



Verification of Research Logical Framework Based on Literature Review

Muhammad Ali Ramdhani¹; Abdullah Ramdhani²

¹ Faculty of Science and Technology
State Islamic University of Sunan Gunung Djati, Bandung
Jl. A. H. Nasution No. 105, Bandung-INDONESIA
m_ali_ramdhani@uinsgd.ac.id

² Department of Public Administration, Garut University
Jl. Cimanuk No. 285A, Garut-INDONESIA
aramdhani@fisip.uniga.ac.id

Abstract – *This paper discusses the methodology of verifying framework/ research model based on literature review. Verification methodology in this paper is a method observing the suitability of a research model based on the concept of Literature review done in accordance with the criteria and steps to obtain a description whether the research model has matched the system it represents. This article is composed on a framework of documentation study or literature, and the result of focus group discussions conducted at the University of Garut in 2014. Verification of the research framework can be done by several approaches, namely analytical verification, conceptual verification, logical verification, and operational verification. The verification process is done through a process of analysis, conceptualization, modeling, and operationalization.*

Key Words – *research, verification, literature review*

1. Introduction

Research is an attempt to look for truth, or something agreed as a truth. Research is required to use scientific method, in this regard that discovery, development, or testing the truth carried out by collecting and analyzing information accurately, clearly, systematically, and in accountable manner (Suprayogo & Tobroni, 2001).

Many writers on research methodology state that there are two main approaches in a research, namely qualitative and quantitative approaches (Sugiyono, 2001; Suprayogo & Tobroni, 2001; Sugiyono, 2008; Guritno, Sudaryono, & Rahardja, 2011; Suharsaputra, 2014). Generally, quantitative study with inferential analysis approach is conceived to examine the relationship between study variables. Prior to testing the relationship between the variables of study, a researcher is required to make a research paradigm based on the sharpness of researcher mind, expert opinions, and the results of previous studies obtained from the literature review. This article focuses on the discussion on verification of research logical framework based on literature review in quantitative research.

In doing a research, literature review is used to conduct a formulation of the research problem, which is then used as the basis of research in making research logical framework in the form of a conceptual model and research paradigm. However, in some cases, the use of literature review showed

incompatibility with the object of the research, although the research is done in a similar topic, this is due to: (1) the research was done in the past so it does not fit the current conditions; (2) mismatching political, social, climate conditions of the study object; (3) different points of view/ field of research from the author of the article/ book; (4) technical and analytical procedures in the study using different research instruments. So we need a discussion of an approach to perform verification of research logical framework based on literature review.

This article discusses about the verification of research logical framework based on the literature review which provides guidance on the verification process of the literature review in formulating research logical framework.

2. Methodology

The discussion in this paper is taken from the literature review which further is discussed in a Focus Group Discussion conducted at a Workshop on Research Methodology at the University of Garut, Indonesia in August 2014.

3. Verification of Research Logical Framework

All researches are scientific; all researchers should master theories from literature review. Kerlinger (1973) defines theory as a set of interrelated construct (concepts), definition, and proposition that present systematic view of phenomena by Specifying relations variables, with the purpose of explaining and predicting the phenomena. Furthermore, Suprayogo & Tobroni (2001) stated that in the quantitative study, the position of theory in the study is used as a benchmark or foundation for researcher to conduct assessment and measurement to the object to be examined, while in qualitative research is used as a perspective to understand and explore the mind of the subject and to interpret every phenomenon in order to build the concept.

In reflecting research logical framework, literature review should be arranged in a good way that provides a systematic explanation of the relationship between variables to answer the formulation of research problems. Guritno, et al. (2011) suggested that the description of the literature review has several objectives, namely: (1) sharing information with readers about the results of previous studies are closely related to the research being reported, (2) connecting a study into a broader and continuous discussion so it can fill the gap and expand, or contributes to previous research; (3) presenting a framework to show or convince the importance of research and comparing the result of research conducted with the findings of other studies in similar topics.

The procedure of literature review produces a set of theories relevant to the research topic. In general, the position/ role of theory in research are a frame of thinking (frame of reference) that determines the selective perspective on the phenomena that occur. Without theory, a study is simply a collection of data that has no meaning. In a research paper, the literature as a foundation and as support for a new insight that you contribute. The focus of a literature review, however, is to summarize and synthesize the arguments and ideas of others without adding new contributions (Ramdhani, Ramdhani & Amin, 2014). In a research, theory will determine the study design, analysis approaches, and results interpretation (Suharsaputra, 2014).

3.1 Formulation of Literature Review based on Research Logical Framework

As a scientific method, a research has stages to do by researchers when doing a research. The stages of the study provide guideline for researcher so that the research is accounted scientifically as well as provide guidance on how the method of thinking must be possessed by researcher when conducting research (Suharsaputra, 2014).

In general, the common stages of research logical framework formulation used in quantitative research begin with the definition of problem. Furthermore, based on the definition of problem a conceptual model which shows the relationship between the variables that determine the behavior of the model is formulated. Conceptual model formulation is done as a framework in the development of research paradigm showing the relation of the study variables. In the conceptual model formulation, the argument used is based on the result of literature review which corresponds with the theme of the research, by describing the problems relationship, causality, and research purposes. The purpose of study gives an indication of the performance to be achieved, and the conceptual model provides a framework which forms the expected performance. To operationalize the conceptual model further, symbolization, relations, functions, assumptions, axioms, and the establishment of a formal model in the form of research paradigms are done. Idealization and simplification of variables relation in research model can be named a phase of research paradigms.

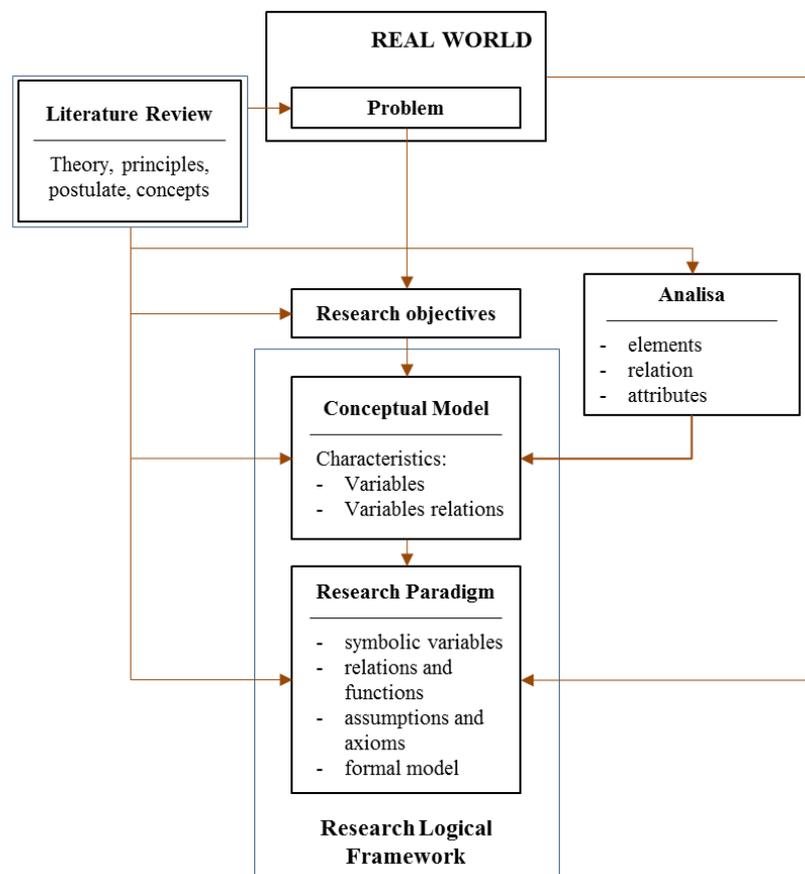


Fig.1: Position of literature review in composing research logical framework

3.1.1 Problem Identification

Dissatisfaction over various events in the real world creates problems. If these problems are examined, they usually given an title “research problem”, which basically try to examine the unique aspects that occur in the real world and repair or utilize. For research that comes from factual issue, the problem must be identified. Identification means can specify the problem so that it can be seen clearly (Noor, 2013), so that the formulation of problem can be done well and not get stuck on the symptoms of problems.

The research problem is a phenomenon that will be focus of research, which is a condition that can be caused by various factors: conceptual problems, action problems, value problem. In this case, Suharsaputra (2014) explains that the theory can be a general guide to understanding the various problems encountered and need to be solved, so the understanding and mastery of the theory will determine the quality of the research results.

3.1.2 Research objectives

Research objective is a statement of research direction and focus, which will be used as the main guide in arranging the entire discussion of the research results. The purpose of the study is make to focus the study on the limitation of research. Some researches are broad but have superficial discussion; some have small scope, but very detailed and in-depth discussion, these options are set in the research objectives.

Observing the purpose of research, there is an exploratory research, descriptive research, and explanatory research. Dimension of objective is related to something to be solved by researchers in conducting research, whether for the purpose of exploration (assessments) on a new topic, describing the specific condition/ symptom, or explaining why symptoms/ phenomena occurs. In execution, a combination possibly occurs between these types, although there is always the dominant element in the study (Suharsaputra, 2014).

The vast majority of literature reviews serve as a section of a primary research article that provides the theoretical foundation for the main study that is the subject of the article (Ramdhani, et al, 2014). The function of literature review in research objective is a basis for obtaining the boundaries and focus of research conducted by gathering information from the documents/ relevant literature. This stage may be called as the orientation phase that observes the research orientation to be beneficial in solving problems in the real world based on the result of previous studies.

3.1.3 Conceptual model

For research purpose, the real world is usually described in a model. The term of model is defined as an artificial of the actual condition, or in other words, the model is defined as a representation or formalization in a particular language (agreed under certain viewpoint) of a real world, or simplification of the description of the real world. The real world is an in progress system in life, the system made as a point of attention and question (Ramdhani, 2001).

In general, a study examining the relationship between variables is done through the stages of the formulation of the study conceptual model. Development of a conceptual model of the research is

done by reviewing the problem and research objective based on the result of the analysis of literature review, then the copy, modification, combination, and addition to formulate the relationship between variables are made. The conceptual model is then formalized, and its compliance is tested by the real system based on logic, research experience, and expert views.

The formulation of conceptual model uses the teleological principle (reviewing research purposes) to function attributes by looking at the objective of research. Through further analysis, the relationship among the variables can be understood by knowing the relationship between variables and attributes of each variable. At this stage, defining a set of objects outside the boundary system which affects (affected by a system) as epsilon variable (ϵ). All stages are performed by testing the suitability of every literature review result with logic, understanding, and experience of the researcher.

To create a good conceptual model, the theory of literature review that corresponds the research topic is used. In this case, Suharsaputra (2014) states that the theory consists of a set of concepts, which is generally followed by a relation between concepts that are logically drawn in relation to a particular frame of thinking. In theory, the concepts are often expressed in a relationship or connection between two or more concepts are logically arranged. So that the contribution of the literature reviews in constructing the conceptual model is to provide an overview or perception that illustrate or demonstrate a phenomenon, either independently or in a continuum.

Understanding of the various theories found in the literature review will provide or direct the orientation on what to investigate, and determine searching relevant variables, and can release the irrelevant variables (Suharsaputra, 2014).

3.1.4 Research Paradigm

Research paradigm is a frame of thinking that describes how researcher views the facts in the real world, and how researcher treats the science or theory (Noor, 2013). The paradigm is built on a set of principles that form a basis for seeing something. In qualitative research, research paradigm involves the perception of reality. General research paradigm is a model derived from the views of researcher and library foundation based on logical and systematic reasoning. The points of view are composed of common things to the specific things through providing relationship, attribute, assumption, and formal model.

In study, the role of theory in formulating research paradigms is crucial (Suharsaputra, 2014). Therefore, the same phenomenon when viewed from different theoretical orientation will lead to the selection of different variables, as well as the conceptualization, definition, and measurement of different way, and it also will lead to a different interpretation of the same research results.

In study, the theory is meaningful for many things. First of all, as an orientation, theory limits the number of facts that need to be learned. Second, theory provides a system that should be used by researchers to interpret the data to be grouped with the most meaningful way. Third, theory summarizes something needs to know about the object of study (Guritno, et al., 2011). A theory becomes an important reference in making measurement on the facts/ data that must be collected in order to test the research hypothesis as a product of research paradigm.

3.2 Verification Process

A logical framework of research can be accepted as a good framework if the framework successfully passes the verification process. An important aspect in constructing research framework is the selection of appropriate criteria for the verification process which has the ability to improve the suitability of framework and complexity of real world problem. Research logical framework testing is conducted to check the conformity between the main components of the study. The main purpose of testing research logical framework is to ensure the framework is incompatible with the object and purpose of the study. Verification needs to be done to look for error or weakness happen to be improved.

The concept of verification process is generally measured by the level of usefulness, usability, the ability to represent the state of problem, as well as other important variables. One alternative to the verification of research logical framework is based on literature review proposed by verification process flow as shown in Figure 2 Criteria used to see the reliability of the conceptual model or paradigm of research are measured based on the consideration of the philosophy of science, which consists of: (1) rationalism, with demand to the logical consideration of the model; and (2) empiricism, where the model is required to have a connection between the facts.

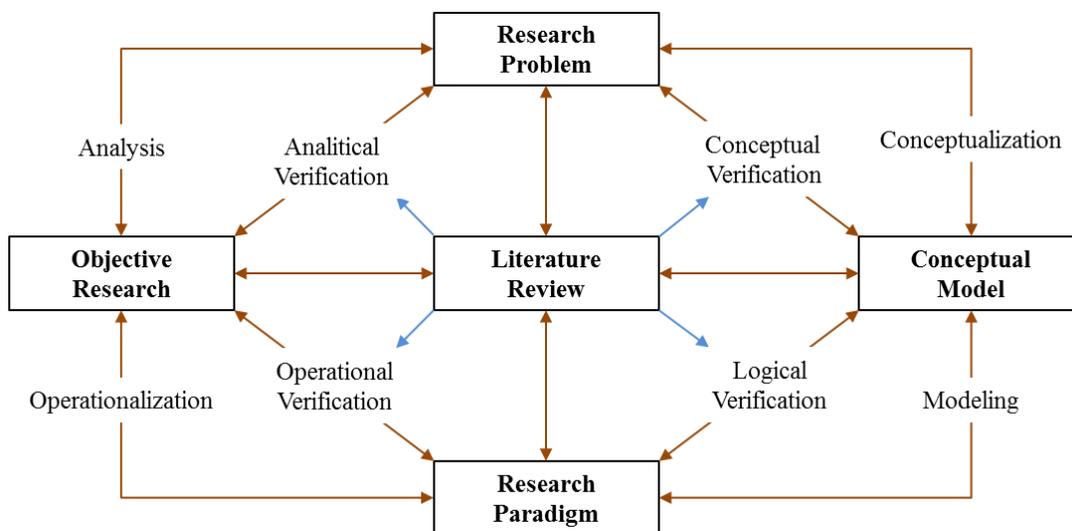


Fig.2: Verification Process

Verification process always starts from the understanding and describing the situation to the problem of research logical framework. Verification process proposed in this article uses an evaluation of the four stages of the formulation of research logical framework, namely: (1) research problem; (2) conceptual models; (3) The objective of research; and (4) research paradigm.

3.2.1 Analytical verification

The quality and degree of research objectives achievement in making conclusion is to discuss the research issues, the author calls it an analytical verification. Technically, analytical verification is done

through an analysis of the relationship between the research problem and research objective. Analysis process is the study of an event (research problem) to determine the state/ actual fact (causality, case, and so on).

The quality and degree of suitability between the purpose and problem of study is determined by analytical results verification. Analytical verification is used to assist researcher in accepting or rejecting theories found in the literature on the basis of its suitability in identifying research problems more precisely and accurately, so that the purpose of the study can be formulated precisely.

Theory is a basic consideration to see a problem from the abstract point and is an important part to determine the theory perspective on issues that can be verified in reality. Analytical verification gives information on conformity theory used by mapping research problem determined.

3.2.2 Conceptual Verification

Concept is a set of meanings or characteristics associated with event, object, condition, situation, or particular behavior (Noor, 2013). So that, the research conceptual model can be defined as the description of a research model through extensive terminology, point of view, goal to be achieved, relationship between variables of the problem situation, level of variables aggregation, and relationships between variables. The relevance degree of the assumption and theoretical basis used as a reference for formulating a conceptual model of research that can provide a concrete picture of the suitability of problem situation into a conceptual model is the core of conceptual verification.

Conceptual verification requires a researcher to be a conceptual research model developer to review the conceptual modeling process based on the situation until the problem reaches an acceptable degree of conformity. Conceptual verification is measured based on how far the conceptual model may provide an explanation for the description, provide a prescription, and provide prediction of the investigated reality. The writer calls verification phase of the research problem with the conceptual model a process of conceptualization.

Verification will be well worthy if the formulation of research conceptual model meets good requirements of a model. In this regard, Siregar (1991) revealed that a good model has the following characteristics:

1. High level of generalization. The higher the degree of generalization of a model, the better it is, because model ability to solve problem greater.
2. Mechanism of transparency. A model is said to be good if we can see a mechanism model in solving problem. This means that we can reconstruct it without any secrecy. So if there is a formula, it can be explained again.
3. Potential for development. A successful model is usually able to generate interest other researchers to investigate further.
4. Sensitive to assumption change. This indicates that modeling process never ends, always gives a gap for other researchers to generate assumptions.

3.2.3 Logical verification

Logical verification is used to test harmony between conceptual model and research paradigm, based on the ability evaluation of research paradigm in describing the truth and accuracy of problem situation defined in the conceptual model. In this case, the research paradigm is a translation of the

conceptual model into the symbols of relation between variables. The purpose of this study paradigm formulation is to make research more focused on the research problem situation.

Logical verification is testing the relationship between variables in the research paradigm. Logical verification is used in formulating the modeling of conceptual model into a research paradigm. Logical verification is used in order for the translation of conceptual model into ongoing research paradigm is running well, because a formal model often loses some essential and substantial terms of the conceptual model due to difficulties in translation process.

Logical verification reviews research paradigm ability to see it objectively with a good sense of the problem situation correctly, and research paradigm has measurable variables. Some similarities or theorems developed in research paradigm analysis are proven analytically and applied in the real world.

3.2.4 Operational verification

Research paradigm is generally expressed through a formal model. Characteristic of the model is a guide to the operation of formal, technical, and mechanism research inference. Operational verification demonstrates simplicity, quality, and efficiency of operational research to describe the empirical research object. Operational verification requires a research paradigm ability to produce the research result as stated in the research objectives, through an accountable scientific method.

Research paradigm ability applied in variable measurement, suitability of analysis model, and inference mechanism is one of operational verification measurement. Operational verification is the analysis of paradigm capability at the stage of operational research to describe the facts of the research phenomenon, so as to meet the demands of the research objectives. Operational verification evaluates the suitability of the theory use from literature review to be translated in operational research. Understanding research result obtained from the literature should be reviewed comprehensively on the possibility of operational constraints on the research object established by researchers, such as barriers to cultural aspects, law, and ethics in research object.

Operational verification is an evaluation of the fundamental questions as the following:

- a. Do the research problems have clear limitations?
- b. If quantitative testing is done, can the research problem make its hypothesis?
- c. Do the research problems have the clear data sources?
- d. Can the research problems be measured so that a clear measurement can be designed?

4 Conclusion

Verification methodology of research logical framework based on Literature review is a method for observing the suitability of a concept of research model conducted based on the criteria and steps to obtain a description of whether the research model has matched the system's representativeness. Verification of the research framework can be done by several approaches, namely analytical verification, conceptual verification, logical verification, and operational verification. The verification process is done through a process of analysis, conceptualization, modeling, and operationalization. All stages are performed by testing the suitability of every verification process with logic, understanding, expert opinion, and researcher experience.

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