

# Relationship between theory and research



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## **2. 0. Introduction**

Research methodology is a term used to define the overall systematic approach undertaken in the process of trying to solve a research problem(s). It is also understood as the science of studying how research is done scientifically (Kothari, 2004). Neuman (2006, pg. 60) stated that “methodology is what makes social science scientific”. It is very important to distinguish it from research method, which is the scientific techniques employed in the execution of a piece of research (Sim, 2000, Sim and Wright, 2000). When research methodology is mentioned, what should be considered is research method as well as the logic behind the research method and why the method was chosen (Kothari, 2004). Thus, methodology describes the overall approach taken in a piece of research, with particular emphases on the general principles of investigation that guides a study, based on its underlying theoretical and philosophical assumptions (Sim and Wright, 2000). The chapter will provide information about methodology in the context of research by giving the reader an insight into the process of deciding upon the methodology to be employed in research studies based on underlying theoretical and philosophical assumptions and how the choice of a literature review as a methodology was chosen as the most appropriate methodology to adopt for answering the research question for this study. Furthermore, process of literature review as a methodological approach will be discussed.

### **2. 1. Relationship between Theory and Research**

Characterising the nature of the relationship between theory and research is not a straight forward matter, however, it remains important because it can

be used to provide a framework and rationale for research that is being conducted (Bryman, 2008). However, (Sim and Wright, 2000) mentioned that on a general note, research has as one of its main purposes, the enrichment of theoretical knowledge; either by building upon current knowledge of an existing topic or by extending understanding into an unexplored area. Before trying to understand the relationship between theory and research, it is necessary to give an insight into what theory really is and the role of theory in research. There are several definitions of theory. But, the most commonly used definition especially in the context of research design, refer to theory as an explanation of a pattern or regularity that has been observed, the cause and reason for which needs to be understood (Blaikie, 2000; Bryman, 2008). This definition shows that theories are formulated based on observations. In order to explain the process of theory formulation and how the process relates to research, some writers have classified theoretical activities into a number of levels to aid understanding. One of such classifications that described five levels of theoretical activities as it relates to research was reported by Blaikie (2000). This particular classification system provides a way of understanding the interwoven nature of theory and research and could perhaps give a picture of the role of theory in research.

At the first level (Ad hoc classification), observations are made and recorded as data. These data are then summarised into classes using pre-defined classificatory system that have not necessarily been derived from any theory, but may later be incorporated into a theoretical scheme. At the second level (Categorical system or taxonomy), possible relationship between classes or categories are stated, but the activity still remains at the

level of description whereas the third level (Conceptual schemes), involves the development of proposition about the relationship between concepts that can be applied in a wide range of situation. They may also include some assumptions about causal connections. It is only after these three levels that a theoretical argument can be constructed by combining together taxonomy and conceptual schemes with the aim of finding an explanation. However, these schemes are likely to be abstract and not in form of a direct research thereby necessitating a fifth level (empirical theoretical schemes) where argument are formulated precisely and in such a way that they can be tested. The overall intention for describing these levels of theoretical activities is to aid an understanding of the relationship between theory and research. From this description of theoretical activities, it should be noted that theory can be used to provide a rationale or framework upon which research is carried out to test the (same) theory (i. e. the empirical theoretical schemes). But as Sim and Wright, (2000) rightly mentioned it can also be argued that in the absence of a theory or in an attempt to enrich a theory, research studies are used to provide the building blocks for theory formulation or enrichment. Against this backdrop, the research question for this study does not set out to test a theory but to study (observe) farmers and record the observations in the form of data that will be summarised into knowledge, attitude and practice regarding avian influenza. Possible relationship between classes may be made but the study will remain at the level of description (Categorical system or taxonomy).

The inductive and deductive strategies are the two most common and very useful ways for understanding the relationship between theory and research,

where research either sets out to test an existing theory or seek to build a new theory.

### **2. 1. 1. Theory-testing Research (Deductive Strategy)**

This is the most common view for the nature of the relationship between theory and research. It begins with an existing theory that a researcher wishes to test. In this model, the researcher deduces a hypothesis (hypotheses) from theoretical propositions contained in the theory (to be tested), that must then be subject to empirical scrutiny (following the collection of data relating to the concept that make up the hypothesis) to see if they support its predictions (Sim and Wright, 2000);(Bryman, 2008). Note that a research hypothesis, unlike a research question takes the form of a statement and is stated in a more concrete term than the proposition from which it was deduced. It describes a situation that can be observed in the real world of experiment and is used to guide the design and method for research (Sim and Wright, 2000). When the research design and methods have been established, the process of data collection take place and the data analysed to generate an empirical finding(s) that should either support or refute the theory.

### **2. 1. 2 Theory-building Research (Inductive Strategy)**

The theory-building model of research works in the opposite direction from the theory-testing research. In this case inductive logic is in operation because particular observations are put together and general statements are derived from the observations. These findings (general statements) are then fed back to the theory (used to answer the research question) that prompted

the research in the first instance (Sim and Wright, 2000);(Bryman, 2008). Unlike the deductive research where a theory or theoretical proposition is the starting point, the inductive research begins with what is called the theoretical starting point i. e. the collection of theoretical ideas or assumptions to serve as the starting point upon which a research would be planned and the observation or data that would be relevant to the research question decided (Sim and Wright, 2000). Note that because the aim in inductive research is not to test a theory, there is no specific theory at the starting point and consequently no hypothesis will be needed.

Although, inductive and deductive strategy is a very common and useful way to think of the relationship between theory and research and to understand the theoretical basis upon which research design and methods are formulated, note that theory is not the only issues influencing the conduct of social research. Epistemological and ontological assumptions also play important roles in influencing the method and design of research studies.

## **2. 2. Philosophical model of research**

Research can be approach in a variety of ways. Every approach taken, represent a particular philosophical perspective on reality and on the ways through which knowledge can legitimately be gained from the world (Sim and Wright, 2000). The study of the nature of reality is termed ‘ Ontology’ while the study of how we know things is termed ‘ epistemology’ (Sim and Wright, 2000). However, epistemology is also understood as the philosophy of knowledge and is described in terms of the nature of the relationship between the inquirer and what is to be known (Denzin and Lincoln, 2000, Pg. 19; Guba, 1990, Pg. 18). The terms Ontological and Epistemological

assumptions are very important in understanding and characterizing the different philosophical perspectives on research.

Epistemology is particularly concerned with drawing conclusions from claims about how we can know the world (Hughes and Sharrock, 1990). Although, it is generally agreed that the aim of enquiry is to find an explanation that allows for control and prediction of phenomena whether it is human or physical (Von Wright, 1971), One central issue in this context is the question of whether the same general principles and procedures used by natural science can and should be used to study the social world. On these bases, several philosophical perspectives on research or research paradigm (as it is also called) exist, but initially, inquirers concentrated on what later became known as ‘positivism’ (Guba, 1990) and the focus of positivism is objectivity and a precise description through quantification and classification. Paradigm is most commonly referred to as a basic set of belief (Guba, 1990). According to Bryman (2008), the two basic epistemological positions (philosophical perspective) are positivism, which imitate the natural science and ‘interpretivism’, which denotes an alternative to the positivist orthodoxy that have been held for decades. It connects together (logically) the views of writers who belief that the subject matter of the social science i. e. people and their institutions, is fundamentally different from that of the natural science and therefore requires a different logic of research procedure that reflects the distinctiveness of humans (Bryman, 2008).

Ontology as mentioned earlier is concerned with the nature of reality. The questions of social ontology are concerned with the nature of social entities, so that the central issue is the question of whether social entities can and

should be considered objective entities that have a reality external to social actors, a position frequently referred to as “ Objectivism”, or whether they can and should be considered social constructions build up from the perceptions and actions of social actors, a position also frequently referred to as “ constructionism” (Bryman, 2008). Against this backdrop, there is no right or wrong paradigm or philosophical perspective, although their usefulness depends on their relevant to individual research question (Denzin and Lincoln, 2000). The opposing epistemological and ontological positions/assumptions mentions above are the background upon which the different philosophical perspectives on research emerged. Bearing in mind the objective of the research question for this study (to describe), three philosophical perspectives were found to be relevant to the research question. They include Positivism, critical theory, and Post-positivism. The decision to consider these three perspectives (paradigms) emerged from careful review of the positivist, interpretivism and objectivist position. The constructivist position was rejected because it is not in line with the study objective.

### **2. 2. 1. Positivism (naïve realism)**

One very important feature of positivist philosophies of science is the believe that advancement in knowledge is the product of empirical research; through the gradual accumulation of facts about the world to produce the generalisations known as scientific laws (Hughes and Sharrock, 1990). This is the basis for the epistemological position of positivism, which advocates the use of the methods of natural science to study social reality. Neuman (2006) characterized positivism by its fixed belief in objectivity and attributes the



inability of social science to be as rigorous as natural sciences, to its immaturity. According to Sim and Wright (2000), the ontological position of positivism is the existence of a single objective reality, which is similar for everyone, irrespective of individual value, attitudes or perception. This makes it impossible to measure non-observable entities. Denzin and Lincoln (2000) tried to explain this position by say that the different ways of defining the real world are all rooted in phenomena existing outside the human mind but can be thought of, experienced or observed even though they are sometimes beyond direct apprehension. The author concluded that ontologically, positivism assumes that there is a single objective reality, an objective epistemology that require observers to be detached from that which is being observed, and an empirical experimental methodology. And any compromise to the independence of the ' knower' from the ' knowable' renders the validity of research finding questionable (Shanks 2002).

### **2. 2. 2. Critical Theory (Historical realism)**

### **2. 2. 3. Post-positivism (critical realism)**

In response to criticism faced by positivist, a modified version of positivism emerged. Although, it still holds the same basic principles with positivism with relation to the existence of a real world driven by natural laws, the essence of this new position is the realisation that the social world cannot be fully comprehended and so inquirers need to be critical in the process of their enquiry in consideration of the imperfect nature of humans (Guba, 1990; Denzin and Lincoln 2000). In contrast to positivist ontological assumption of an objective reality that exist out there waiting to be discovered, post-positivism adopt believe that reality cannot be completely

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discover. Wisker (2008) added that reality can only be understood by interpretations in the context of data gathered inductively. This is a recognition that it is unrealistic for inquirers to be completely objective while conducting social research, instead a social researcher can aim to be as objective as possible. This position fits well and proves to be the most relevant position to adopt for answering the research question for this study.

For example, theorists who share common ontological assumptions and ways of understanding social life are grouped together and their theoretical and philosophical perspective provides a way of looking at the social world; this highlights certain aspects while at the same time making other aspects less visible (Blaikie, 2000) so that a shift in assumption or perspective changes the shape of the social world (Gilbert, 1993). To provide further guidance for the method and design of this research study, the different philosophical assumptions of research will also be discussed.

### **2. 3. Research strategy: qualitative and quantitative research**

In a quest to determine the best methodology to adopt for the purpose of this study, the researcher found a practical guide by Dawson (2009) to be very helpful. He suggested that perhaps the easiest way to go about this is to first of all decide whether to consider a qualitative or a quantitative research. It is a common mistake to believe that quantitative research is better than qualitative, so it is important to note at this point that neither is better than the other; they are just different and each one has its own strengths and weaknesses which is also influenced by the skills, training and experience of the researcher (Dawson, 2009). Consider the role of theory again when deciding on methodology pg 10-13, pg 21-23. The research

question, " ?" for this study is descriptive in nature in that it's main concern is to describe the existing distribution of variables (knowledge, attitude, practice of farmers) with no regards for causal or other hypothesis.

Research strategy, also called logic of enquiry, provide a starting-point for research by means of which ' What' and ' Why' questions can be answer.

## **Rationale for the chosen Methodology**

Provide importance information about literature review, the advantages and disadvantages of undertaking a review before

### **3. 2 Literature review**

A methodology literature review is a comprehensive study and interpretation of literature that relate to a particular topic (Aveyard, 2007). It seek to review, analyse and then summerise the body of existing literature relating to a particular topic in a format that can be easily accessible and comprehensible by professionals, who want to be up-to-date with current research or study one particular topics but do not have the time to read and assimilate all the informations needed to do that (Aveyard, 2007). The need to be up-to-date became very important because of the vast amount of information available for health care professionals, which is still expanding on a daily basis making research evidence to become out dated in a short period of time and there has been an increasing emphasis on the need for evidence-based practice (EBP) in the field of health and social care.

Appleby (1995) defines EBP as:

‘ A shift in the culture of healthcare provision away from basing decision making on opinion, past practices and precedent, towards making more use of research and evidence to guide clinical decision making’.

There is a large pool of evidence resulting from the increasing number of researches carried out in the field of health and social care, hence, an increasing demand for getting research findings into practice (Aveyard, 2007). EBP entails identifying a research question, reaching evidence relevant to the question (findings of qualitative research studies), and applying the evidence for the care of the individual/group/population whose need prompted the research question (Aveyard, 2007). A comprehensively and rigorously carried out review allows a practitioner to base their decision (i. e. the answer to their research question) on a body of literature rather than relying on the findings of an individual research. In the context of this study, a literature review will enable public health practitioners to design intervention programmes to prevent human infections with avian influenza, based on the evidence provided by a body of research surveys conducted to determine the knowledge, attitude and/or practices of individuals that deal with poultry.

#### Importance of Boolean search

The logic operator ‘ OR’ ensures that any or all of the key words entered in a search are searched for, whereas ‘ AND’ ensures that all key words entered in a search are searched for and present in the literature identified.

A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population

(Creswell, 2009), the choice of survey as the study design adopted by these authors was appropriate for the aim of their study.

## **Conclusion**

With regards to the second point on methodology, when doing a literature review, it is very important to demonstrate to the reader that a methodology literature review is the right tool to answer the research question (Aveyard 2007; Petticrew and Roberts 2006). In response to this, the previous chapter (methodology chapter) presented a comprehensive discussion of the assumption behind the various methodological approaches to research and provided an explanation for the choice of a literature review as the appropriate methodology to answer the research question for this study.