *tajribi* method which means experiment. So the *tajribi* method is a method that conducts experiments and has a planned system in proving the reality of a theory. Because the theory is only recognized as real or not after being proven through trials (Rangkuti, 2019).

The method in finding knowledge or a theory in Islam can be done through 4 methods, namely the *bayāni* method, the *burhāni* method, the *tajribi* method and the *'irfāni* method. Based on the previous explanation that one method that is the same as quantitative research is the *tajribi* method. This is supported by Warty's statement which states that the *tajribi* method has been compiled in a coherent and more systematic way, it can be found in research methodology books developed by western scientists in quantitative research. It was further explained that the *tajribi* method is a method used in finding theories by using logical thinking and through experimental activities, observations or other forms of methods known in today's scientific research methods (Warty & Jamil, 2019).

The implications of the *tajribi* method or experiments in quantitative research have basically been well utilized by Islamic education scientists since the first. This is in accordance with what was stated by Sultani in his research which revealed that the *tajribi* method used in gaining knowledge has been carried out by classical Islamic scientists, but its development is different from western scientists who are more modern and developing rapidly, which is better known as the scientific method (Sultani et al., 2021).

This is also supported by a statement that says that Islamic scientists have conducted experiments using the *tajribi* method in proving the truth or not of a theory and even created a new theory, one of which is a scientist named Ibn Haitsam who has created a theory known as the theory of direct vision (Warty & Jamil, 2019). However, the use of this recitation method has not experienced developments such as the method developed by experts from the western world who are able to develop a good method, progressing very rapidly, therefore at this time it is better known as quantitative and qualitative research methods compared to the recitation method used by Islamic scientists. So there are similarities between quantitative methods and research methods in Islamic education, which lies in the type of experimental method. However, the difference between the experimental method in quantitative methodology and the *tajribi* method is that Islamic education research refers to the validity of data according to systematic rules and is guided by the Qur'an and Hadith.

D. CONCLUSION AND SUGGESTIONS

Quantitative research is one type of research method that has a broad scope and has a dichotomy of experimental and non-experimental groups. From this dichotomy, there are types of research in quantitative methods, including descriptive, correlative, associative and experimental research. The research methodology in terms of Islamic education has 4 types, namely the *bayani* method, the *burhani* method, the *tajribi* method and the *'irfani* method.

Between the two approaches, namely in quantitative research methods and research methods in Islam, there is a relationship that becomes the equation in the research, namely the experimental method and the tajribi method. The experimental method and the tajribi method have the same concept, namely in the implementation a trial and observation is carried out in finding theory. Although they have similarities in the way of implementation, the implications of research in Islamic education refer to the validity of data that is in accordance with systematic rules and is guided by the Qur'an and Hadith.

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