360⁰ APPROACH TO RESEARCH METHODOLOGY

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ABSTRACT

Research is the journey of known to unknown; from problem to solution. Methodology bridged gap between problem and solution. Methodology consisted of Scientific or systematic process where every element of the process based on thought reasoning simply called logic. In conventional manner, most of the research materials displayed research methodology in step by step manner subsequently it led to understanding research process in compartmental basis rather than holistic way. This article attempted to provide holistic view or 360 degree view of RM. The objective of this article is to demonstrate the 360 degree view of RM. It helps research aspirant to understand the basic research methodology in better manner

I. Introduction

Research Problem is vital for any study, to understand and choose specific problem, inquiry is essential which is the seed for research subsequently it showed the need or motivation for choosing specific research problem. To construct a research problem is to elaborate a question or problematic through which the researcher construct or discover reality. The question produced links or examines theoretical, methodological or empirical elements. (Allard-Poesi & Marechal, 2001). Traditionally research, classified into two methodology such as Quantitative and Qualitative. The former is positivist approach, which dealt with operational definitions, objectivity, replicability, generalizability. The latter is Interpretivist which dealt with subjective, adding knowledge to existing theory or exploring theory.(Alan Bryman, 1984). Quantitative Methodology directing towards descriptive and causal research methods, in turn methods, directed towards research strategy such as survey and experimental etc., Similarly, Qualitative Methodology followed certain path. Such as Qualitative $\rightarrow$ Exploratory method $\rightarrow$ Case Study and Ethnography research strategy. Apart from this, based on time horizon, research methods broadly classified into Longitudinal and Cross section research.

II. Scientific Method

Logic is the basic input for any scientific study. Logical principles can be classified into two Deduction and Induction. Deduction is characterized by the fact that, if the hypotheses formulated initially (premises) are true, then the conclusion that follows logically from these premises must necessarily be true. Induction in logic usually means to assert the truth of general proposition by considering particular cases that support it. Deduction is basically for testing the theory the

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process is known as Hypothetico-Deductive process. In contrast, Induction is meant for exploring or building theory this process is known as Abduction. (Charreire & Durieux, 2001). Since Deductive is known for testing theory which is connected with positivist approach or Quantitative research methodology. Similarly for Inductive, such as Inductive Interpretivist approach Qualitative research methodology

III. Review of Literature

An effective review creates a firm foundation for advancing knowledge. It facilitates theory development, by filling the gap between existing literature and contributions towards area where research is needed. (Webster & Watson, 2002). Theory is the core of review of literature. Theory is the partial explanation of reality and model is derived from theory which is the representation of reality. As fields of inquiry develop, theories are often place on hierarchy from ad hoc classification systems → categories are used to summarize empirical observation, to taxonomies → relationships between the categories can be described, to conceptual frameworks → propositions summarize explanations and predictions, to theoretical systems → laws are contained within axiomatic or formal theories). (Parsons and Shills, 1962)

III.a. Conceptual Foundations of Research:

A concept is an abstraction representing an object, a property of an object, or a certain phenomenon. But it can be measured indirectly. An outcome of concept is components, further logical grouping of attributes is known as variables. When concept is defined it become conceptual definition, it has to be quantifiable it is known as operational definition.. The function of operational definition it acts as bridge between conceptual level and observational or empirical level (Nachmias and Nachmias, 1981). The statement derived from concepts and research problem the term known as proposition which is the pre stage of hypothesis but untestable. Proposition is like a formation of equation, hypothesis is like a solving a equation.(Allen Lee, 2001). Hypothesis played vital role in connecting the research problem, variables and operational definition. In testing a hypothesis is a process which a theoretical element is assessed in a real situation. (Charreire and Durieux, 2001). The Hypothesis supposed to show the directions: positive or negative and non-direction, the former is one tail test and latter is, two tail tests. To understand the level of confidence in our testing process of hypothesis, two types of error should consider: Type I error, occurs when researcher believe that there is a genuine effect in our population, when in fact there is not. Use the probability of this error is .05 (or 5%) when there is no effect in our population-this value is known as the (alpha) level. The opposite is a Type II error, which occurs when we believe that there is no effect in the population when, in reality, there is, it is known as (beta) level. (Field, 2005).

IV. Sampling Design

Sample methods are employed to provide a sample that is an accurate representation of the total population. By default, there is a difference between sample value (statistic) and the population value (parameter) it is known as standard error, higher the difference higher the standard error and lower the difference lower the standard error. Most of the time sample set derived from sampling frame or working population especially for probability sample methods. Broadly, there are two types of drawing sample methods are there, Probability and Non Probability sampling methods. Researcher should understand the purposes of the both sampling method. Probability sampling is used mainly to generalize the result which is derived with help of sample should be extended to the rest of the population. Apart from this, probability sampling is employed for the purpose of testing theory. But for non probability concerned the purpose is not to test a theory but adding some new knowledge to the existing theory or exploring or building a theory. That is the reason in the case of probability method has got link with research approach as a Quantitative, way of deriving logic is Deductive, purpose is extending the result to population by testing a theory. In contrast, non probability has got connection with research approach as a Qualitative; logic has an Inductive, purpose to add a new knowledge to existing theory by exploring or building a theory. There are numerous ways to calculate the size of the sample. Basically, there are two ways based on mean and proportion. It may be based on number of variables used in the given test. At least 15 observations per variable is must for analyzing the test. (Anderson,) . However larger the sample size, the less the sampling error and one more fact is if the sample size is quadrupled, the costs together the data will be quadruple. But the level of sampling error will be reduced by only one-half. By large, in management research the determining sample size involves both managerial and financial considerations. (Shao, 2000).

V. Measurement of Scale

Establishing a connection between concepts and data is one of the most important and difficult steps of research process. Measurement consists of deciding upon instruments and indicators to use to translate a concept into data which may refers to operational definition.(Angot and Milano, 2001). It is a privilege of researcher to construct their own operational definition as per the requirement of the study objective. Broadly speaking, data can be classified into two: Categorical data and Continuous data. Nominal and Ordinal scale belonged to categorical and Interval and Ratio scale belong continuous data. For the matter of statistical test, categorical data used for non parametric test and continuous data is used for parametric test. There are various factors are there to determine the particular statistical test. But one of the key is Measurement of scale

VI. Collection of Data

Data can be collected in two ways, Primary and Secondary respectively. Primary and secondary data are complementary at all stages of the research process. Based on researcher interest and his or her study, researcher should decide whether the required data is primary or secondary. Apart from this, based on objective of study whether the study for construct or explore or test a theory, different methods of collection of data is determined. For example: if researcher chose, Testing a theory, then starts with Quantitative approach, then research design is Descriptive, then research strategy is Survey method, then , if collection of data is primary it led to Questionnaire, or if collection of data is secondary, company documents for example analyzing the company balance sheet. In similar pattern for constructing or building theory, Qualitative research → exploratory design → Case study research strategy → if it is primary data collection → In-depth interview, if it is secondary data collection → collecting documents and physical articrafts of the company etc.

VII. Goodness of Data

Data is most important for testing a model or theory. But researcher must know the methods to understand how far the collected data is good and free from errors such as bias, wrong coding, declaration of variables etc., this can be understand with help of two criteria: Validity and Reliability. Validity is a study has to measure what ought to measure. There is no single method for testing the validity and reliability of a research project. Among the different types of validity, those most often used are content validity, criterion-related validity and construct validity. The content validity: the degree to which an operationalization represents the concept about which generalizations are to be made. Criterion-related validity: the degree to which the concept under consideration enables one to predict the value of some other concept that constitutes the criterion. It has two methods, predictive and concurrent validity. Construct validity: The extent to which an operationalization measures the concept which it purports to measure. It also has two methods, convergent and discriminate validity. Apart from this there are other validity such as Systemic, Semantic and Control validity.(Zaltman, 1973). The other criteria to test the goodness of data are reliability Reliability is a matter of consistency. Basically there are four methods used to estimate the reliability. Test-retest, this method consists in carrying out the same test on the same individuals at different times and find a correlation coefficient between the results obtained in two continuous tests. Secondly, Alternative forms or parallel forms, it involves administering two tests to the same individuals, the difference being that in this case the second test is not identical to the first; an alternative instrument is used to measure the same object or phenomenon, with the questions formulated differently. Thirdly, Split-halves, it consists of providing the same instrument at the same time to different respondent, but in this case the items are divided into two halves. A coefficient correlation of the responses obtained in each half is then calculated. At last, internal consistency, It is used to estimate reliability coefficients that measure the internal cohesion of scale. Often used is cronbach's alpha, the value varies between 0 and 1. The closer to 1 is the stronger the internal cohesion of the scale. The value greater .7 is generally accepted as good internal cohesion. (Godard, Ehlinger and Grenier, 2001)

VIII. Data Analysis

The statistics activities of the researcher started once the he or she cross the data collection stage, which is, analyzing and interpreting the data with help of statistical test. There is a systematic approach towards statistical test. To say, what type of test should be applied for what type of data is absolute science, there are some factors are there: they are: objective of the study, whether the research is descriptive, exploratory, explanatory or confirmatory. Second, Scale of measurement, whether the given data is in the form of nominal or ordinal or interval or ratio scale. Third, nature of sample, whether the given sample is independent or dependent. Fourth, number of groups of sample, the given sample is 1 group, 2 groups or more than 2 groups. Fifth, size of the sample, small size (< 30) or large sample (>30). Sixth, nature of variables, that is, given technique is Interdependence or Dependence. The former, no bifurcation of independent and dependent variables. The latter, clear cut segregation of independent and dependent variables. At last, Nature of distribution such as normal, Poisson and Binomial distribution For example only one independent and dependent variable in continuous data the Pearson correlation is applied, if it is more than one of independent or dependent then, canonical correlation can be used. All the above factors decides whether the researcher can apply univariate or bivariate or multivariate.

IX. Findings

Once the statistical test is completed, Findings make finishing touch to the research. Findings have got the key elements such as summary, implications, contributions of the study, and limitations of the study. By meticulous understanding of the findings the researcher can answer their research question or problem of the research. However, there are limitations for any study, but the present limitations of the study can be acted as seed for the further inquiry or further motivations for the further study for the researchers.

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