Research Methodology: An Introduction

Vida Davidavičienė

1 The Nature of Research

The challenges of society are difficult to solve, as there are no sources or authorities who can provide us with a solution, especially when changes are so fast. Growing complexity of our civilization means that in the social sciences, at least, new problems develop more rapidly than the old ones already solved. Since a problem is a doubtful case or a difficult question of solution or settlement, it is necessary to understand the relevant facts in order to solve the problem. No reduction in vagueness can be made until the problem has been carefully defined and broken down into specific questions or sub problems. In all aspects of life—social, economic, educational, political, and business—there is increasing emphasis upon research to give for a researcher factual data, which is necessary to solve problems or to understand phenomena.

The term 'research' comes from the French word 'recherché' that means to survey. Research is defined in different sources. Subsequently, some definitions will be presented.

According to Saunders et al. (2012) the research is something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge [1].

Research—studious inquiry or examination; especially: investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws [2].

According to Bryman and Bell (2015) research is a careful inquiry or examination to discover new information or relationships and to expand and to verify existing knowledge [3].

It is the manipulation of things, concepts, or symbols and it has the purpose of generalizing, extending, correcting or verifying knowledge, whether that knowledge aids in the construction of a theory or in the practice of an art. A mechanic or physician

V. Davidavičienė (✉)
Department of Business Technologies and Enterpreneurship, Vilnius Gediminas Technical University, Saulėtekio al 11, 10223 Vilnius, Lithuania
e-mail: vida.davidaviciene@vgtu.lt

J. Marx Gómez and S. Mouselli (eds.), *Modernizing the Academic Teaching and Research Environment*, Progress in IS, https://doi.org/10.1007/978-3-319-74173-4_1

is a researcher only when he attempts to generalize all about the topic he emphasized in, on one or more characteristics of research that others have minimized, but the general nature of the activity is not in dispute.

Bennett's (1991) definition presented in Veal (2015) defines "research as a systematic, careful inquiry of examination to discover new information or relationships and expend/verify existing knowledge for some specific purpose" [4].

Research discussed in this chapter will be "social science" rather than "natural science" oriented. There are many differences in experimental conditions between these two fields, principally because of the extreme difficulty in running a "control" experiment for purposes of comparison when the research topic is in a social science field.

Progress in research has been accelerated by the discovery and development of methodological procedures making the process more rigorous, discriminating, and dependable. The information and communication technologies (ICT) enable to collect data and detect relationships more rapidly that it is possible to carry on investigations that would have been too costly and too time consuming only a decade ago. Methodological developments have been enhanced by researchers' dedicated belief that unbiased study of all relevant facts is the best way to solve many problems.

It must be admitted that the word "research" is abused in common speech in that it frequently is used to mean "looking up" something in a standard reference book and not the acquisition of new knowledge.

1.1 Scientific Research

Scientific *research* may be defined simply as the systematic and refined use of specialized tools and procedures to obtain a more adequate solution to a problem than would be possible by less discriminating means [5].

"Scientific research is research that conduct with the rules and conventions of science. The means that it is based logic, reason, and the systematic examination of evidence. Ideally, within scientific model it should be possible for research to be replicated by the same or different researchers and for similar conclusions to emerge. Scientific research should also contribute to a cumulative body of knowledge about a field or topic" [4].

Scientific research starts with a problem, collects facts, which are critically analysed, and reaches decisions based on actual evidence. It may well involve tentative hypotheses and, on occasion, experimentation. It evolves from a genuine desire to know rather than from a wish to prove a point of view. As far as possible, it stresses a quantitative approach, seeking to know not only what, but also how much; measurement is therefore an important aspect of scientific research.

Philosophers have frequently discussed the procedures involved in initiating an inquiry. All agree that initially the investigator should clear his mind of traditional viewpoints, but there are numerous differences of opinion as to what the next steps

are. It could be presented six steps of the scientific research which are analogous to the thinking process [1–4, 6–16]:

1. A felt need. This may be considered as the occurrence of some felt difficulty in adaptation of means to a desired end, in identifying the character of an object, or in explaining an unexpected event.
2. The problem. Once one is aware of some questions or problems or difficulties, the next step is to define it in terms of a problem statement.
3. The hypothesis. The third step is stating a possible solution for the problem. The solution may be based upon a hunch, a guess, an inference or a theory.
4. Collection of data as evidence. The fourth step is the collection of data, information, or evidence to bear out the implications of a hypothesis.
5. Concluding belief. On the basis of the evidence the idea is corroborated or rejected and a concluding belief is formulated through the experimental analysis of the hypothesis.
6. General value of the conclusion. After a solution has been found to work, there is a mental "looking forward", the general purpose of which is to appraise this new solution in the light of future needs. This is the answer to the question, "So what?" that is often raised at the end of many research efforts.

The point of view expressed in this text is that good research methodology must reflect good thinking, and that these steps in the thinking process might well serve as procedural guides in the development and execution of research investigations.

Most sources suggest understanding research processes as multi-stage processes, the number of stages varies. One of such presented below.

Steps in General Research Methodology. In other words, (formulation) there are six steps in the development of a research project which have general applicability:

1. Selection of the topic or problem for investigation.
2. Definition and differentiation of specific aspects of the topic.
3. The framing of working hypotheses to facilitate the preparation of a logical study design.
4. Collection of pertinent data.
5. Analysis and interpretation of the data.
6. Written report of the research study.

Another example could be—(1) reviewing literature, (2) designing research methodology, (3) collecting data, (4) analysing research results, and (5) writing report.

Theoretical Framework for Research. Basic to good scientific research is a theory which serves as a point of departure for the successful investigation of a problem. In this respect a theory is a tool of science since it may be used to define the kinds of data to be analysed; it provides a guide to the way in which data are to be systematized, classified, or interrelated; it often points out new facts; and it often identifies areas in which our present knowledge is unsubstantiated or lacking entirely. In its simplest form a theory may be nothing more than a guess, a conjecture, a speculation, or an idea. A more complicated theory may be a summation of facts which have been accumulated in a given subject, an analysis of a set of facts in their ideal relationships

to one another, a set of general or abstract principles, or a more or less plausible general principle offered to explain phenomena.

As more and more facts relevant to a theory are gathered, tentative generalizations can be made from them. These generalizations are usually referred to as a set of postulates. Deducing from a set of postulates one formulates a hypothesis—a statement capable of being tested and thereby verified or rejected.

When researchers seek first to secure their facts and then draw conclusions, they have reached the ***stage of hypothesis and experimentation***, a stage which may lead to a fifth and more precise stage if the information involved is capable of being reduced to quantitative terms. It is a proposition which can be put to a test to determine its validity. It may seem contrary to, or in accord with, common sense. It may prove to be correct or incorrect. In any event, however, it leads to an empirical test. Whatever the outcome, the hypothesis is a question put in such a way that an answer of some kind can be forthcoming. It is an example of the organized scepticism of science, the refusal to accept any statement without empirical verification. Every worthwhile theory, then permits the formulation of additional hypotheses. These, when tested, are either proved or disproved and in turn constitute further tests of the original theory. In either case they may be of use to existing theory and make the formulation of still other hypotheses possible.

The development of quantitative research has been comparatively recent in the social science areas which are of interest to business. Much of the credit is due to census information, which is becoming increasingly detailed and describes many aspects of our economy. Among other sources of quantitative data are the national income accounting system, sales tax returns, employment, and corporation accounting records that are much more complete and reasonably comparable because of the income tax. Most of these data have been collected by government agencies.

These various stages are not clearly separated from each other; it has already been noted that scientific research may be interwoven with speculation and argumentation because the facts that have been ascertained must be interpreted. It is impossible to avoid value judgments in dealing with the interpretation of facts, because facts discovered are of no use unless they are applied to human problems. This necessitates criteria and assumptions, the choice and acceptance of which may bring us to a situation having some similarities to the authority and tradition stage.

It should be noted that many theories are stated vaguely, do not specify the variables and conditions involved, and give inadequate cues as to what is to be measured, they do not form an adequate basis for research. Theories of a complicated and complex nature usually involve variables which we cannot measure or evaluate because instruments adequate for this are lacking at present.

The more productive researches, as carried on by graduate students and reported in theses and dissertations, have referred to somewhat limited phenomena and have been stated in fairly simple terms.

1.2 Business and Management Research

Because of the great strides that are being made in the natural sciences due to research, we are inclined to associate the term research with physics, chemistry, biology, and other laboratory disciplines. However, research (or scientific investigation, as it is frequently called) is of equal importance to the social sciences, the humanities, and applied fields. Our society is so strongly business oriented that virtually every aspect of our environment impinges upon business management; and, therefore, research in all fields is relevant to business administration. Such research might involve the social, political, and economic framework within which business now operates and has operated in the past; incentives and satisfactions that do or do not arise from work—a broad topic that includes labour relations, industrial sociology, and industrial psychology; those aspects of production that have to do with work flow, plant layout, and the host of internal operations necessary to keep the firm operating successfully; and the already well-established fields of market and accounting research.

Business and management research deals with social science, because it usually related to people or groups of people and their behaviour, which is challenging because of changes in environment and hardly predictable fluctuations of research object (people) mood, reactions etc.

Using Saunders et al. (2012) definition, *Business and Management research* can be defined as understanding systematic research to find out things about business and management [1]. Most *business research* is conducted either within a firm by private research organizations and trade associations, or in colleges and universities. Research within a firm may be under the immediate direction of top management, although such research is likely to be sporadic and to deal only with immediate problems. According to Veal (2005) "the primary activity of a manager involves coordinating and facilitating the management of people and resources in an organization" [4]. Anyway, it can be understood in much more complex way. Longer-range studies are often conducted by full-time researchers who submit their reports to the sales manager, or the head of some other functional department. Private research organizations and trade associations frequently have the facilities and personnel to conduct highly specialized studies. Finally, business research conducted in colleges and universities is important: some is conducted independently by the faculty, much is carried on by graduate students writing doctoral dissertations, and some is conducted directly by university bureaus of business and economic research. Here can emphasized knowledge from different disciplines be used in management research in order to gain new insights, which is impossible to identify when doing research in each of them separately [1]. Another aspect which is important—that all ideas usually related to practice, and if speak on scientific research in business and management fields—it should be related to theory and practice.

Managers need to be competent in investigative approaches to decision making and problem-solving. The research process, while being the means of advancing knowledge, also serves as disciplined and systematic procedure of help in solving managerial problems. The research sequence could be compared to the decision-

making part of a broader problem-solving cycle. Many managers are probably involved in research without identifying it as such. The traditional tasks of management are usually defined in terms of planning, coordinating, and controlling and so on. Research is rarely mentioned in the same breath as management unless it is in the context of management education [17].

Business managers increasingly rely upon research, in part, because the newer generation is better trained and more sophisticated in the use of statistics and other research tools. Another result of this training is, that a growing number of business managers watch closely the results of research activities conducted in colleges and universities.

1.2.1 Managers as Action Researchers

Management is often regarded as synonymous with action. Managers spend the majority of their time making or implementing decisions through the use of verbal interventions. It seems particularly relevant, therefore, that managers can be seen as action researchers in their own organizations. Action research is a form of organizational development that involves a process of systematic data collection, reflection and action planning. In essence, action research entails some form of planned intervention in a situation by an organizational agent, for example a manager or an external consultant. The effects of this intervention are subsequently monitored in some way and critically evaluated to see if the chosen course of action has produced the expected outcomes. The difference between action research and just managing is one of awareness and rigorous application of methods. The argument is that managers can make more effective interventions by knowing more about the research options available to them, as well as about the theoretical assumptions on which they are based.

Theory has an important function in this process. It may be useful to differentiate its uses in two ways; in terms of our being theory-dependent and theory-laden. As decision-makers, we are:

- Theory-dependent, because we create, apply and evaluate theories all the time. We act on speculation and explanations of phenomena, often in unconscious ways;
- Theory-laden, because our observations are influenced by our prior theories and values. These values, together with our knowledge of theories, influence what we see and the value we attach to what we see.

1.2.2 Managers as Ethnographers

As well as action researchers, managers may also be regarded as organizational ethnographers. Ethnography is the art and science of describing a group or culture. It could be to compare the task of an ethnographer to that of an investigative reporter who interviews people, records events, and makes some kind of judgement about the

events that have been reported. The difference is that ethnographers concern themselves with routines of everyday life rather than the unusual [17]. Ethnography is in essence anthropology, and involves using techniques such as participant observation in a mainly inductive and naturalistic way. The concepts and practices of ethnography are particularly relevant if we accept the view of managers as a subculture that is a social collectively whose members share a set of implicit and explicit meanings acquired through innumerable communicative exchanges.

Every cultural pattern and every single act of social behaviour involves communication in either an explicit or implicit sense [18]. An ethnographer attempts to explore this implicit sense by examining the use of signs, myth and language, and any possible contradictions between the implicit and explicit messages which are conveyed to organizational members via the "vehicles" of signs, myth and language.

Another aim of the ethnographer may be to explore the ways in which we are controlled or impelled to act as a result of the myths that surround us. You may think of the word "myth" as odd in this context, believing it to be more appropriate to studies of ancient Greece and Rome. Myth is the complex system of images and beliefs which a society constructs in order to sustain and authenticate its sense of its own being: i.e. the very fabric of its system of meaning. In this light it becomes apparent that myths are a common, everyday phenomenon.

We also internalize reality as an objective phenomenon through the medium of language that constitutes the most important content and the most important instrument of socialization. Reality is created through language. Language, whilst often regarded as neutral, can actually be regarded as a potent political device. In this sense, political refers to the degree to which we are influenced, through linguistic expression, to accept particular perspectives on a person, issue or event.

If we have no wider theoretical or experiential reference points by which to analyse everyday situation, then we are more likely to accept them as common sense and beyond question. If, however, we begin to address such concepts as power and symbolism, gender and power relationships, or we have external knowledge from other cultures that offers us other examples of social organization, then we begin to locate our perceptions and experiences in a wider framework. Knowledge offers us the capability to widen our perspectives on life and sometimes we may begin to question what we have previously regarded as normal.

Ethnography emphasizes the idea of the researcher as theory-builder, not just theory-consumer. We are all theory-builders, but theory has come to be defined in such narrow terms that we come to see ourselves as practical people who have little time to theory.

In summary, theory often carries pejorative connotations for many managers. Our actions are theory dependent; we are all theory-builders whether we recognize it or not. And we are all theory-laden; we carry with us a set of assumptions about life, and we make sense of situations in certain ways. Our actions may be determined by theories we may not even realize we hold. We have argued that our way of seeing the world may be determined by our assumptions regarding the nature of reality, knowledge and human nature. All of these can determine our methodology

when making sense of ourselves, our role, and our interactions with others, our organization, and the wider environment.

Research is a fundamentally important, yet understated, element of the management decision-making process. In order to improve decision-making skills, managers cannot afford to regard research as the exclusive domain of students or academics.

1.3 Kinds of Research Investigations

Research study investigations are classified under four general categories, namely: library, life and physical science, social, and technological research.

Library research is a kind of research that is conducted primarily using written materials most commonly located in large libraries, World Wide Web and in virtual scientific databases. It is concerned with the seeking out of significant facts and interpretations from the past and from the extensive data and statistical information about contemporary life that frequently found in government documents, professional journals, and similar sources. Studies concerned with the evolution of theories and research into possible cause and effect relationships are likely to rely heavily on the use of library material. Library research that is worthy of the name necessitates generalizations and conclusions not previously appreciated.

Life and physical science research is, for the most part, empirical. It tends to utilize laboratories more than libraries, and the resulting reports are often shorter than those based on written sources. Although organizations are involved in laboratory research that may affect business operations, their findings do not normally have immediate relevance to management. Therefore, little business research is of this kind.

Social research is defined here to include research in both the social sciences and the humanities. It is devoted to a study of mankind in his social environment and is concerned with improving his understanding of social orders, groups, institutions, and ethics. This definition should be construed broadly enough to include research in such fields as foreign languages, philosophy, religion, etc. Social research is becoming increasingly important in business.

Technological or applied research consists largely of the application of the previously listed kinds of research to the immediate needs of business or industry. Much of the research conducted by business firms—aside from "scientific" research—is technological.

Speaking about Business and management research specifics of discovery or finding out, explanation, evaluation and judging leads to three types of research [4]:

- *Descriptive*—finding out, describing what is (like census of population, and surveys of households expenditure, to monitor social and economic change);
- *Exploratory*—explaining patterns, relationships and trends, to establish causality (using to predict demand, sales, impact, etc.);
- *Evaluative*—evaluation of policies, strategies, programs and practices.

1.4 Stages in the Development of Research

The history of intellectual development has been characterized by forward spurts followed by plateaus of complacency. Throughout history man has evolved various approaches for answering perplexing problems about life. Even as early as Aristotle research findings and empirical knowledge were being used in the physical and biological sciences. Research in the social sciences developed much more slowly, probably because the social sciences deal not only with topics which are less amenable to objective determination, but also because problems in the social sciences often involve strong vested interests that tend to make investigations proceed in an emotional atmosphere. Nevertheless, the research approach to problem solving has, in most disciplines, been preceded by three other approaches: (1) trial and error, (2) authority and tradition, and (3) speculation and argumentation.

Trial and Error. During the infancy of a science, observations are for the most part casual and qualitative—the sun rises, beats down strongly at midday, and sets; the moon grows from a crescent to full and then diminishes. In this first stage, man does not have logical explanations for all of the observed relationships composing a science, and he "muddles" along, trying one thing after another, until he finds an acceptable solution. As the process of sifting out those methods and procedures that do not produce satisfactory results continues, a few principles gradually emerge. Hence, sheer trial and error may be considered the first stage in the development of a science.

Authority and Tradition. In the second stage, "leaders" of the past are quoted. Often they were partly or completely wrong, but their opinions were stated with such assurance and force that they eventually became hallowed as a traditional view. The development of the natural sciences has involved many clashes with tradition: the names of Galileo and Darwin are associated with especially bitter crossing of swords. Many propositions of religion and social action claim support from some sacred text, tradition, or tribunal whose decision on such questions is vested with finality. Political, economic, and educational questions are frequently determined by appeals to such authorities. People may rely on tradition if they lack the time or training to settle particular problems, and in some societies certain traditions and authorities are considered so infallible that external force may be invoked to give sanction to their decisions.

Speculation and Argumentation. In the third stage the authorities are frequently doubted and solutions of fact are sought through debate. This is the stage of philosophizing, or speculation and argumentation. The Wealth of Nations, written by Adam Smith and published in 1776 [19], was the first popular questioning of the mercantilist philosophy which was the traditional approach to international economic relationships (and which is by no means dead in the mid-twentieth century). This book did much to stimulate the speculation in the field of economic policy that has continued to the present time.

As soon as basic data are available in substantial quantity, speculation, instead of being based on a priori reasoning exclusively, becomes modified by empirical

material. The more empirical material there is the closer speculation becomes tied to reality.

Other sources suggest to divide research to pure, applied, and practice types [9].

Pure research. Results are oriented to academic audience, usually disseminated via scientific literature sources such as books, articles, conference papers, etc.

Applied research. Mostly it is application of knowledge for solving particular problems.

Action research. This approach suggested by Rapport in 1970 presented in Easterby-Smith, Thorpe, and Jackson (2012) "Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joining collaboration within a mutually accepted ethical framework" [9].

2 The Meaning of Theory

2.1 Research Methodology

Method can be described as a set of tools and techniques for finding something out, or for reducing levels of uncertainty. According to Saunders (2012) method is the technique and procedures used to obtain and analyse research data, including for example questionnaires, observation, interviews, and statistical and non-statistical techniques [1]. *Methodology* addresses the philosophy of method in addressing such questions as "is this the most appropriate technique?", "how valid are my findings?", "can the findings be extrapolated to other situations?" and so on [17]. According to Saunders (2012) it is theory of how research should be undertaken, including the theoretical and philosophical assumptions upon which research is based and the implications of these for the method or methods adopted [1].

The Scientific method found in the work of Zikmund et al. (2012) is the use of a set of prescribed procedures for establishing and connecting theoretical statements about events and for predicting events yet unknown [16]. There is no consensus concerning exact procedures for the scientific method, but most discussions of the scientific method include references to "empirical testability". Empirical means that something is verifiable by observation, experimentation, or experience. The process of empirical verification cannot be divorced from the process of theory development.

Like all abstractions, the word "theory" has been used in many different ways, in many different contexts, at times so broadly as to include almost all descriptive statements about a class of phenomena, and at other times so narrowly as to exclude everything but a series of terms and their relationships that satisfies certain logical requirements. Theory dividing to everyday theory, academic theory proposed in Easterby-Smith et al. (2012): *everyday theory* reflects to the ideas and assumptions carried out for making sense for everyday observations; *academic theory* tend to present higher level of generalisation [9].

For our purposes, a theory is a coherent set of general propositions, used as principles of explanation of the apparent relationships of certain observed phenomena [16]. A key element in our definition is the term proposition. Before a proposition can be explained, the nature of theoretical concepts must be understood.

Theory development is essentially a process of describing phenomena at increasingly higher levels of abstraction [16]. Things that we observe can be described as ideas or concepts. A concept (or construct) is a generalized idea about a class of objects, attributes, occurrences, or processes that has been given a name. If you, as an organizational theorist, describe phenomena such as supervisory behaviour, you would categorize empirical events or real things into concepts. Concepts are our building blocks and, in organizational theory, "leadership", "productivity" and "morale" concepts. In the theory finance, "gross national product", "asset" and "inflation" are frequently used concepts. Theorists translate their conceptualization of reality into abstract ideas. Thus theory deals with abstraction. Things are not the essence of theory, ideas are. Concepts in isolation are not theories. Only when we explain how concepts relate to other concepts do we begin to construct theories.

Saunders et al. (2012) suggest understanding of theory as formulation regarding the cause and effect relationships between two or more variables, which may or may not have been tested. And such aspect as logical reasoning is emphasized while explaining existing relationships of researched phenomenon [1].

2.2 Universality of Research Methods

Methods of research may be classified from many points of view [1, 4, 9, 10, 14, 16, 20]:

- *the fields to which applied*: education, history, philosophy, psychology, biology, etc.;
- *purpose*: description, prediction, determination of causes, determination of status, etc.;
- *place where it is conducted*: in the field or in the laboratory;
- *application:* pure research or applied research;
- *data-gathering devices employed*: tests, rating scales, questionnaires, etc.;
- *character of the data collected*: objective, subjective, quantitative, qualitative, etc.;
- *symbols employed in recording, describing, or treating results*: mathematical symbols or language symbols;
- *forms of thinking*: deductive, inductive, etc.;
- *control of factors*: controlled and uncontrolled experimentation;
- *methods employed in establishing causal relationship*: agreement, difference, residues, and concomitant variation.

Where there is a shifting of a point of view in a given classification, without warning or explanation, the result almost always is confusing. Still another classification of

research methodology, commonly encountered, is: historical, library, field survey, case study, statistical, genetic, and experimental.

A simple dichotomy used frequently in social science research is that between quantitative and no quantitative (or descriptive and reflective). The increasing emphasis upon quantitative measurement of findings, the development of ICT and software for data-processing, and improvements in statistical methods have resulted increase in quantitative studies in business research.

Good research uses a number of methods. Nearly all research projects require the use of more than one technique or method. Even though the principal portion of the project uses data obtained directly from the field, the initial phase of the report is usually a recapitulation of existing information about the problem and a description of its background. This may involve historical, library, and case study methods. The field work may result in the collection of several hundred questionnaires or interview schedules which are subjected to statistical analysis. A part of the study may lead the researcher to conduct limited experiments to test certain hypotheses on conjectures that he has developed. These tests would be examples of the experimental method.

Since no two research undertakings, nor the researchers who conduct them, are exactly alike, it is impossible to set forth any rigid formulation of method or procedure. There is a wide variation in the conditions and circumstances which determine the objective nature of research projects in different fields. Thus, all methods defy portrayal in terms of formula or standardization. However, it is possible, taking into account the basic considerations and fundamental techniques of research, to outline in general how a research study should be conducted.

2.3 Nature of Propositions

Concepts are the basic units of theory development. However, theories require that the relationship among concepts be understood. Thus once reality is abstracted into concepts, the scientist is interested in the relationship among various concepts. Propositions are statements concerned with the relationships among concepts. A proposition explains the logical linkage among concepts by asserting a universal connection between concepts. A proposition states that every concept about an event or thing either has a certain property or stands in a certain relationship to other concepts about events or things.

As presented by Zikmund et al. (2012) concepts abstract reality, is expressed in words that refer to various events or objects [16]. For example, the concept "asset" is an abstract term that may, in the concrete world of reality, refer to a specific punch press machine. Concepts, however, may vary in degree of abstraction. The abstraction ladder indicates that it is possible to discuss concepts at various levels of abstraction. Moving up the ladder of abstraction, the basic concept becomes more abstract, wider in scope, and less amenable to measurement. The basic or scientific business researcher operates at two levels: the abstract level of concepts (and propositions) and the empirical level of variables (and hypotheses). At the empirical level,

we "experience" reality, that is, we observe or manipulate objects or events. If the organizational researcher says, "Older workers prefer different rewards than younger workers," two concepts—age of worker and reward preference—are the subjects of this abstract statement. If the researcher wishes to test this hypothesis, John, age 19, Chuck, age 45, and Mary, age 62—along with other workers—may be questioned about their preferences for salary, retirement plans, intrinsic job satisfaction, and the like. Recording their ages and observing their stated preferences occur at the empirical level.

Researchers are concerned with the observable world, or what we shall loosely term "reality".

Consider the following behavioural science proposition that permeates many business theories: If reinforcements follow each other at evenly distributed intervals, and everything else is held constant, the resulting habit will increase in strength as a positive growth function of the number of trials. This proposition identifies theoretical relationships between the concepts "reinforcements" and "habit". It identifies the direction and magnitude of these relationships.

We have indicated that a theory is an abstraction from observed reality. Concepts are at one level of abstraction. Investigating propositions requires that we increase our level of abstract thinking. When we think about theories, we are at the highest level of abstraction because we are investigating the relationship between propositions. Theories are networks of propositions.

An Example of a Theory [17]

The theory explain voluntary job turnover, that is, an individual's movement to another organization or movement to another position within the same organization. Two concepts—(1) the perceived desirability of movement to another organization and (2) the perceived ease of movement from the present job—are expected to be the primary determinants of intentions to quit. This is a proposition. Further, the concept intentions to quit is expected to be a necessary condition before the actual voluntary turnover behaviour occurs. This is a second proposition that links concepts together in this theory. In the more elaborate theory, job performance is another concept considered to be the primary determinant influencing both perceived ease of movement and perceived desirability of movement. Moreover, perceived ease of movement is related to other concepts such as labour market conditions, number of organizations visible to the individual and personal characteristics. Perceived desirability of movement is influenced by concepts such as equity of pay, job complexity, and participation in decision making.

A complete explanation of this theory is not possible; however, this example should help the reader understand the terminology used by theory builders.

Verifying Theory [17]

In most scientific situations there are alternative theories to explain certain classes of phenomena. To determine which the better theory is, researchers gather empirical data or observations to verify the theories.

Maslow's hierarchical theory of motivation offers one explanation for behaviour. For example, Maslow theorizes that individuals will attempt to satisfy physiological needs before self-esteem needs. An alternative view of motivation is provided by Freudian (psychoanalytic) theory, which suggests that unconscious, emotional impulses are the basic influences on behaviour. One task of science is to determine if a given theoretical proposition is false or if there are inconsistencies between competing theories. Just as records are made to be broken, theories are made to be tested.

It must be possible to demonstrate that a given proposition or theory is false. This may at first glance appear strange. Why "false" rather than "true"? Technically, there may be other untested theories which could account for the results we obtained in our study of a proposition. At the very least, there may be a competing explanation which could be the "real" explanation for a given set of research findings. Thus, we can never be certain that our proposition or theory is the correct one. The scientist can only say, "I have a theory which I have objectively tested with data and the data are consistent with my theory." If the possibility of proving an idea false or wrong is not inherent in our test of an idea, then we cannot put much faith in the evidence that suggests it to be true. No other evidence was allowed to manifest itself.

Business research gathers facts to verify theories. However, the researcher who wishes to identify inconsistency within a particular theory must understand the difference between facts and theories: facts and theories are different things, not rungs in a hierarchy of increasing certainty. Facts are the world's data. Theories are structures of ideas that explain and interpret facts. Facts do not go away when scientists debate rival theories to explain them. Einstein's theory of gravitation replaced Newton's, but apples did not suspend themselves in mid-air pending the outcome.

2.4 How Are Theories Generated?

Where do theories come from? Although this is not an easy question to answer in a short chapter on theory in research, we shall nevertheless explore this topic briefly.

In this chapter, theory has been explained at the abstract, conceptual level and at the empirical level. Theory generation may occur at either level. At the abstract, conceptual level, theory may be developed with deductive reasoning by going from a general statement to a specific assertion. Deductive reasoning is the logical process of deriving a conclusion from a known premise or something known to be true. For example, we know that all managers are human beings. If we also know that Vardenis

Pavardenis is a manager, then we can deduce that Vardenis Pavardenis is a human being.

At the empirical level, theory may be developed with inductive reasoning. Inductive reasoning is the logical process of establishing a general proposition on the basis of observation of particular facts. All managers that have ever been seen are human beings; therefore all managers are human beings.

Suppose a stockbroker with 15 years' experience trading on the New York Stock Exchange repeatedly notices that the price of gold and the price of gold stocks rise whenever there is a hijacking, terrorist bombing, or military skirmish. In other words, similar patterns occur whenever a certain type of event occurs. The stockbroker may project these empirical observations to a more generalizable situation and conclude that the price of gold is related to political stability. Thus the stockbroker states a proposition based on his or her experience or specific observations.

Over the course of time, theory construction is often the result of a combination of deductive and inductive reasoning. The experience leads to draw conclusions that we then try to empirically verify by using the scientific method.

It is useful to look at the analytic process of scientific theory building as a series of stages. Seven operations may be viewed as the steps involved in the application of the scientific method: Assessment of relevant existing knowledge; Formulation of concepts and propositions; Statement of hypotheses; Design the research to test the hypotheses; Acquisition of meaningful empirical data; Analysis and evaluation of data; Provide explanation and state new problems raised by the research.

3 Research Philosophies and Approaches

Main philosophical positions are important in design of management research because they underline outcomes from research activities, it helps to clarify design of research, and identify limitations in first stages. One of best illustrations for understanding complex or research is "research onion" proposed by Saunders, Lewis and Thornhill (2011) presented in Fig. 1 [1].

Speaking about research methodology, we should speak about philosophies, and it does not mean that one or another is better. It should be taken into account research problem, question and aims which researcher has. Research onion helps to understand systematically the philosophies and approaches, and to give arguments on methodological choices.

3.1 Assumptions About Reality

Assumptions about reality was explained clearly by M. Teale et al. (1999) [17]. Explanation was presented as following. When we use the word "natural" and "normal", we should consider what we really mean in terms of the discussion that follows.

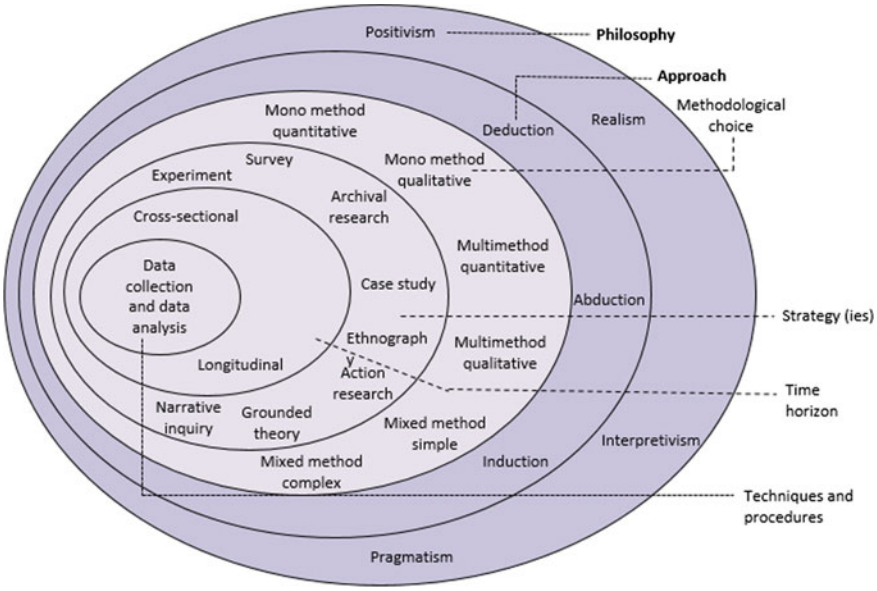

Fig. 1 The research onion [1]

The discussion sets out a broader theoretical context of approaches to the social sciences. The study of reality, sometimes called ontology, deals with issues concerning the nature of reality itself. When we say something is "real", what do we mean? For instance, "this is a real problem". Real according to what criteria? What are the alternatives? What would the problem be if it were not real? Unreal? Imagined? Usually when we talk about "reality" in this way, we are implicitly addressing philosophical question such as, "is reality external to the individual or is it the product of an individual's consciousness?" So, "this is a real problem" may be interpreted as 'the problem is not just in my head'; others obviously think there's a problem too". The difficulty is that the use of the word "real" in the context of everyday speech is not as rigorously delimited as it is within the context we are discussing it now, so the example could be dismissed as a semantic triviality. Nonetheless, that should not stop us from examining underlying reasons why we might behave and act in particular ways; after all, those ways might not always be appropriate and we might wish to change them.

Ontology—is an understanding nature of reality. We should remember that these are theoretical positions, and it is likely that most people would believe that the answer to the question "is reality a product of our mind or of the world outside it?" lies somewhere in the middle, that reality is the product both of our own consciousness and of our interaction with the external world. In social sciences, two aspects should be emphasized *objectivism* (e.g. Social entities exist independent from social actors: management itself, like organization structure and management stay even if

employee's changes) *and subjectivism* (e.g. social phenomena rise from the understanding and changing actions of social actors).

It is fair to say that in western culture the natural science are often advocated as the most valid way of researching social phenomena. This has tended to deflect attention from the idea of human agency. As humans we are capable of producing a word that we then experience as something other than a human product.

We can start to explore issues concerning reality by identifying different theoretical positions, for example, nominalism and realism. In studying social phenomena, a person with inherently nominalist view of reality would emphasize the importance of the way in which the mind makes sense of the phenomena (a *subjectivist* approach). Reality is therefore more likely to be regarded as being socially constructed, that is, as humans we create and sustain structures as a result of our acting in the word. The nominalist queries the notion that there is any "real" structure to the world; structures are seen as being the creation of human interaction.

Realism (in an *objectivist* approach) to the study of social sciences, and therefore regards reality as a product of the world external to our mind. For realists, therefore, social structures are hard and unchangeable. There is no doubt exist independently of the individual's consciousness. They might argue, for instance, that we are born into a world that predates us, and when we die, structures continue to exist. The realist sees the social world in terms of an existence which is as hard and concrete as the natural world. We now turn to "problem" of knowledge.

3.2 Assumptions About Knowledge

The *epistemology* term which explains phenomena and understanding of issues concerning knowledge. It concerns what is acceptable knowledge. Such questions as "what constitutes truth?", "What are valid data?", "What are 'hard' data?" and "What are 'soft' data?" "Do we needed to support our statement with some kind of evidence?", "What kind of evidence (views of others, statistics, etc.)?". If we rise such questions, then we face with epistemological issues.

In social science nowadays, two main trends are more widely discussed: *positivism* and *social constructivism* [4, 9]. Saunders (2012) offer three categories such as positivism, realism, and interpretivism [1]. Further all these categories will be explained shortly.

Positivism relies on idea that social world exists externally, an objective view of the social sciences and set out to explain and predict by measured consistency and causality using objective methods.

In the last half of XX century scientists Berger and Luckman (1966), Watzlavick (1984), Shotter (1993) in Easterby-Smith et al. (2012) emphasized the peculiarities of social science and give focus on the ways people make sense of world especially through sharing they experiences with others, and *social constructivism* approach started to be used [9]. Best explanation of this approach would be that people determine "reality", not external factors.

Realism reflect philosophy which idea is—what we sense is reality: objects have an existence independent of the human mind [1]. It is similar to positivism.

Previously the term and specifics of *phenomenology* was analysed either. Since phenomenologists argue that people or situations can be understood only from an "internal frame of reference", that may include a detailed study of the person's biography, experiences and social context; for a group, it might include the detailed study of individuals' relationships and patterns of communicating [17]. As *phenomenology* concerns itself with exploring the subjective nature of the social world and, therefore, focuses on the particular rather than the general. The phenomenologist tries to examine this uniqueness of human beings. This is roots of *interpretivism*, which comes from *phenomenology* and *symbolic interactionism*.

Approaches to studying the social sciences are usually differentiated in terms being either positivistic or interpretivistic. Positivist approaches work on assumptions borrowed from the study of natural sciences. They therefore attempt to establish general rules and principles by using systematic techniques based on scientific methods [17]. The theories of organizational behaviour are often based on laboratory experimentation, control groups and have positivistic orientations.

Recently, there has been a growing amount of research that studies management by looking at managers in their "natural" context using such methods as inquiry, observation, in order to understand behaviour patterns, experiments in order to identify causes. The underlying assumption here is that people cannot be studied in a similar way to objects. Approaches that do this can be described as interpretivism.

One more term, which should be mentioned *axiology*. It is a philosophy that analysis judgements about values.

The comparison of research philosophies and management research presented by Saunders et al. (2012) reflects and explains the variety, helps to understand philosophies specifics (Table 1) [1].

3.3 Assumptions About Human Nature

The final set of assumptions deals with issues regarding the relationship between humans and their environment. The answer to questions "are we affected by environment?", "can we effect environment?", "are we social actors?" may reveal human nature.

If to believe that environment make effect on person, then we could say that it is *deterministic* approach. If to believe that person change society through the actions, then we could say that it is *voluntaristic* approach.

Determinists therefore regard humans as puppets rather than as actors. Social structures are seen as difficult, if not impossible, to alter, and human behaviour is seen as being determined by the environment. *Voluntarists*, regard humans as social actors who have the potential and the ability to influence and change their environment [17].

Table 1 Comparison of research philosophies and management research [1]

	Pragmatism	Positivism	Realism	lnterpretivism
Ontology: the researcher's view of the nature of reality or being	External, multiple, view chosen to best enable answering of research question	External, objective and independent of social actors	Is objective. Exists independently of human thoughts and beliefs of or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)	Socially constructed, subjective, may change, multiple
Epistemology: the researcher's view regarding what constitutes acceptable knowledge	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret the data	Only observable phenomena can provide credible data, facts. Focus on causality and law-like generalizations, reducing phenomena to simplest elements	Observable phenomena provide credible data, facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations, which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts	Subjective meanings and social phenomena. Focus upon the details of situation, a reality behind these details, subjective meanings motivating actions
Axiology: the researcher's view of the role of values in research	Values play a large role in interpreting results, the researches adopting both objective and subjective points of view	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance	Research is value laden; the researcher is biased by worldviews, cultural experiences and upbringing. These will impact on the research	Research is value bound, the researcher is part of what is being researched, cannot be separated and so will be subjective
Data collection techniques most often used	Mixed or multiple method designs, quantitative and qualitative	Highly structured, large samples, measurement, quantitative, but can use qualitative	Methods chosen must fit the subject matter, quantitative or qualitative	Small samples, in depth investigations, qualitative

Table 2 Deduction, induction and abduction: from reason to research [1]

	Deduction	Induction	Abduction
Logic	In a deductive interface, when the premises are true, the conclusions must also be true	In an inductive interface, known premises are used to generate untested conclusions	In an abductive interface, known premises are used to generate testable conclusions
Generalizability	Generalizing from the general to the specific	Generalizing from the specific to the general	Generalizing from the interactions between the specific and the general
Use of data	Data collection is used to evaluate propositions or hypothesis related to an existing theory	Data collection is used to explore a phenomenon, identify themes and patterns and create a conceptual framework	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual framework and test this through subsequent data collection and so forth
Theory	Theory falsification or verification	Theory generation and building	Theory generation or modification; incorporating existing theory where appropriate, to build new theory or modify existing theory

In summary, an awareness of methodology can help the decision-maker such aspects as: assumptions concerning reality and knowledge, in order to recognize the validity of other data, and evaluate other perspectives and methodologies, so as to make judgements based on more informed research, in order to take action based on examination leading to favourable outcomes.

3.4 Research Approaches

Inductive, deductive and *abductive* approaches employed when we formulating research question and objectives of research (see Table 2).

If we attempt to look at particular issues or problems with a view to coming up with findings that can be generalized, we are reasoning and acting *inductively*. If, for instance, we note from our observations that the female managers we know show good judgement in their decision-making, we might generalize that women generally make good decision-makers. We begin from specific observation and end with a general conclusion. Inductive approaches to research, therefore, are those that move from the particular towards the general. When we come across a female manager who shows poor judgement, we may start to modify our theory. Induction

would criticize deduction for constructing right methodology that does not allow alternative explanation. Using inductive approach in research probably will lead to more attention to context in which events happened.

Deductive approaches begin with the general and work towards the particular. Its origins lies in natural science. If we begin with a general rule, law, principle or hypothesis, and try to apply or test it in specific contexts, are reasoning and acting deductively. Taking the example above, if we start from a general view that female managers make good decision-makers, and attempt to test this out in some systematic way, we are acting deductively. We may attempt to set up a hypothesis and test it by applying it to particular situations [17]. Blaikie (2009) lists six steps for deductive research [21]:

1. Put forward idea, hypothesis or set of hypothesis to form a theory.
2. Using literature sources deduce testable propositions.
3. Examine logic of the arguments with existing theories to see if it offers an advance in understanding. If it does, than continue.
4. Test premises by collecting data to measure concepts or variables and analysing it.
5. If the results are not consistent with the premises (the test fail!), theory should be rejected or modified and process restarted.
6. If the results of the analysis are consistent with the premises then the theory is corroborated.

Speaking about main features of the deduction process, such aspects should be noted: in order to ensure reliability **highly structured methodology** should be used; concepts need to be **operationalized** (facts tested usually quantitatively); principle of **reductionism** used (problem reduced into simplest elements); and **generalization** (sufficient sample size).

Abduction method combining induction and deduction approaches back and force. This is what often happens in business, management, and economic research.

3.5 Other Philosophies

In previous chapters' main philosophical approaches, which are important in business, management and economic research, are discussed. However, more philosophical positions exist, which proposed by different schools of thought, and which should be mentioned at least shortly: *critical theory, feminism, hermeneutics, postmodernism, pragmatism, structuration theory, critical realism*.

Critical theory. Origins: Frankfurt School, Habermans (1970), in Easterby-Smith et al. (2012) [9]. Concept: Identified clear difference between social sciences (based on communicative experience) and natural sciences (based on sense experience). In research of natural science used one-way data collecting methods, in social sciences usually it is two way communication and data collection methods. Main idea is that jut via communication it is possible become efficient. In addition, it was emphasized

that knowledge determined by interests, and they are presented by certain people (leaders with strong personality) who determines what is "true".

Feminism. Concept: idea and concept lies relying on idea that women perception, opinion and participation in science were undervalued. It is emphasized that it is important to understand behaviour from internal aspects, like woman themselves. Importance of such issues as power dynamics and gender differences raised as a question.

Hermeneutics. Origins: Germany, protestant groups in 17th century. Most known Gadamer (1989), Ricoeur (1981), in Easterby-Smith et al. (2012) [9]. Concept: Most attention paid to text interpreting (written and spoken, which can be recorded). In business and management research this concept can be used in analysis of documents, reports).

Postmodernism. Origins: term used since 1926 in library science, more academic attention paid after Jean-Francois Lyotard's (1984) publication, in Easterby-Smith, Thorpe, and Jackson (2012) [9]. Concept: Organization interpreted as flexible and changing, important are visible elements of organization, informal processes of decision making and tacit knowledge.

Pragmatism. Origins: 19th century W. James and J. Dewey. Concept: In the social world there is no pre-determined theories or frameworks that shape knowledge and understanding. Any meaning structures, which get developed, must come from the lived experience individual [9].

Structuration theory. Origins: Anthony Giddens (1984), in Easterby-Smith et al. (2012) [9]. Concept: Developed idea of "duality of structure". Bonds between social structure and social actions emphasized. Low of science and social science differences pointed out, like in first case universality emphasized, in second case context in which everything happens become extremely important. In business and management it example can be understanding relations between employees and organization.

Critical realism. Origins: Last two decades. Concept: it is compromise between positivism and constructionism. It suggested to start with realist ontology and incorporate realist thread. Key features is the idea of structured ontology, existence of causality, many mechanisms do not work for ordinary people and employees.

References

1. A. Saunders, M. Lewis, P. Thornhill, *Research Methods for Business Students*, 6th edn (Harlow: Pearson, 2012)
2. B. Blumberg, D.R. Cooper, P.S. Schindler, *Business Research Methods*, 3rd edn. (McGraw-Hill, London, 2011)
3. A. Bryman, E. Bell, *Business Research Methods*, 3rd edn. (Oxford University Press, Oxford, 2015)
4. A.J. Veal, *Business Research Methods: A Managerial Approach* (Pearson Education Australia, Frenchs Forest, 2005)
5. Y.K. Singh, *Fundamental of Research Methodology and Statistics* (New Age International (P) Ltd, 2006)

6. A.A. Berger, *No Title Media and communication research methods: an introduction to qualitative and quantitative approaches*, Third Edition (Sage, Thousand Oaks (Calif.), 2013)
7. A. Carsrud, M. Brannback, *Handbook of Research Methods and Applications in Entrepreneurship and Small Business* (Edward Elgar, Cheltenham, 2014)
8. D.R. Cooper, P.S. Schindler, *Business Research Methods*, 12th edn. (McGraw-Hill Education, New York, 2013)
9. M. Easterby-Smith, R. Thorpe, P.R. Jackson, *Management Research*, 4th edn. (SAGE Publications Ltd, London, 2012)
10. S. Greener, *Business Research Methods* (Ventus Publishing ApS, Denmark, 2008)
11. S.L. Jackson, *Research Methods and Statistics: A Critical Thinking Approach* (Wadsworth Cengage Learning, Belmont (Calif.), 2012)
12. B.C. Lindlof, T.R., Taylor, *Qualitative Communication Research Methods* (Sage, Thousand Oaks (Calif.), 2011)
13. A.J. Pickard, *Research Methods in Information* (Facet, London, 2013)
14. T. Stokes, P., Wall, *Research Method* (Palgrave Macmillan, London, 2014)
15. A.H. Walle, *Qualitative Research in Business: A Practical Overview* (Cambridge Scholars Publishing, Newcastle upon Tyne, 2015)
16. W.G. Zikmund, B.J. Babin, J.C. Carr, M. Griffin, *Business Research Methods,* 9th edition (South-Western: Cengage Learning, 2013)
17. D.C. Mark Teale, V. Dispenza, J. Flynn, *Management Decision Making: Towards an Integrative Approach* (Financial Times/Prentice Hall, USA, 2002)
18. B.C. Agrawal, *Anthropological Methods for Communication Research: Experiences and Encounters During SITE* (Concept Publishing Company, Delhi, 1985)
19. Britanica, *An Inquiry into the Nature and Causes of the Wealth of Nations | work by Smith | Britannica.com*. www.britannica.com/topic/An-Inquiry-into-the-Nature-and-Causes-of-the-Wealth-of-Nations. [Accessed: 16 Dec 2015]
20. L.B. Christensen, R.B. Johnson, L.A. Turner, *Research Methods, Design, and Analysis* (Pearson, Boston (Mass.), 2013)
21. N. Blaikie, *Designing Social Research* (2009)