

# “Only Through Science we can Establish Certain Knowledge about Management and Accounting”: A Critical Evaluation

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## **Abstract**

Science refers to a systematic and organised body of knowledge in any area of inquiry, using a standardised set of techniques for building a particular knowledge. It is an intellectual and practical activity that encompasses a systematic study of the structure and behaviour of the natural and social world. While the natural science is the study of the universe and how it works, the social science focuses on the study of human behaviour and structure in the society. In this extent, a variety of debates took place relating to the philosophical approaches based on social sciences research. As the approach of natural science, positivism has received significant criticisms in comparison to other approaches in terms of its philosophy and methodological relevance and its relation with the differences of natural and social sciences. Throughout this paper, I shall evaluate and discuss the advantages and limitations of positivism and consider whether the approach can establish certain knowledge about social science, focusing within the area of management and accounting.

**Keywords:** Positivism, Social Sciences, Accounting, Management

## **Introduction**

According to May (2011, p. 7), “science is thought of as being a coherent body of thought about a topic over which there is a broad consensus among its practitioners as to its properties, causes and effects”. Chalmers (1999, p. 1) argued that science is based upon “what we see, hear and touch rather than on personal opinions or speculative imaginings”. Thus, it is important to consider the varied debate surrounding the philosophical approaches based on social sciences research. Each philosophical approach, such as positivist, interpretivist and critical, has its own assumptions regarding the ontology, epistemology and based on its methodology’s strengths and weaknesses from which the related valid knowledge is obtained. Considered “the approach of natural science” (Neuman, 2011, p. 95), positivism has received remarkable criticisms in comparison with other approaches in terms of philosophy and methodology’s relevance and its relation with the differences of natural and social sciences. As a representative of many research paradigms affected by natural science method and with reference to social sciences, positivism will be evaluated and discussed throughout this paper. A discussion and analysis concerning philosophical assumptions of natural science will be provided, including ontology, epistemology, human nature and methodology. In addition, a critical evaluation based upon the natural science adopted by positivism to gain knowledge in social sciences will be given. Furthermore, advantages and limitations will be discussed and various examples will be provided. Lastly, key points and arguments will be reflected upon, considering whether positivism can establish certain knowledge about social science, particularly within the area of management and accounting.

## **Philosophy of Natural Science**

As Hart (1998, p. 51) stated, “the philosophical meaning of ontology, epistemology and the methodological meanings of validity, reliability and data” play a significant role within the research process and the selection of the appropriate philosophical approach. To this extent, the philosophical assumptions of positivism will be analysed to obtain a more accurate evaluation of the relevance of the natural science method adopted by social sciences. Hallebone and Priest (2009, p. 26) define ontology as “a set of axiomatic assumptions within a philosophy of science that define the way a reality is conceived and perceived”. In this perspective, realism exists in a positivist stance as an assumption about social world’s reality. Burrell and Morgan (1979, p. 4) contend that realism

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sees the social world as “an external one to individual cognition that is made up of nothing more than names, concepts and labels which are used to structure reality”. In addition, Hughes and Sharrock (1997) note that both natural and social sciences are implemented by following specific rules and holding deterministic structures and so from the angle of positivism, the reality seems to be objective and stable.

Neuman (2011, p. 93) defines epistemology as “the area of philosophy concerned with the creation of knowledge, focusing upon how we know or what are the most valid ways to reach truth”. Following a positivist approach, epistemology is defined as “the researcher’s view regarding what constitutes acceptable knowledge where only observable phenomena can provide credible data and facts” (Saunders et al., 2012, p. 140). Positivists focus upon the explanation and prediction of the related phenomena by observing the accuracy and the relationship between the phenomena (Hallebone and Priest, 2009). In management and accounting research, these concepts are adopted in order to gain a valid knowledge so that positivists are able to manage company’s cultures as variables acquired by company, and controlled or managed by a company’s management team (Saunders et al., 2009).

In this extent, Hallebone and Priest (2009, p. 170) reflect that “knowledge can be applicable to broad categories such as communities, industries and/or organizations where this can be useful to see the world through categorical lenses”. While natural science works with physical substances such as molecules and liquids, social science is concerned with social phenomena related to human behaviour in terms of cause and effect, and data is collected concerning social environment and people’s reactions to it. Based on the assumption of social–scientific theories, Burrell and Morgan (1979, p. 6) argue that a significant role is at play in “the nature of the relationships between man and the society in which he lives in”.

It is evident that natural sciences’ assumptions impact upon the method of knowledge investigation in social science, where based on positivism, some authors think that it is possible “to remove all subjective bias in the assessment of the reality of knowledge” in order to examine objective knowledge (Johnson and Duberley, 2000, p. 57). Thus, it can be considered that positivism holds “a nomothetic methodology where it applies protocols and procedures derived from the natural

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sciences to gain knowledge of the social world” (Johnson and Duberley, 2000, p. 78). This methodology consists of four significant angles: causality, reliability, generalisability and operationalism. In this methodology, the possibility of quantification (using mathematics) helps to achieve the findings’ internal validity and reliability, in order to examine the casual relationships and the external validity (Johnson and Duberley, 2000). As a result, when conducting research following a positivist approach, the researcher adopts an objective, independent and value-free stance (Saunders et al., 2009). The following section provides a critical evaluation and discussion based on the natural science adopted by positivism to gain knowledge in social sciences, using various examples to reveal the advantages and limitations.

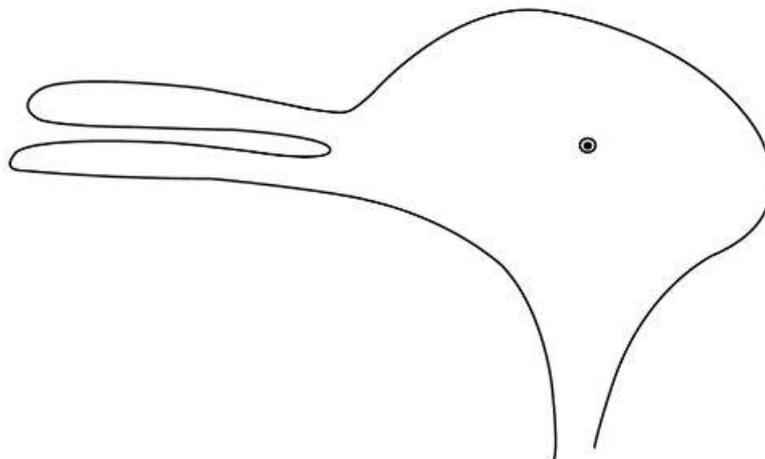
### Critical Evaluation and Discussion

#### *Ontology*

The assumption on natural sciences’ ontology may be considered problematic, and cannot be used for social sciences research due to the differences between the two sciences’ objects and the differences between each one’s properties. According to Chua (1986, p. 604), “people cannot be treated as natural scientific objects because they are self-interpretive beings who create the structures around them”. Benton and Craib (2011, p. 76) characterise it as “a life of meaning, of language and reflexive thought and communication”. They also state that “human beings and human groups own a property of self-consciousness and they have the ability to reflect on themselves, their situations and their relationships” (2011, p. 76). Thus, human beings’ actions are not influenced by any incentive or cause, but they interpret and give reasons for their actions and also for others’ actions (Hughes and Sharrock, 1997). By observing two people or two societies, it can be noticed that they are completely different possessing individual characteristics and properties (Griseri, 2002), leading to the statement that “social world is always changing” (Marshall and Rossman, 1989, p. 147). Thus, it is evident that there is a limited diversity of human behaviours and social phenomena where positivists cannot figure out an accurate prediction of human phenomena. Knowing that there are differences between human beings and physical substances, human beings cannot be seen or treated as natural objects. If the researcher fails to distinguish these differences between the two sciences, then it is possible to critique the positivist method as inappropriate to gain the acceptable and reliable knowledge surrounding social phenomena.

*Epistemology*

As Saunders et al. (2009) and Griseri (2002) have discussed, the natural science asserts that observed phenomena are used to gather acceptable knowledge. Some arguments (see Chua, 1986; Baker and Bettner, 1997) reflect that the research related to human senses may create problems. This reveals limitations where the observer cannot see the actual image and as a result, is not able to reflect the appropriate meaning. His/her senses may see something that appears differently in reality. The researcher may interpret observed evidence in different ways or may state an argument with a variety of meanings (Benton and Craib, 2011). This situation can be represented by the classic ‘duck-rabbit’ figure (see below) in which it “can be seen either as the head of a duck or as the head of a rabbit” (Benton and Craib, 2011, p. 32). S/he may see and reflect different interpretations or see and interpret some evidence in different ways each time s/he observes it. For this reason, positivism may have unfavorable and unexpected results, and not reflect the actual reality that this approach pursues.



*Figure 1 Classic 'Duck-rabbit' figure - (Source: Benton and Craib, 2011, p. 33)*

In the case of the empirical, positivism is referred to as “evidence or observations grounded in human sensory experience such as touch, sight, hearing, smell and taste” (Neuman, 2011, p. 9). To this extent, “scientific researchers cannot use their senses to observe directly some aspects of the world such as intelligence, attitudes, opinions, emotions, power, authority etc.” (Neuman, 2011, p. 9). They cannot observe the mental state of individuals since “human beings are not simply external

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shells of shape, size and motion; they have an inner life not accessible to observation in the normal way” (Hughes and Sharrock, 1997, p. 48). This kind of observation may achieve external behaviour but is unable to understand and clarify the feelings or the thoughts of subjects (participants). Thus, a motivation is given to start the detailed and in depth examinations on internal rationales. According to Hughes and Sharrock (1997), questionnaires and other systematic research tools can be utilised to mitigate the weaknesses of human senses and to gain access to internal scenes of subjects.

Moreover, scientific laws are considered as “summaries of observations [that] depend on the interpretation of scientific laws [...] implied by the existed evidence” (Benton and Craib, 2011, pp. 31-32). To maintain the scientific laws, “it is necessary to adopt a looser criterion of testability, which acknowledges that new observations may count for or against a hypothesis, but can never conclusively prove or disprove it” (Benton and Craib, 2011, p. 32). A clear knowledge cannot be achieved since the natural science theory changes as new evidence is discovered or observed. Furthermore, Benton and Craib (2011) argue that, based on Kant’s (1953) statement, sensory experience cannot be a guide to the key concepts essential to knowledge, such as ‘cause and effect’ or ‘space and time’, but these may be achieved from the natural perception. To this extent, social sciences cannot be considered to be the searching general laws as those of natural sciences because the social world does not behave in these kinds of patterns.

### ***Research Methodology***

As previously mentioned, there are differences between social and natural sciences based upon the relationships between the researchers and their research objects or subjects (participants). Due to each research paradigm’s arguments being reliant on different assumptions, without having any common ground, it is obvious that “debating methodology is a no win situation” (Watts and Zimmerman, 1990, p. 149). Researchers communicate using different ‘languages’ driving towards an endless debate. Adopting natural science method, the value-free and independent position between researchers and objects are considered the main features. According to Bryman (2004), positivist researchers support that quantitative measurement is viewed as a subsequent device allowing researchers to be consistent with themselves and others, and contributing to reliable and valid findings. On the other hand, Griseri (2002) argues that the values cannot be excluded from

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the investigation of knowledge in the social world. According to Benton and Craib (2011, p. 28), “social scientists try to find out explanations of particular social phenomena by value orientations and thus, social explanation seems to be value-relevant”. An alternative reflection is addressed to the value of social science objects which may not be feasible in natural science method. As an example, an organisation/company can be seen as one entity of society with specific values which lead to specific outcomes, characterising it as the key center of the company’s existence (Griseri, 2002). However, this incident can be characterised as inexplicit and ineligible when attempting to gain the related knowledge of social phenomena. The method used to mitigate the value is considered inadequate and unsuitable to gather the related knowledge, whilst also potentially significantly impacting upon the accuracy of findings.

Therefore, the findings of positivism may seem to be irrelevant, and as a proof, Chua (1986, p. 609) refers to organisational problems that are realised “as manageable by the appropriate design of accounting controls such as budgets, cost standards, cost allocations and divisional performance criteria”. Hogan and Sinclair (1996, p. 439) also argue that “positivist management research lacks relevance [giving the example of the benefits of positivism research to management such as those related to] industrial psychologists [in the extent that positivist method allows the researchers to identify] a set of characteristics that enable an individual to meet those requirements or the methods of selection to identify individuals with desired amounts of those characteristics”.

Regarding the issue of independence, this value may face difficulty during the establishment since researchers cannot be fully independent from the subjects of the research, particularly during the data collection process. Griseri (2002) represents the case of female researchers that acquire deeper information than male researchers, due to the different gender stereotypes and different language styles that the interviewer can employ to influence the emotional stance of the respondents, producing different final results. Thus, it is evident that human beings can be influenced by their own perceptions and also by the status of researchers in order to remain independent. When researchers are using a positivist approach, this lack of independence is considered to be a difficulty figured in the context, as they attempt to mitigate any bias.

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In order to discover any variables' relationships for theory development, positivism presents limited outcomes that demonstrate weaknesses of the related theory that represent the complicated social world (Johnson and Duberley, 2000). It seems that human beings are not responsive and thereafter, can act independently without following the strategy of natural science (Benton and Craib, 2011; Hughes and Sharrock, 1997). Thus, using variables to predict human beings' actions and ignoring free will and other such social world's considerations, it could lead to results that expose limited chances of social reality through representations. Through their study of earnings management based on positive accounting research, Shuto (2007) and Barth et al. (2008) suppose that the behaviour of senior management to manipulate earnings figures is affected by the companies' executive pay related to earnings figures. However, it can be noticed that in a business environment, other causes could appear in context which may affect the management's action such as the reputation acquisition (Graham et al, 2005) and financial analysts' expectations (Elias, 2002). Thus, it is known that variables may not show the reality of the business world.

Having in mind the characterisation of human beings as social science objects, Smith (1970, cited in Hughes and Sharrock, 1997, p. 30) states that “individuals acting on their own self-interested preferences could produce large-scale social regularities”. Furthermore, Saunders et al. (2009, p. 10) argue that “the structural aspect of management may differ but the essence of the function is very much the same in all organizations”. Thus, even if human beings maintain an independent stance, there is no doubt that human behaviours can be affected by environment or financial/organisational conditions. In Watts and Zimmerman (1990) paper, accounting researchers seem to use scientific method to uncover systematic patterns in accounting, and to present a framework related to accounting prediction. In the example of earnings management, a variety of external causes may appear in the context and could affect the decision-making process on how to manipulate earnings management. The relationship between accounting practices and executive pay can be indicated as a possible solution to establish specific legislation or accounting standards in order to combat this particular issue.

### **Aspects of Social World**

Through critical lenses, positivism disregards other kinds of societies that could play a significant role in research focused upon the definition of social world. According to Chua (1986, p. 604), “economics and accounting are based on assumptions about the information needs of people given limited access to resources” for maximization purposes. This statement suggests that capitalism appears to be the first priority of capital owners in order to maximise their profits. To this extent, positive accounting research tends to focus on the stock market, where researchers think that the relationship of accounting information and firms’ stock prices can be explained and predicted, revealing the shareholders’ benefits (DeFond et al., 2007; Landsman et al., 2012). On the other hand, other forms of business exist, such as within countries following the ideology of communism, in which accounting systems are controlled and supervised by the State in order to reach and accomplish desirable economic objectives (Tyrrall et al., 2007). In their study, Tyrrall et al. (2007) presented the case of a stock market with companies controlled by families, arguing that positive accounting may not be suitable for these kinds of companies. Thus, by disregarding the social world nature, different accounting information and results may seem inaccurate and irrelevant when using the positivist approach.

### **Conclusion**

Through this philosophical journey, a critical evaluation of natural science method was conducted. The opportunity was given for social scientists, particularly those in the area of accounting and management, to further understand the philosophy of positivism regarding the natural and social sciences, and whether certain knowledge can be established through science. It is evident that positivism has various limitations that make it difficult to reflect reliable and valid conclusions; it excludes the examination of both external and internal reality and the background of the action or event taken place. It is known that humans take action with objectives in mind and during the process they may be affected by their internal or external environment or by events that happened in their workplace or in general economy. As a result, various theories exist and relate to human behaviour that can describe and explain their actions, choices, habits, attitudes and thoughts. Positivist researchers do not take into consideration the environment and events, namely the social, economic and political context, that may significantly impact a participant’s action, choice, thought

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and position and subsequently affect the outcome or result. Thus, attention must be given while accounting and management researchers choose philosophical assumptions that may have a significant relationship with natural science method, as their results may not reflect nor thoroughly examine the real situation and the factors that played a significant role during the process in order to find outcomes and to reach conclusions.

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