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QUANTITATIVE RESEARCH

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ALGORİTMA

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METHODOLOGICAL ALGORITHM IN QUANTITATIVE RESEARCH\*

NİCEL ARAŞTIRMALARDA YÖNTEMSSEL ALGORİTMA

Prof. Dr. Serkan GÜZEL

**Abstract:** Methodology may be estimated how to make and organize things, in a manner of speaking. However, methodology require a map indicating a program schedule and stages of making things, at least. A researcher may make valid research with using methodology. With particularly beginning to operate in computers, algorithms generally have the capability to form several kind of mathematical models about solving problem. Indeed, to solve given research problem, algorithms may correctly describe briefly a solution. One of algorithm may relate definite research problem with theories, theories with hypothesis, and hypothesis with questionnaires. In addition, algorithms function with its models especially in quantitative researches; and this means they may solve definite research problem via functioning several kinds of ways depending upon combinations among options of theory using, hypothesis and questions forming.

**Key Words:** Methodology, quantitative research, algortihm, theory using, hypothesis forming.

**Öz:** Yöntem bir anlamda parçaların nasıl oluşturulduğu ve düzenlendiği şeklinde değerlendirilebilir. Ancak, yöntem nihayetinde parçaların nasıl düzenleneceğine ilişkin program ve aşamaları içeren bir harita gerektirir. Araştırmacı yöntem kullanmak suretiyle geçerli bir araştırma yürütebilir. Özellikle bilgisayarlarda kullanılmaya başlamasıyla birlikte algoritmalar genel olarak sorun çözümüne ilişkin birbirinden farklı matematik modeller oluşturabilme kapasitesine eriştiler. Gerçekten de verili bir araştırma sorununu çözmek için algoritmalar belirgin kısa ve öz çözümler sunabilir. Bir algoritma araştırma sorununu kuram ile kuramı hipotez ile ve hipotezi de anket soruları ile ilişkili hale getirebilir. Ayrıca algoritmalar özellikle nicel araştırmalarda sundukları modeller ile işlev görürler. Bu, algoritmaların belirli bir araştırma sorununu, kuram kullanımı olasılıkları ve hipotez ve anket sorusu uyumu oluşturmaya bağlı olarak çeşitli yollardan çözebileceği anlamına gelir.

**Anahtar Kelimeler:** Yöntem, nicel araştırma, algoritma, kuram kullanımı, hipotez oluşturma.

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## INTRODUCTION

With one of its dimension, sociology is a science determining societal problems by launching exhaustive researches with regard to principles of methodology of natural sciences. Actually, founder of sociology named Auguste Comte put forth sociology as a queen of whole sciences that benefits from natural sciences such as astronomy, mathematics, chemistry, biology, e.g. In this sense, sociology have to establish and develop a methodology, including forming hypothesis like astronomy, formulate like mathematics, synthesize like chemistry, observe like biology f.g. All of this characteristics have take sociology a little bit to the positivist camp.

As in natural sciences, implementing precise methodology in sociology is so important. Although the founder of sociology is Auguste Comte, Emile Durkheim had put sociology in a methodological level, especially with his research over suicide putting forth a significant result which was indicator of comparison between Catholics and Protestant. Effects of Durkheim's this given research had pointed out that the reality of society might measure with making comparison between its parts in special. This means positivism had affected sociology in point of giving priority to structure of society instead of individual and individual actions within global society. So, particularly with the effects of Emile Durkheim's given research that carry on quantitative researches over global society in which (re)actions of individuals has ignored consciously had become inevitable for sociology.

In this chapter of this edited book, importance of implementing methodology in quantitative sociological research will be discussed with its precise principles. In this way, as titled quantitative research, research design, and empirical process, this article consists of three main parts. In first part, characteristics of quantitative research and its functions have been evaluated. In the second part, the important role of research question, sampling, and operationalization issues all together put on agenda. And in third part, how to apply quantitative research depending heavily upon theoretical dimension discusses in detail.

## QUANTITATIVE RESEARCH

What is sociology about? is probably the question that sociologists are asked more often than any other. A reasonable reply might be that sociologists are interested in those aspects of human behaviour which are the result of the social context in which we live. Indeed, sociologists have studied an even wider variety of aspects of social life, from such matters as how people avoid bumping into each other in the street to topics as wide-ranging as the causes of the rise of capitalism. In fact, a brief history of sociology since the end of the last century is an effective way of introducing the variety of research styles and some of the topics studied. Sociological research, like all scientific enquiry is fundamentally prompted by simple human curiosity, an indispensable quality if research is to be both successful enjoyable. But curiosity can take different forms. It asks why and tries to find the answer to a problem. This may be a social problem or a socialological problem (McNeill and Chapman, 2005: 1-7).

Individual researchers are free to choose the methods, techniques, and procedures of research that best meet their needs and purposes (Creswell, 2014: 13). Consequently, researchers need think carefully about what research methods are going to produce the most valid data. A sociologists theoretical perspective will guide the choice of topic and research method adopted

(McNeill and Chapman, 2005: 27; Morse, 1994:220-235). Anybody who wishes to study any aspect of the world about them has to decide what methods they are going to use. Their decision is made on the basis of their assumptions about what kind of thing it is they are studying (McNeill and Chapman, 2005: 14). Crotty suggested that in designing a research proposal, we consider four questions: what epistemology, what theoretical perspectives, what methodology, what methods. These four questions show the interrelated levels of decisions that go into the process of designing research (Creswell, 2014: 5). Before you start to think about your research, you need to ask yourself a few questions: why have I decided to do some research, how can I remain interested in my research, what personal characteristics do I have which might help me to complete my research, what skills and experience do I have which might help in my research (Dawson, 2002: 2). Researchers recognize that their own background shapes their interpretation, and they position themselves in the research to acknowledge how their interpretation flows from their own personal, cultural, and historical experiences (Creswell, 2014: 9).

As we saw earlier, when we briefly reviewed the history of sociological research, the period between the early 1960's and the early 1990's was characterized by a debate about how we should go about researching society between two schools of thought known as positivism and phenomenology. Positivism is a philosophical concept, and refers to a particular set of assumptions about the world and about appropriate ways of studying it. In general, positivists see society as more important than the individual. For example, they point out that individuals are born, take their place in society and then die, but society continues largely undisturbed. Moreover, positivists suggest that people are the puppets of society, i.e. they are controlled by social forces emanating from the organization of society (McNeill and Chapman, 2005: 15).

As mentioned in previous paragraph, the positivist approach to the study of the social world continued to be influential in sociology up to the 1960's. In this period, we therefore see the extensive use of quantitative methods such as the social survey which incorporates questionnaires. Positivists see sociology as the science of society and believe that the behaviour of human beings can be objectively and scientifically measured in much the same way as the subject matter of the natural sciences. They consequently argue that sociologists should adopt the logic and methods of the natural sciences in their exploration of how the social structure of society shapes people's behaviour of actions. Predictions about the social world can be made, and this makes possible a certain amount of social engineering (McNeill and Chapman, 2005: 16-17).

A sociological problem is any aspect of social life that needs explaining. It may also be a social problem, but sociologists are just as interested in trying to explain normal behaviour and events as they are in trying to explain the deviant or the abnormal. Much research is concerned only with increasing our knowledge of how societies work, and explaining patterns of social behaviour (McNeill and Chapman, 2005: 8). If we examine positivist principles further, we can see certain assumptions about the characteristics that scientific method should ideally have. First, research should be objective or value-free. In other words, the sociologist should be neutral and not allow their personal or political options and prejudices to bias any aspect of their research method (McNeill and Chapman, 2005: 16).

In quantitative research, the hypotheses and research questions are often based on theo-

ries that the researcher seeks to test (Tuckman, 1999: 43). There are laws or theories that govern the world, and these need to be tested or verified and refined so that we can understand the world. Thus, in the scientific method-the accepted approach to research by positivists, a researcher begins with a theory, collects data that either supports or refutes the theory, and then makes necessary revisions before additional tests are conducted. Because quantitative studies are the traditional mode of research, carefully worked out procedures and rules exist for the research. This means that researchers may be more comfortable with the highly systematic procedures of quantitative research (Creswell, 2014: 7-25). The most rigorous form of quantitative research follows from a test of a theory and the specification of research questions or hypotheses that are included in the theory. The independent and dependent variables must be measured separately. This procedure reinforces the cause and effect logic of quantitative research. Investigators are used frequently in social science research and especially in survey studies, hypotheses, on the other hand, are predictions the research holds about the relationship among variables (Kemmis and Wilkinson, 1998: 31-32).

### THE IMPORTANCE OF FORMING AN ALGORITHM

#### How to Form Research Question

With particularly beginning to operate in computers, algorithms generally have the capability to form several kind of mathematical models. Indeed, to solve given research problem, algorithms correctly describe briefly a solution. The algorithm may relate definite research problem with theories, theories with hypothesis, and hypothesis with questions. In addition, algorithms may use with the functions of its models especially in quantitative researches; and this means algorithms may solve definite research problem within several kinds of ways depending upon options of theory using, hypothesis and questions forming. In this sense algorithms are functions or relations that they are relatives to a set of given operations which represent the available resources (Yiannis, 2001: 919-936). What is your research? this question needs to be answered as specifically as possible. Why do you want to do the research? What is its purpose? Whatever your reason, think very carefully about why you are doing the research as this will affect your topic, the way you conduct the research and the way in which you report the results (Dawson, 2002: 5). In quantitative studies, investigators use research questions and hypotheses to shape and specifically focus the purpose of the study. Research question and interrogative statements or questions that the investigator seeks to answer (Kemmis and Wilkinson, 1998: 31).

Creswell (1999: 3-6) suggest that the proposal developer needs to consider three framework elements; philosophical assumptions about what constitutes knowledge claims; general procedures of research called strategies of inquiry, and detailed procedures of data collection, analysis and writing, called methods. With these ideas in mind, what knowledge claims are being made by the researcher (including a theoretical perspective), what strategies of inquiry will inform the procedures, what methods of data collection and analysis will be used, setting a knowledge claim means that researchers make claims about what is knowledge (ontology), how we know it (epistemology), what values go into it (axiology), how we write about it (rhetoric), and the processes for studying it.

Research topics are often phrased in terms of the dependent variables because dependent variables are the phenomenon to be explained (Neuman, 2007: 91-92). Researchers background will help researcher to become more familiar with topic and introduce to any other research will be of benefit to you when you begin your own project (Dawson, 2002: 40). It is difficult to move a broad topic to hypotheses, but the leap from a well-formulated research question to hypotheses are embedded within a good research question. In addition, hypotheses are tentative answers to research questions (Neuman, 2007: 101).

### **Sampling from Population**

Researchers use units of analysis other than individuals, groups, organizations, social categories, institutions, and societies (Neuman, 2007: 96). The nature of the sample can affect the choice of method (McNeill and Chapman, 2005: 27). Who will be your participant, where are you going to conduct your research? Thinking about these questions in geographical terms will help you to narrow down your research topic (Dawson, 2002: 6). This purpose is to generalize from a sample to a population so that inferences can be made about some characteristic, attitude, or behaviour of this population (Babbie, 1990; Fowler, 1992). How were the participants selected? How will the participants be randomly assigned? Will they be matched? How? Identify whether the study will involve stratification of the population before selecting the sample. Stratification means that specific characteristics of individuals are represented in the sample and the sample reflects the true proportion of individuals with certain characteristics of the population (Tuckman, 1999: 49-56).

Sociologists need to ask themselves whether the research population is accessible, whether it is deviant and therefore suspicious of the motives of researchers, whether it is literate or illiterate, and whether it is concentrated in one place or geographically dispersed (McNeill and Chapman, 2005: 26). Moreover, specific issues needed to be addressed that speak to important social issues of the day, issues such as empowerment, inequality, oppression, domination, suppression, and alienation. In this sense, the participants may help design questions, collect data, analyse information, or receive rewards for participating in the research. However, some subjects are very sensitive, e.g. people may not admit willingly to behaviour such as domestic violence, racism or certain types of sexual behaviour (McNeill and Chapman, 2005: 27). The voice for the participants becomes a united voice for reform and changes. This advocacy may mean providing a voice for these participants, raising their consciousness, or advancing an agenda for change to improve the lives of the participants.

Theoretical perspectives may be integrated with the philosophical assumptions that construct a picture of the issues being examined to the people to be studied, and the changes that are needed (Creswell, 2014: 11). As generally known, all theories contain concepts, and concepts are the building bloc of theory? Concepts have two parts: a symbol and a definition. Social scientists borrow concepts from everyday culture, but they refine these concepts and add new ones (Neuman, 2007: 26). Social theory requires well-defined concepts. If the theory is a network of connections among abstract entities represented by concepts, then once these abstract entities become concrete, the whole theoretical network will become concrete; it will therefore be possible to establish the same connections among the concepts made concrete-that is,



transformed into empirically observable entities. We can therefore say that the concepts are building blocks of the theory, and that it is through the operationalization of the concepts that the theory is transformed into empirical terms. Thus, the concept bridges the gap between theory and the observable empirical world (Corbetta, 2003: 64).

The term concept refers to the semantic content (the meaning) of linguistic signs and mental images. Its etymological meaning indicates the action of ordering the multifarious within a single thought and the act of abstracting a universal meaning from immediate sense impressions and from manifestations of the particular. It is the means by which human beings are able to know and to think; it is also the basis of all scientific disciplines, which consist of knowing by universals. (Corbetta, 2003: 64). Conceptualization is the process of carefully thinking through the meaning of a construct as well as is the process of taking a construct and refining it by giving it a conceptual or theoretical definition. A conceptual definition is a definition in abstract, theoretical terms (Neuman, 2007: 111). The majority of social concepts are located on a high level of generality. Nevertheless, since our objective is to submit theory to empirical corroboration, we have to define even these concepts empirically (Corbetta, 2003: 75). In fact, researchers define scientific concepts more precisely than those we use in daily discourse (Neuman, 2007: 27). So, a hypothesis was defined that implies a relationship between two or more concepts; in other words, it is an interconnection among concepts (Corbetta, 2003: 64).

### **Importance of Operationalization**

The scientist work consist not only of producing theories, but also of testing them. And this phase, whether it involves logical-formal examination of the theory or verification of its consistency with reality must follow precise rules. The typical itinerary followed in social research consist of a loop, which begins with the theory, runs through the phases of data collection and analysis, and returns to the theory (Corbetta, 2003: 58). The measurement process for quantitative research flows in a straghtforward sequence: first conceptualization, followed by operationalization, followed by applying the operational definition or measuring to collect the data. The measurement process links together the three levels, moving deductively from the abstract to the concrete. A researcher first conceptualizes a variable, giving it a clear conceptual definition. Next, he or she operationalizes it by developing an operational definition or set by developing an operational definition of set of indicatos for it. Last, he or she appllies the indicatos in the empirical world (Neuman, 2007: 112-113).

Operationalization links a conceptual definition to a specific conceptual definition, to the practical constraints within which you must operate (e.g., time, money, available subjects etc.) and to the research techniques you know or can learn. You can develop a new measure from strach, or it can be a measure that is already being used by other researchers. Operationalization links the language of theory with the language of empirical measures. Theory is full of abstract concepts, assumptions, reliationships, definitions, and causality. Empirical measure specific variables. They refer to specific operations or things people use to indicate the presence of a construct that exists in observable reality. The links from abstract constructs to empirical reality allow the resarcher to test the empirical hypotheses. Those tests are logically linked back to a conceptual hypothesis and causal relations in the world of theory. A hypothesis has at least

two variables, and the processes of conceptualization and operationalization are necessary for each variable. In the preceding example, predijuce is not a hypothesis. It is one variable. It could be a dependent variable caused by something else, or it could be an independent variable causing something else. It depends on my theoretical explanation (Neuman, 2007: 112-113).

A theoretical proposition must be able to be broken down into specific hypotheses. By hypotheses, we mean: A proposition that implies a relationship between two or more concepts. Which is located on a lower level of abstraction and generality than the theory. And which enables the theory to be transformed into two terms that can be tested empirically (Corbetta, 2003: 60-61). You may be wondering: where does theory fit into the process of moving from a topic to a hypothesis I can test? Theories provide concepts that researchers turn into variables as well as reasoning or mechanism that helps researchers connect variables into a research question and be an untested proposition from a theory (Neuman, 2007: 103). Determinism suggests that examining the relationships between and among variables is central to answering questions and hypotheses through surveys and experiments (Tuckman, 1999: 44-45). In quantitative studies, researchers advance the relationship among variables and pose this in terms of questions or hypotheses (Creswell, 2014: 8).

The first phase is that of the theory. The second is that of the hypotheses, and the passages between the two involves a process of deduction. The hypothesis constitutes a partial articulation of the theory and in relation to the theory, is located on lower level of generality (Corbetta, 2003: 58). A hypothesis is a proposition to be tested or a tentative statement of a relationship between two variables. Hypotheses are guesses about how the social world works; they are stated in a value-neutral form (Neuman, 2007: 92-93). The theory is general, while the hypothesis is specific. The third phase is that of empirical observation, or rather, data collection. This is reached through the process of operationalization that is to say, the transformation of hypotheses into empirically observable statements (Corbetta, 2003: 58).

The hypothesis has two distinguishing features. First, it is less abstract than the theory in conceptual terms and less general in terms of extension. Second, it is provisional in nature; it is a statement that has yet to be proved, which is derived from the theory but awaits empirical confirmation (Corbetta, 2003: 61). In this sense, a researcher can formulate a tentative research question, then develop possible hypotheses; the hypotheses then help the researcher state the research question more precisely. The process is interactive and involves creativity. Actually, several hypothesis can be developed for one research question. Another hypothesis from the same research question is: "the smaller the difference between the ages of marriage partners at the time of marriage, the less likely that the marriage will end in divorce". In this case, the variable "age at marriage" is specified differently (Neuman, 2007: 103).

The variable is central idea in quantitative research. Quantitative research uses a language of variables and relationships among variables. The second type of concept and measures of the concepts are variables (Neuman, 2007: 91). A variable is an operationalized concepts. More precisely, it is the operationalized property of an object, in that the concept, in order to be operationalized, has to be applied to an object and to become a property of that object. Just as the concepts are the building blocks of the theory, the variables are the core element of empiri-



cal analysis. The variables are the essential terms, the fundamental elements, the vocabulary of the social sciences (Corbetta, 2003: 68-69). Variables take on two or more values. Once you begin to look for them, you will see variables everywhere. For example, gender is a variable; it can take on two values; male or female. Two other theories on the same topic may have different independent variables or predict different independent variables to be important. In addition, theories may agree about the independent and dependent variables but differ on the intervening variable or causal mechanism (Neuman, 2007: 91-92).

The use of variables in research question or hypotheses is typically limited to three basic approaches. The researcher may compare groups on an independent variable to see its impact on a dependent variable. Alternatively, the investigator may relate one or more independent variables to a dependent variable. Third, the research may describe responses to the independent, mediating, or dependent variables (Kemmis and Wilkinson, 1998: 31). However, it is not always easy to determine whether a variable is independent or dependent. Two questions help you identify the independent variable. First, does it come before other variables in time? Independent variables come before any other type. Second, if the variables occur at the same time, does the author suggest that one variable has an impact on another variable? Independent variables affect or have an impact on other variables (Neuman, 2007: 91).

In a research design, one technique is to relate the variables, the research questions, and items on the survey instrument so that a reader can easily determine how the researcher will use the questionnaire items (Tuckman, 1999: 52). Consider a model for writing questions or hypotheses based on writing descriptive questions that are followed by influential questions or hypotheses. These questions or hypotheses include both independent and dependent variables (Kemmis and Wilkinson, 1998: 35). The goal of research, then, is to rely as much as possible on the participants views of the situation being studied. The more open-ended the questioning, the better, as the researcher listens carefully to what people say or do in their life setting (Creswell, 2014: 9).

## DATA ANALYSIS

Sociology is a discipline that rests on the fundamental belief that a distinct level of social reality exists beyond the individual. Explanations of this level require data and theory that go beyond the individual alone (Neuman, 2007: 98). Sociologists have used a wide variety of methods of data collection and analysis. Survey based research is usually quicker to carry out. It is important not to rush it, but once the questionnaire or interview schedule has been finalized, data collection can proceed quite quickly and, if the questionnaire has been well designed data analysis presents less of a problem since statistics can be processed with the help of a computer. In most such studies, the researcher or team of researchers spends between six months and two years in the field, and there is then a long period of analysing the data (McNeill and Chapman, 2005: 2-25)

Evidence has to be collected from the social world around us, and this requires empirical (McNeill and Chapman, 2005: 1). This process is very complex and can be broken down into two stages. The first of these concerns the operationalization of concepts; this involves transforming the concepts into variables-that is, entities that can be assessed. The second stage re-

gards the choice of the tool and of the procedures for data collection. Once the empirical material has been gathered, one proceeds to the forthphase, or data analysis phase, which will be preceded by the organization of the data. In general, the term information is applied to the raw empirical material that has not yet been systematized, while the term data is used to indicate the same material once it has been organized into a form that can be analyzed. For instance, a set of questionnaires constitute information, while the same questionnaires will become data once they have been transformed into sequences of numbers that can be compared with one another (Corbetta, 2003: 58-59). All information used in this analysis was derived from questionnaire data. Discuss a plan to provide a descriptive analysis of data for all independent and dependent variables in the study (Tuckman, 1999: 53-55).

Identify the statistics and the statistical computer program for testing the major questions or hypotheses in the proposed study (Tuckman, 1999: 54). The research should produce mainly quantitative or statistical data that can be converted into tabular or graphical informations (McNeill and Chapman, 2005: 17). Plan to include a table and a discussion that cross-reference the variables, the questions or hypotheses, and specific survey items. This procedure is especially helpful in dissertations in which investigators test large-scale models (Tuckman, 1999: 52). The researcher returns to the starting point of the whole procedure-that is to say, the theory. The process involved here is one of induction, the empirical results will be compared with the theoretical hypotheses and more generally, with the initial theory. In this way, the theory will either be confirmed or reformulated (Corbetta, 2003: 59).

Standards of validity and reliability are important in quantitative research (Creswell, 2014: 8). If a method of collecting evidence is reliable, it means that anybody else using this methods, or the same person using it at another time, would come up with the same results. The research could be repeated, and the same results would be obtained. Validity refers of the problem of whether the data collected in a true picture of what is being studied (McNeill and Chapman, 2005: 9). Validity suggests truthfulness and refers to the match between a construct, or the way a researcher conceptualizes the idea in a conceptual definition, and a measure. It refers to how well an idea about the reality "fits" with actual reality. There are four ways to increase the reliability of measures: clearly conceptualize constructs, use a precise level of measurement, use multiple indicators, and use pilot-tests (Neuman, 2007: 115-116).

## CONCLUSION

Methodology may be estimated how to make and organize things, in a manner of speaking. However, methodology require a map indicating a program schedule and stages of making things, at least. A researcher may make valid research with using methodology. As known, like other scientific researches, the methodology of sociological researches have two main dimensions, one of which named theoretical from forming research problem to data collection and the other named empirical consisting of data analyzing and debating findings. Accordingly, all of researches in sociology should begin with designing research problem which is so important and functional to carry on whole research process safely. With determining research problem that may appreciate as a first and basic step of given ladder, researcher become well aware of not only which dimension of social reality may investigate but also what kind of rese-

arch may apply. This means prior task of the researcher is to go to field in order to attain foreknowledge from participants, who will provide datas as real subjects of research process.

Making some systematical observations about sample instead of forming a title for research will be so helpfull for resarcher. Sampling which require serious statistical technique is inevitable especially in quantitative sociological resarches since universe contain numerous population. In this way, researcher have to decide how much margin of error collaborating universe with size of the sample is suitable particularly as regards her/his observations about the reality of field. As known, social sciences accept margin of error (d) changing from %2 to %8. In fact, proportion of margin of error, mentioned in previous sentence is determinant over size of the sample.

First of all, one research has to go together with general principles of scientific methodology in order to be appreciated as a scientific research. In this sense, privileged principle is to choose convenient theory particularly for constituting research problem stemmed from researchers systematical observations. That is to say, if a researcher want to carry on a sociological research, it is must for his/her to begin with sociological theory soon after forming research problem. Likewise, implementing an economic theory in research process, means the researcher has been carried on an economic research. If a researcher use a psichological theory, then research become psychological. So, it is easy to say that theory usually has ability to determine researches scientific style substantially. In fact, making research problem clear in his/her mind, a researcher should find macro sociological theory in quantitative sociological research process.

As mentioned in previous paragraph, one of the most important characteristics of quantitative sociological research is beginning with macro sociological theory. This means launching and forming hypotheses, questions, data collection, data analysis, attaining findings are closely related with macro sociological theory seleceted soon after defining research problem. So, macro theory become operational especially in point of view of seperating theory into subcomponent, turning these subcomponent of theory into effective hypotheses, and evolving these hypotheses as a defined survey questions which will direct to participants. Morevoer, all of these questions taking place in survey will become operationally effective paritcularly in testing hypotheses as well as theories. Actually, formation of survey will contain just questions that is closely and directly linked with research problem; in other words, not only a researcher but also participants will not cope with irrelevant questions. Accordingly, application of survey will give a researcher systematical datas closely and directly related with research problem. So, questions taking place in survey firstly should be identified as variable view after then each survey belong to each participant should introduce as data view by using SPSS computer program. This means research problem become as materialize as researcher may study effectively.

The other main dimension of quantitative research application is that data analysis and discussing findings should be in collaboration with theory, which distinctly decided at the beginning point of research. In fact, neither data analysis nor achieving findings may not be realize without help of theory, subcomponent of theory, hypotheses, and questions. Actually, data analysis stage of quantitative research offers an opportunity to categorize much more than millions of data collecting from participants and compare datas each other with regard to ended

questions taking place in surveys. That comparison among datas may just be made by operationalization of theory have to be keep in the mind. That's why, above all, datas attained from questions should analyze as frequencies and cross-tabs in two ways. While frequencies will give important infos about sample in general, cross-tabs are for hypotheses testing in special. In this way, cross-tabs formed with regard to hypotheses and therefore consisted of independent and depent variables may choose. That is to say, the researcher should precisely decide what kind of cross-tabs is useful especially for hypotheses testing. So, analysing these cross-tabs, which choose from researcher offer not only valuable informations about participants but to test hypotheses as well. If cross-tabs achieved from SPSS computer program show powerfull relationship coefficient, given hypothesis has been confirmed. Which hypothesis is confirmed, given subcomponent of theory has been confirmed. This means the theory, which determined with respect to research problem at the beginning of the research has been confirmed. After all, if cross-tabs achieved from SPSS computer program show weak relationship coefficient, then given hypothesis and therefore subcomponent of theory has not been confirmed.

Taken together, sociological research must adapt general principles of methodology may become clear. Additionally, theory selection process is as important as forming research problem, data collaction and data analysing. In any case, convenient theory selection throughout research process means evolving precise hypotheses, and therefore questions, on one hand; and data collection, data analysis and attaining meaningful findings, on the other hand. That theory selection issue will have huge effect throughout research process may be taken into account. In short, implemented theory will take researchers' hand roughly throughout sociological investigation process may be pointed out. In a manner of speaking, theory using may appreciate as travelling in a foreign city with the city map for the first time. That a research without theory implementing resembles walking in a foreign city without map is taken into account, someone can esaily understand that the tourist will have troublesome in her/his jaywalking. As reveals that travelling a city with a city map will be able to give a tourist plentiful advantages.

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