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Introduction to positivist, interpretivism & critical theory

Abstract

Background

There are three commonly known philosophical research paradigms used to guide research methods and analysis: positivism, interpretivism and critical theory. Being able to justify the decision to adopt or reject a philosophy should be part of the basis of research. It is therefore important to understand these paradigms, their origins and principles, and to decide which is appropriate for a study and inform its design, methodology and analysis.

Aim

To help those new to research philosophy by explaining positivism, interpretivism and critical theory.

Discussion

Positivism resulted from foundationalism and empiricism; positivists value objectivity and proving or disproving hypotheses. Interpretivism is in direct opposition to positivism; it originated from principles developed by Kant and values subjectivity. Critical theory originated in the Frankfurt School and considers the wider oppressive nature of politics or societal influences, and often includes feminist research.

Conclusion

This paper introduces the historical context of three well-referenced research philosophies and explains the common principles and values of each. Implications for practice The paper enables nurse researchers to make informed and rational decisions when embarking on research.

KEYWORDS: positivism; interpretivism; critical theory; research philosophy

Introduction to positivism, interpretivism & critical theory

Introduction

A research philosophy is what the researcher perceives to be truth, reality and knowledge. It outlines the beliefs and values that guide the design of and the collection and analysis of data in a research study, these choices complementing philosophical principles.

Ontology relates to the values a researcher holds about what can be known as real and what someone believes to be factual (Bryman 2008). In this paper, this will relate to whether the researcher values realism, historical realism or relativism (Figure 1). Realists believe that a world exists outside the influence of the researcher (the world is there to be discovered), while relativists believe that the world depends on how the individual views and experiences it (the world is different to different people). Historical realism is the belief that reality is shaped over time by values, for example social, political, cultural or gender (Guba and Lincoln 2011). Lincoln et al (2011) also suggested postpositivism as a fourth paradigm – however, this is beyond the scope of this paper.

FIGURE 1 Philosophical Paradigms

The components of philosophy

Epistemology is our belief about how we may come to know the world (Figure 1).

Objectivism takes the position that there is a single version of what is real, regardless of the researcher's perspective; the only way to find this truth and 'credible' data is to measure or observe the world with as little intervention from the researcher and other factors as possible.

By contrast, subjectivism takes into account the multiple and varied perspectives of what may be real. Is reality what people see and feel or is it what we can measure? Subjectivism asserts that reality is our own perceptions, experiences and feelings. Finally, theory explains how we give meaning to, explain or understand the results of research. It is a method of representing the world, truth or knowledge (Howell 2013).

Types of reasoning

To understand different philosophical research concepts, it is important to understand how theories and conclusions are found in the data – that is, the reasoning applied to data to obtain the results. There are two main types of reasoning – inductive and deductive – although paradigms such as realism also refer to 'retroductive' reasoning, which Danermark et al (2002) discussed.

Inductive reasoning starts with observation, experiment and measurement, and generalisation and finding patterns in data; theory is then developed to describe the situation (Bryman 2008). Researchers then make repeated measures and observations until they are confident that their findings describe the wider situation. For example, a patient with haematuria, dysuria, cloudy urine, urethritis, pelvic pain and an indwelling catheter is diagnosed with a urinary tract infection (UTI); a nurse would sensibly assume from this that similar patients also have UTIs.

Deductive reasoning follows the reverse process: find a theory, make predictions based on the theory, and then use observation or experiment to test it (Bryman 2008). For example, if a new patient presents with a range of symptoms, the nurse would assess the

patient, consider the possibilities based on the available evidence and then explore those using appropriate diagnostic processes until correctly concluding the patient has a UTI.

Aim

This article outlines the origin, historical context and core principles of positivism, interpretivism and critical theory. It can inform research studies and those new to research philosophy, and provides a contextual base for common philosophical paradigms. It can form the foundation for further study into research philosophy and guide decisions about which values reflect research plans.

What is Positivism and where did it originate?

Commonly associated with experiments and quantitative research, positivism is considered a form of or a progression of empiricism. Phillips and Burbules (2000) suggested that empiricism is one of two forms of foundationalist philosophy – rationalist or empiricist – which believes knowledge should be objective and free from any bias stemming from the researcher's values and beliefs. To outline the origin and historical context of positivism, each of the core influencing philosophers will be discussed in turn (Figure 2).

Ontologically, positivists believe that there are facts that can be proven, reality is the same for each person (for example, patient weight is the same regardless of who measured it), and observation and measurement tell us what that reality is. Bryman (2008) suggested four important characteristics of positivism:

- Phenomenalism – only knowledge confirmed by the sciences is genuine knowledge.
- Deductivism – theory generates hypotheses that can be tested for provable 'laws'.
- Objectivity – science must be value-free.
- Inductivism – knowledge is gained by gathering facts that provide the basis for laws.

FIGURE 2 - Perspectives of empiricism & positivism (adapted from Finlatson, 2005)

Foundationalism

Foundationalists believe that hypotheses should be proven through value-free, controlled experiments or observations. Foundationalism states that true knowledge should be incapable of being wrong (Howell 2013). For example, foundationalists would argue that facts known about physiological functions in the human body or the existence of gravity are indisputable.

Until the start of the 20th century, all philosophical research theories were theories of knowledge (epistemologically driven) involving one single reality (ontology) independent of researchers (Denzin and Lincoln 2011, Howell 2013).

Hobbes: a rationalist

Thomas Hobbes argued that knowledge is more than cause and effect and is experienced through the 'five senses' (Howell 2013). For Hobbes, knowledge began with perception by the senses, such as sounds, shapes and colours, obtained through interactions between

observation and the mind (Howell 2013). The primary focus of Hobbes' methodology was 'reductionism' – the reduction of scenarios and problems into component parts, to understand how they might fit with each other. In this, you begin with the effects and work backwards to identify the causes. This effect-cause approach – rather than the deductive cause-effect – incorporated inductive reasoning. An example would be case-control studies such as Alberg et al (2016) that identify an effect and look backwards to examine the possible causes.

Descartes: a rationalist

As a rationalist, Rene Descartes believed that for anything to be labelled as knowledge, it should be securely established. He suggested that opinions, values and beliefs might be false and inaccurate, even if people accept them, and argued that scientific knowledge should be founded on what cannot be rationally doubted and what seems indubitably true should be accepted as being true.

Locke & Hume: empiricists

Empiricists take the approach that different contexts, circumstances, the passing of time and the experiences of the enquirer might produce different results, with knowledge coming from the experiences of our senses – observation and experiment. Knowledge is considered to be true when a hypothesis has been proven (Bryman 2008).

John Locke examined his 'self', to take an objective approach and find a 'foundation' for enquiry (Howell 2013). He believed that something must be tested repeatedly, with the same result each time. Contrary to foundationalism, he argued that everything has the potential to be disproven.

David Hume agreed that knowledge was derived from our observations and experimentation. He argued that our motivations and our experiences are what lead to enquiries for knowledge (Hume 2011). He proposed that knowledge can be found in our

experiences, our perceptions of our experiences or the combination of our reasoning between the two.

Hume also believed it was wrong to assume that events could not change in the future. For example, foundationalists would argue that it is an infallible truth that smoking tobacco causes lung cancer; Hume would argue that this is not true for everyone who smokes.

Importantly for the social sciences, Hume highlighted that science goes beyond the natural world, so there is a need for knowledge of human nature. The natural world is not necessarily about humanity but it certainly is investigated by humanity.

Hume was clearer than his predecessors about what constitutes evidence: hypotheses should be constructed based on what we know; experiment and observation should be used to gather data; and knowledge may be obtained and validated from this (Howell 2013).

Auguste Comte: a positivist

Auguste Comte had an alternative view. He claimed that human thought evolved through three phases: religious, metaphysical and scientific. Building on the work of Hume, he argued that society, humanity and people could be investigated through empirical observation.

Epistemologically, positivists believe that the researcher and the world are separate, with the world existing regardless of the researcher's presence (Bryman 2008, Howell 2013). Ontologically, they argue that one external reality exists and it is discoverable through hypothesis and experimental testing using deductive reasoning. For example, if we know that something occurs, we can look backwards to find its cause. This naive realism suggests that what we observe exactly reflects the world as it really is (Howell 2013).

The Vienna Circle

In the 1920s and 1930s, a group of mathematicians, physicists, social scientists and philosophers known as the Vienna Circle continued the concept of positivism. 'Logical realists', they accepted some of Comte's principles, but argued that without physical observations and collected data, claims to 'truth' were simply speculation and scientifically meaningless – for example, spirituality and intuition are not easily measured or observable, so cannot be proved (Denzin and Lincoln 2011).

What is Interpretivism

Similar to positivism, interpretivism has its historical roots in anthropology. However, it is in opposition to positivism, so is sometimes known as anti-positivism (Flick 2014).

Interpretivism argues that truth and knowledge are subjective, as well as culturally and historically situated, based on people's experiences and their understanding of them.

Researchers can never be completely separate from their own values and beliefs, so these will inevitably inform the way in which they collect, interpret and analyse data.

Contributors to interpretivism

Interpretivism has its origins in the 18th century with the philosopher Giambattista Vico, who opposed Descartes, arguing that there is a distinction between the natural and social world and more importantly, that social organisation and social experiences form our perceptions of reality and truth (Costelloe 2016).

According to Bryman (2008), there are four main approaches to interpretivist research:

1. Hermeneutics (Heidegger 1962)

This is commonly associated with interpreting and understanding texts or documents and the deeper meaning in them. Patients' signs and symptoms may be regarded as a form of 'text', waiting for the nurse to interpret and understand them, for example (Charalambous 2010).

2. Verstehen (Weber 1947)

Verstehen focuses on the exploration of understanding and perception from the points of view of research participants or patients, to understand why a phenomenon exists or why they behave the way they do.

3. Symbolic interactionism (Mead 1962)

Symbolic interactionism has three core principles (Blumer 1969):

- People's behaviour is based on their own meanings.
- Meanings are generated from social interactions.
- People may adapt meanings, based on their perceptions of situations or their experiences of them.

Aldiabat and Le Navenec (2013) used symbolic interactionism to work with and understand older people with suicidal tendencies.

4. Phenomenology (Schutz 1962)

Phenomenology focuses on the interpretation and description of people's experiences. It is deeply informed by philosophical assumptions (Wilson 2015).

What is real and what is truth?

Interpretivism has a 'relativist' ontological perspective. Relativists suggest that reality is only knowable through socially constructed meanings and that there is no single shared reality (Ritchie and Lewis 2003). For example, every patient on a hospital ward will have his or her own perspective and experience of the care provided, informed by their interactions with patients, staff, visitors and previous experiences. This reflects the proposition that there are multiple realities because of individuals' different perceptions: meanings are 'the categories that make up a participant's view of reality and with which actions are defined... culture, norms, understanding, social reality and definitions of the situation' (Krauss 2005).

Krauss (2005) and Frankl (1963) proposed that meanings are the most fundamental aspect of the social setting and are of paramount importance to human life.

BOX 1 The Principles of CT

- Social and historical constituted power relations affect and mediate all ideas and thinking
- Values and facts can never be separated*
- Facts always contain an ideological dimension*
- Ideas and objects are mediated through social relations
- Relationships between signifier and signified are continually in flux*
- Relations of capitalist production and consumption affect relationships between individuals and society
- Subjectivity is determined by discourse
- Privilege and oppression characterises social relations
- Oppression is more endemic when subordinates accept the hegemonic inevitability of their position in society
- Oppression is multifaceted
- Positivist research is elitist and unwittingly produces existing social power relations

* Indicates where there may be similarities with critical realism

Critical Theory (CT)

Critical theory (CT) seeks to challenge world views and the underlying power structures that create them. Bronner (2011) explained that 'critical theorists today must look backward to move forward'. In this way critical theorists take a historical realist perspective on ontology.

CT has several core principles (Howell 2013) (Box 1). It acknowledges that the evolution of society is making it increasingly complex and so more difficult to investigate. It examines oppression and routes to challenging oppression, focusing on exploitation of parts of society (alienation) and society's view of people as political or other objects (reification) (Bronner 2011). These two notions arguably 'turned the individual into a cog in the machine' (Bronner 2011).

Critical realism (CR) is often confused with CT but while there may be similarities with CR (Box 1), CR does not focus solely on – although may acknowledge – the political, economic or 'taken for granted' power structures that exist in society (Thomas 1993).

What is reality and truth?

Critical theorists value modified subjectivity – the researcher and society are influenced by their own perceptions and experiences, which are manipulated by power structures such as culture, politics, race, gender, class and the mass media (Howell 2013). The researcher should consider subjective preconceptions about philosophy and the subject being investigated. CT proposes that the object of study and subject of study are inextricably linked and that the researcher is always part of the object of enquiry. For example, subjects are the people in the world, and objects are what we study, and the researcher is a subject, but may become an object of study when reflecting on their thoughts, processes and actions (Groff 2014). This is logical when reflecting on the core purpose of CT outlined by the Frankfurt School – to improve the practical prospects for revolutionary action. However, it is highly unlikely that a researcher will be detached from class, culture, gender or race.

Marxism & The Frankfurt School

CT originated in 1937 in the Frankfurt School that developed between the first and second world wars. It was intended to challenge the perceived oppression and inequality in Western society (Bronner 2011). Marx and Engels (1996) proposed that economic factors determine

the elements of social life, and other influencers of the development of CT include Kant, who claimed that moral autonomy is the greatest freedom (Bronner 2011). Although Marxism played an influential role, CT is neo-Marxist so aims to explore more than the economic structures. It focuses on the overarching political and cultural structures, with the aim of changing these through emancipation (Bronner 2011).

The Frankfurt School dismissed foundationalism as a power structure in itself, claiming that power structures lead society to accept that oppression is the only situation that can exist. It also dismissed aspects of interpretivism, as interpretivists argue that meaning and reality are social or individual constructions, whereas CT would contest that these perceptions are the result of oppression and power structures.

Habermas

Jürgen Habermas is one of the most wellknown promoters of CT and his work continues to dominate the field today. Part of the Frankfurt School, his work spans five core programmes and five principles (see Table 1). Like post-positivists such as Kuhn, Habermas argued the need for change to improve humanity, by raising awareness of oppression (Habermas 1971). He argued that approaches such as positivism sought objectivity in such a way that they failed to understand social phenomena.

Habermas stood apart from some other Frankfurt School critical theorists by emphasising the value of language, communication and the freedom of speech in the public sphere. He criticised the school's approach to social, political and cultural situations, arguing that these were too onesided and that its concept of change and the achievement of 'utopia' was empirically flawed (Finlayson 2005).

TABLE 1 Habermas' 5 principles (adapted from Finlayson, 2005)

Programme	Principles
Pragmatic meaning	Two kinds of meaning: pragmatic and propositional. Pragmatic function of speech is to obtain consensus. There are three types of validity claim: to truth, to rightness and to truthfulness.
Communicative rationality	Two types of action: communicative and instrumental. Communicative actions are aimed at securing understanding and consensus. Practical success is achieved through instrumental.
Social theory	Social order rests on meaning and validity. Societies are made up of the life world (communication) and the system (instrumental action). People are forced into the patterns of instrumental action and lose meaning and autonomy.
Discourse ethics	Moral norms determine actions to be right or permitted. Ethics concerns individual happiness and the good of communities.
Political theory	Well-ordered political systems rely upon a balance between private and public autonomy with rational decisions about institutions. Laws must reflect the norms and values of society.

The relevance of philosophical paradigms in nursing

The most commonly applied positivist research design involves the use of experimental quantitative methods, although cohort and case control are also used. Gerrish (2013) and Polit and Beck (2012) discussed the hierarchies of evidence that seek to place greater value on systematic reviews, meta-analyses and other positivist approaches. Although there is some allowance for expert opinion and 'case study' (World Health Organization (WHO) 2014, National Institute for Health and Care Excellence (NICE) 2015), organisations, such as NICE, that develop clinical guidelines frequently recommend the need for evidence from randomised controlled trials, to show cost-effectiveness and quantify benefits (NICE 2011, WHO 2014). Research recommendations in guidance documents and the grading systems used to appraise evidence demonstrate this (for example, NICE 2011). Conversely, positivism is essential in public health and in presenting epidemiological findings, to inform service provision and health and social care strategies locally, nationally and globally (WHO 2016).

The false assumption that positivist research only uses quantitative methods sometimes leads researchers to favour interpretivism. However, positivist approaches to anthropology and ethnography have long been successfully used in world-leading and highly influential research, such as Darwin (1859). Conversely, there are many positivist studies that use qualitative measures alongside quantitative outcomes. For example, Hoban et al (2013) used grounded theory with a mixed-methods design to explore older people's views of health and wellbeing, and Van Groneou and Deeg (2010) detailed a longitudinal study examining older people's social participation. These studies were considered by NICE (2015) and so contributed to national guidance in the UK.

Arguably, interpretivism's principles and values align with many of nursing's approaches, principles and values, including patient-centred, holistic and personalised care. The ways in which patients or groups of service users place meaning on their health, wellbeing or experience are of great value in nursing.

Similarly, the principles of CT can have wider application in understanding and exploring the historical, social and political nature of communities. For example, Deforge et al (2011) used critical ethnography to learn about the culture in a long-term care home and identified the unintended consequences of the implementation of new assessment processes and policy. Conversely, CT can be used to explore nursing, with Mahon and Macpherson (2014) using CT to investigate the reasons why nurses leave or remain in the profession, for example.

The three components of evidence-based practice are: scientific evidence and research; clinical expertise; and patient experience (Gerrish 2013). 'Science' and research that values facts, cause and effect, and outcome measures play a clear role in patient care. However, patients' and communities' experiences can only be explored and investigated through in-depth processes that enable patients to explore and share their own experiences and perceptions. Therefore, the role of interpretivist and CT research in nursing is of great value, but it should be well considered and justified based on the corresponding principles of the paradigms.

Conclusion

Consideration of the range of nursing research paradigms available is important, but without a basic background of what they entail and how they have evolved, it is difficult to select one over another. Conversely, a philosophical perspective should explicitly underpin the research design and methodological choices.

A basic understanding of the paradigms available, their origins and their principles should assist nurse researchers to make more informed, evidence-based decisions about the methodology and design of their research, as well as enable them to justify their decisions. Consequently, this will enhance the quality and relevance of nursing research.

References

- Alberg, J. Moorman, PG. Crankshaw, S. Wang, F. Bandera, EV. Barnholtz-Sloan, JS. Bondy, M. Cartmell, MB. Cote, ML. Ford, ME. Funkhouser, E. Kelemen, LE. Peters, ES. Schwartz, AG. Sterba, KR. Terry, P. Wallace, K. Schilkraut, JM. (2016) Socioeconomic status in relation to the risk of ovarian cancer in African-American women: a population based case-control study. *American Journal of Epidemiology*. 184(4): 274-283
- Aldiabat, KM. & LeNavenec, CL. (2013) Interacting with suicidal older persons: an application of symbolic interactions for nurses and related mental health professionals. *American Journal of Nursing Science*. 2(3): 21-26
- Blumer, H. (1969) *Symbolic interactionism: Perspective and method*. Englewood Cliffs, NJ: Prentice-Hall.
- Bronner, SE (2011) *Critical theory a very short introduction*, Oxford University Press, New York USA
- Bryman, A (2008) 3rd Ed. *Social Research Methods*, Oxford University Press, London UK
- Centre for Longitudinal Studies (online) *Welcome to the Millenium Cohort Study*, <http://www.cls.ioe.ac.uk/page.aspx?&sitesectionid=851&sitesectiontitle=Welcome+to+the+Millennium+Cohort+Study> (accessed online 3 June 2016)
- Charalambous, A. (2010) Interpreting patient as a means of clinic practice: introducing nursing hermeneutics. *International Journal of Nursing Studies*. 47(10):1283-1291
<http://dx.doi.org/10.1016/j.ijnurstu.2010.02.011>
- Danermark, B. Ekstrom, M. Jakobsen, L. & Karlsson, JC. (2002) *Explaining Society Critical realism in the social sciences*. Routledge: London and New York
- Darwin, C (1959) *The origin of species by means of natural selection*, John Murray, London UK (online) <http://darwin-online.org.uk/content/frameset?itemID=F373&viewtype=text&pageseq=1> (accessed 3 June 2016)

- DeForge.R, van Wyk.P, Hall.J & Salmoni.A (2011) Afraid to care; unable to care: A critical ethnography within a long term care home, *Journal of Ageing Studies*, 25(4), 415-426
- Denzin.NK & Lincoln.YA (2011) 6th Ed. *The SAGE Handbook of qualitative research*, SAGE, London UK
- Dyson.S & Brown.B (2006) *Social theory and applied health research*, Open University Press, Berkshire UK
- Frankl.VE (1963) *Man's search for meaning: an introduction to logotherapy*, Pocket Books, New York USA
- Finlayson.JG (2005) *Habermas A very short introduction*, Oxford University Press, New York USA
- Flick, U. (2014) 5th Ed. *An introduction to qualitative research*. SAGE Publications: London
- Gerrish. K (2013) Chapter 38 Evidence based practice in Gerrish.K & Lacey.A 6th Ed. *The research process in nursing*, Wiley Blackwell, West Sussex UK
- Habermas.J (1968) *Knowledge and human interests*, Beacon Press, Boston USA
- Habermas.J (2004) *Theory and practice*, Polity Press, Cambridge UK
- Heidigger.M (1962/2004) *Being and Time*, Blackwell, Oxford UK
- Hegel, W. (1975) 3rd Ed. *Hegel's logic: being part one of the encyclopaedia of the philosophical sciences (1830)*. Oxford University Press: Oxford
- Howell.KE (2013) *An introduction to the philosophy of methodology*, SAGE Publications, London UK
- Hoban, M., James, V., Beresford, P. & Fleming, J. (2013) *Involving Older Age: The route to twenty-first century well-being*, Cardiff, Royal Voluntary Service.
- Hume, D. (2011) *The essential philosophical works*. Wordsworth: London

World Health Organisation (WHO) (2016) *World health statistics 2016: monitoring health for the SDGs*, online http://www.who.int/gho/publications/world_health_statistics/2016/en/ (accessed 3 June 2016)