CRITICAL REALISM AND PRAGMATISM IN TRANSPORT DEMAND RESEARCH

Research Paper

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Abstract

This paper investigates and represents key characteristics of recent studies related to research philosophies. Before conducting any research activity, every researcher has to think about his ontological, epistemological and axiological assumptions to know how to distinguish different research philosophies and their methodological choices for data collection process (Burrell and Morgan, 1979; Saunders et al., 2016). To do that, the primary aim of this paper is to represent and advocate combine usage of critical realism and pragmatism research philosophy for investigation of travel behaviour and travel demand on highways.

Keywords: research philosophies; ontological; epistemological; axiological; critical realism; pragmatism.

1   Introduction

Establishing appropriate research philosophy and research design is crucial for any research whether natural or social sciences. Research philosophy deals with the source, nature and development of knowledge (Bajpai, 2011), while in broad terms, research design describes the ways which the data will be collected and analysed to answer the research question and to provide a framework for undertaking the research (Bryman and Bell, 2003). Esterby-Smith et al. (2002) remark that if researcher fails to think about philosophical issues in his research process, it can seriously affect the quality of conducted research itself. Prior to research conduction, the researcher has to think about underlying philosophy which includes important assumptions about how researcher observes or views the social world and which research methods will be used. These thoughts are related to thinking about ontology and epistemology positions which have important distinctions that will affect the methods in which a researcher thinks during the research process (Bahari, 2010).

Although there are different research philosophies to undertake study research, every researcher has to know how to distinguish philosophy approaches and to define his research methodology and

research question for research conduction and data collection procedure. Hence, research methodology is being explained as a strategy that translates ontological and epistemological principles into guidelines that show how research should be conducted (Sarantakos, 2005) and what principles, procedures and practices govern such research (Kazdin, 1992, cited in Marczyk, DeMatteo and Festinger, 2005). Hence, research methodologies are primarily related to qualitative and quantitative research approaches which are, depending on researcher philosophy and type of necessary data, used solely or combined.

Therefore, by using professional experience in transport branch of the authors of this paper with the main focus of investigating drivers habits on highways, the research question of this paper is:

- How Critical Realism and Pragmatism as research philosophies can be used in the investigation of travel behaviour and travel demand on highways?

Beside serving and establishing a correlation between critical realism and pragmatism with travel behaviour and travel demand investigation, the aim of this paper is also to argue and suggest how qualitative and quantitative research methodologies could be used for data collection procedure. It is important to note that the authors of this paper does not attempts to explain why other research philosophies and research methodologies are not accepted for investigation of travel behaviour and travel demand on highways but to illustrate the usage of critical realism and pragmatism research philosophy to travel demand and travel behaviour investigation.

The following section, Section 2, briefly reviews relevant literature related to different philosophical and methodological approaches and distinctions, as well what kind of methodology was used during the investigation and literature collecting to reach the aim of this paper. In Section 3, the authors of this paper argues and represents key characteristics of critical realism and pragmatism (together with research methods characteristic to them) and relate them to practical experience on highways. Section 4 draws conclusion how critical realism and pragmatism could be used as research philosophy and suggests the future actions that should be taken for investigation of travel behaviour and travel demand on a highway

2   Literature review

To study the use of different research philosophies and methodologies in relation to the investigation of travel behaviour and travel demand on highways, it is necessary to develop a literature collection methodology for better understanding of different research approaches of critical realism and pragmatism and its qualitative and quantitative research methodologies. Beside representing literature collection methodology, this section shows a summary of all sources and methods used for a better understanding of critical realism and pragmatism and their research methodologies all to develop a

literature review which would be a base point for future investigation of travel behaviour and travel demand on highways.

2.1   Literature Collection Methodology

For the purpose of this paper, the Literature Collection Methodology has been performed combining two approaches (Cooper, 1989; Acciaro, 2013) with search engines and keywords including philosophical approaches, critical realism, pragmatism, research methodologies, research in business and management, research strategies, ontology, epistemology, research paradigms, research assumptions and theory developments. Before the investigation of the relevant sources, based on the research topic of this paper, the theoretical framework and table of contents were developed to provide a base and guide for future investigation and collecting relevant sources. Previously mentioned development is essential to investigate and represent the relation between critical realist and pragmatic research philosophes for future study of travel behaviour and travel demand on highways.

In this paper, a total number of reviewed articles and other relevant sources are 48, dated from 1978 to 2018 year. During the research process and collection of the literature used for this paper, it is crucial to notice literature obstacles. The authors of this paper could not find any article, book or study from Croatia related to usage of any research philosophy for investigation of travel behaviour and highway traffic, neither any peer-reviewed research that handles with driver's behaviour and elasticities at highways in Croatia. Therefore, the authors of this paper has used relevant philosophical research approaches and methodologies from the outside of Croatia – United Kingdom, United States of America, Sweden and Poland, mainly collected from Sheffield Hallam University Online Library Gateway, Google Scholar and Elsevier.

After collecting the literature relevant to the purpose of this paper, subsection 2.2. offers review and summary of founded studies related to research assumptions (ontological, epistemological and axiological assumptions) which according to Saunders et al. (2016) represent a starting point for conducting any research, since it is necessary to be able to distinguish between research philosophies – in this case, critical realism and pragmatism. Also, it should note that this paper, except critical realism and pragmatism, does not cover other research philosophies and any econometric and complex traffic models, but it relates in a positive manner critical realism and pragmatism with a traffic study.

2.2   Literature Review

Numerous of authors have investigated and interpreted in their studies warriours research philosophies in business and management, where the application of one or more research philosophies depends on nature of researcher and type of conducted research (Burrell and Morgan, 1979; Crotty, 1998; Fleetwood, 2004; Saunders et al., 2016). The term research philosophy is clearly explained as a

system of beliefs and assumptions about the development of knowledge, where knowledge development may not be as dramatic as a new theory of human motivation, but instead answering a specific issue in a particular organisation (Saunders et al., 2016). Since researchers of business and management do not agree about the best one philosophy (Tsoukas and Knudsen, 2003), before starting research, a researcher has to know how to distinguish different research philosophies. The research philosophies researcher considers through three types of research assumptions, which include assumptions about human knowledge (epistemological assumptions), about realities in research (ontological assumptions) and ways how researcher's values influence research process (axiological assumptions) (Burell and Morgan, 1979; Saunders et a., 2016). To be more specific with ontological, epistemological and axiological assumptions, Saunders et al. (2016) explain that ontological assumptions shape the way in which researcher sees and study research objects such as organisations, management, individuals' working lives and organisational events. Therefore, ontology is defined as the study of claims and assumptions that are made about the nature of reality, claims about what exists, what it looks like, what units make it up and how these units interact with each other (Blaikie, 2004). The ontology defines how a researcher sees the world of business and management and choices of what to research.

Since ontology studies what researchers mean when they say that something exists, epistemology concerns assumptions about knowledge, what is acceptable, valid and legitimate knowledge and how we can communicate knowledge to others (Burrell and Morgan, 1979), while Crotty (1998) in his work defines epistemology as a theory of knowledge embedded in the theoretical perspective and thereby in the methodology. However, according to McAuley, Duberley and Johnson (2014) work, epistemology raises the issue of whatever or not researcher can objectively or neutrally know what is there in the world and thereby collect the necessary evidence. According to that, McAuley, Duberley and Johnson (2014) identify two entirely different epistemological positions – epistemological objectivists (who assume it is possible to neutrally observe the social world and the behaviour of organisations through act of observation or perception) and subjectivity (who believes that what researcher perceive is an outcome of his conceptual understanding of the world, where the researcher needs to be trained in the methods of the approach).

The last assumption, axiology, is defined and explained by a couple of authors as a branch of philosophy that studies judgements about the value (Saunders et al., 2016), and it is engaged with an assessment of the role of the researcher's value on all stages of the research process (Li, 2016). Popkewitz, Tabachnick and Zeichner (1979) argue that consideration of ontology, epistemology and methodology must be a central feature of any discussion about the nature of social science research as these elements give shape and definition to the conduct of an inquiry. While thinking and conducting individual research, Alvesson and Skoldberg (2000) note that every researcher needs to become aware

of and actively shape the relationship between his or her philosophical position and how to undertake his or her research. Regarding establishing a general research approach, in his study Grix (2004) suggests that the best way to conduct research is as the following:

„Setting out clearly the relationship between what a researcher thinks can be researched (her ontological position) linking it to what we can know about it (her epistemological position) and how to go about acquiring it (her methodological approach), you can begin to comprehend the impact your ontological position can have on what and how you decide to study."

For this paper which aims to represent usage of critical realism and pragmatism to future investigation of travel behaviour and travel demand on highways, it can be concluded that as a base point it is necessary that researcher is aware and knows his ontological, epistemological and axiological assumptions. According to Crotty (1998) inevitably shape how to understand research questions, which methods to use and how to interpret his findings. Therefore, by considering the study of Saunders et al. (2016), Table 1. summarises and compares critical realism and pragmatism by considering their ontology, epistemology, axiology and research methods.

Table 1. Comparison between Critical realism and Pragmatism Research Philosophy

Ontology	Epistemology	Axiology	Typical methods
Critical realism			
- External, independent - Objective structures - Casual mechanisms	- Knowledge historically situated and transient - Facts are social constructions - Historical informal explanation as a contribution	- Researcher acknowledges bias by worldviews, cultural experience and upbringing - The researcher tries to minimise prejudice and errors - Researchers objective as possible	- Reproductive, in-depth historically situated analysis of pre-existing structures and emerging agency. - Range of methods and data types to fit subject matter
Pragmatism			
- Complex, rich, external - „Reality" is the practical consequences of ideas - Flux of processes, experiences and practices	- Practical meaning of knowledge in specific contexts - Focus on problems, methods and relevance - Problem-solving and informed future practice as a	- Value-driven research - Research initiated and sustained by the researcher's doubts and beliefs - Researcher reflexive	- Following the research problem and research question - Mixed methods, multiple, qualitative, quantitative, action research - Emphasis on practical

	contribution		solutions and outcomes

Source: Adapted from Saunders et al. (2016)

Since the authors of this paper is familiar with his ontological, epistemological and axiological assumptions, as well is interested in establishing and advocating his research approach through critical realist and pragmatic research philosophy, the next chapter represents and explains the main characteristics of these two philosophies, as well why and how they can be used for the investigation of travel demand and travel behaviour on highways.

3 Usage of critical realism and pragmatism for travel behaviour and travel demand investigation

As the authors of this paper mentioned in Section 2, numerous studies have investigated different research approach, philosophies and methodologies in organization and management with attempt to emphasize their relevance and guide for every researcher (Danermark et al., 2002; Fleetwood, 2004; Tuli, 2010; Antwi and Kasim, 2015; Saunders et al., 2016). Since every researcher has different ontological, epistemological and axiological assumptions, and therefore, a separate research philosophy and field of research which together actually determine the way of research, this chapter is primary related to critical realist and pragmatic research approach due to their relation with research philosophy of the authors of this paper, which can be used for future investigation of travel behaviour and travel demand on highways. Before starting the more in-depth analysis with an attempt to determine the relevance of both philosophies for future investigation of travel behaviour and travel demand on highways, it is necessary to decide on their characteristics in more details

3.1 Pragmatist Research Philosophy – characteristics and application

Starting with pragmatism as first observed research philosophy, Kelemen and Rumens (2008) define pragmatism as a theory of meaning which asserts that concepts are only relevant in as much as they are suitable for action. In Ormerod (2006) study, pragmatism is interpreted as meaning where a researcher in his investigation must turn away from fixed and absolute principles and deal only in facts as they exist related to a problem at hand where the aim is a resolution of the issue.

According to Saunders et al. (2016), pragmatism strives to reconcile both objectivism and subjectivism, fact and values, accurate and rigorous knowledge. Also, different experiences are reconciled by considering theories, concepts, ideas, hypotheses and research findings but not in an abstract form but regarding their practical consequences in specific contexts, as well by using a range of research methods (mixed, multiple, qualitative and quantitative). For a researcher with pragmatist philosophical approach, research starts with an issue as he aims to bring practical solutions that inform future practice. Furthermore, Saunders et al. (2016) suggest if researcher undertake pragmatist research, the most important determinant for the research design and strategy would be the research issue and research question that is trying to be addressed. What unifies pragmatist researcher is their conceptualisation of scientific progress as the increased effectiveness of theories in guiding problem-solving behaviour (Laudan, 1977). Finally, the pragmatists believe there is an external world to perception which means there are also real things that exist without perceiving them and so they follow regular laws of nature.

Considering the critical philosophical characteristics and research methods of pragmatism, the authors of this paper believes that the pragmatic approach would be useful and applicable for future investigation of travel behaviour and travel demand on highways. Due to its appropriateness for problem-solving and characteristic to inform next practice as contribution, it should be used as a vital issue for study drivers' behaviour on highways (Saunders et al., 2016). Another advance of applying pragmatic research approach is the possibility of using a different range of methods (qualitative and quantitative) to collect informations about drivers experience and opinions regarding their travel habits. The authors of this paper emphasises that qualitative and quantitative research methods and their application will be considered in more details in Section 3.3.

3.2   Critical Realism Research Philosophy – characteristics and application

Another considered research philosophy used in this paper for the future research of travel demand and travel is critical realism. The philosophy dates back in the late 20th century mainly from the work of Bhaskar (1978, 1979, 1993) and has also been developed by other authors such as Archer (1995), Sayer (1992, 2000) and Fleetwood (2004, 2005). In the work of Bhaskar (1989), critical realism is developed as a response to both direct positivist realism and postmodernist nominalism. In his work, Bhaskar (1989) argues that any researcher can understand events in the social world if he or she previously understood the social structures that have given rise to the phenomena that researcher tries to understand. For the critical realist, the reality is the most important philosophical consideration, and an entity can exist independently of our knowledge of it. It implies that reality can exist without

someone observing, knowing and constructing it (Fleetwood, 2005). According to Dobson, Jackson and Gengatharen (2011), critical realism can integrate the ontological durability and power of existing and evolving social structures, as well as the properties of physical objects.

According to Saunders et al. (2016), critical realists percept reality as external and independent, but not directly accessible through researcher's observation about it. Hence, researchers with critical realists philosophy use facts as a social construction and focus on minimisation of bias and errors, as well to be objective as possible during their research. During the work on reflections on the realism in organization and management studies, Reed (2005) claims for critical realist there are two steps to understand the world – first, through sensations and events researcher experience, and second, through reproduction (when we go backwards from our skills to the underlying reality that might have caused them). Because of that, many critical realists go through in-depth historical analysis of observable subject and how social and organisational structures have changed over time and also set their focus on providing an explanation for visible organisational events by observing for the underlying causes and mechanism through which social structures shape everyday organisational life (Saunders et al., 2016). The good explanation of observed object is considered to be good when the postulated mechanism is capable of explaining the phenomenon, when a researcher has a good reason to believe in its existence and, finally, when the researcher cannot think of any other equally good alternatives. As Oltman, Boughey and Phil (2012) note, the researcher has to look for mechanisms and structures that could explain why certain phenomena and relationships exist (or do not) and then try to show these mechanisms do exist.

Regarding using critical realism as a research method, Danermark et al. (2002) emphasise critical realism is not a method, and it can not be applied unambiguously in practical research, but it can guide the researcher that the objects defined by critical realism frame subsequent ontological, epistemological and methodological development. Therefore, Danermark et al. (2002) have developed a 6 stage model for explanatory research based on critical realism, as follows – in the first stage of the model defined as „*Description*", it is suggested that research should be made by using everyday concepts, as well to include the interpretations of the persons involved and their own way of understanding the current situation. Then, in the second stage „*Analytical Resolution*" whereby the components of interest are identified and separated, it involves separating the composite and the complex by distinguishing the various components, aspects or dimensions. According to Dobson, Jackson and Gengatharen (2011), they suggest that stake depends heavily on critical realist representations to taste out appropriate elements. In the third stage – „*Abduction or theoretical redescription*" the components are re-interpreted by using different theories and frameworks from the past. „*Retroduction*", known as a fourth stage, is applied in the model whereby the abstractions are made as real within a critical realist frame by hypothesising structures and mechanisms consistent with

the previous abstraction. The fifth stage is known as „*Comparison with different theories*", examines the relative merit of each abstraction or theory in explaining the observed happenings. The final stage, „*Concretization and contextualisation*" is related to examining how the different structures manifest in particular and specific situations. „*Concretization and contextualisation*" involve addressing identified structures and mechanisms to encourage adoption. Danermark et al. (2002) emphasise and warn that the framework should be used only for guidance rather than a strict chronological roadmap.

Considering key critical realist characteristics from different authors (Bhaskar, 1989; Fleetwood, 2005; Reed, 2005; Dobson, Jackson and Gengatharen, 2011; Saunders et al., 2016) and especially Danemark et al. (2002) 6 stage model of explanatory research based on critical realism, the authors of this paper believes that besides pragmatic approach, critical realism research would also be appropriate to use for investigation of travel behaviour and travel demand on highways. The main reason for such conclusion is the case it is necessary to go into depth historically situated analysis of pre-existing structures, as well as toll and traffic changes, to determine factors and occasions that over the time caused positive and/or negative changes on traffic on particular highway, as well to develop clear explanations as contribution. To determine and explain factors which cause different elasticity values on driver's behaviour, the researcher should be precise and objective as much as he can to minimise bias and errors. While conducting such investigation, it is also vital that researcher has particular historical knowledge about an observed issue, which follows the instructions from the study of Saunders et al. (2016), so such fact represents another argument to use critical realist philosophy for research. Finally, the authors of this paper believes that Danermark et al. (2002) 6 stage model should be definitely used as a guide for developing an essential structure for complete investigation of travel behaviour and travel demand combined with practical aspects of pragmatist philosophy, since it has common points with critical realism based on Johnson and Duberley (2001) study.

The following chapter aims to present how the research methods (qualitative and quantitative) could be used for the investigation of travel behaviour and travel demand on highways.

1.1. Methodological Research Approaches – Qualitative vs Quantitative

According to the previous chapters of this paper, research philosophy is crucial in any conducted research. Bahari (2010) states, prior to conduct an investigation researchers has to think about underlying philosophy, as philosophy is central to the notion on research design, while Andrew et al. (2011) defined business research methods as a systematic and scientific procedure of data collection, compilation, analysis, interpretation and implication applicable to any business problem. Therefore, considering different definitions of business research methods, the nature and purpose of the investigation, there are two general categories in which research methods are classified – quantitative and qualitative categories (Dudovsky, 2018).

Quantitative Research method

Quantitative research is a research method that resolves problems using numbers. While describing quantitative research method, Herbst and Coldwell (2004) emphasise collection of numerical data, the summary of those data and the drawing of interfaces from the data as essential characteristics – in short, the researcher who conducts quantitative research method focus on hypothesis and theory testing. In the quantitative research approach, the data collected are in numerical form, which are a test for significance using appropriate statistical methods, the results of which answer the research question (Florczak, 2014). Beside the using numerical values, quantitative research approach seeks to be stable from the beginning to the end, which allows researcher to have unique data and participants responses on asked questions through highly structured questionnaires, surveys and observations where participants responses do not influence on further issues, regarding to qualitative research which uses more semi-structured and flexible methods (Mack et al., 2005).

Qualitative Research Method

The qualitative research method is the one where the researcher usually makes knowledge claims based on constructivist perspectives (Cresswell, 2003) and is based on words, feelings, emotions, sounds and other non-numerical and unquantifiable elements (Dudovskiy, 2018). Two researchers, Antwi and Kasim (2015) suggest in their work that qualitative research method the best to use when there is little knowledge about observed topic or phenomenon and when researcher wants to discover more about it, and mainly when researchers want to see people through interviews, surveys, conducting case studies and analyzing existing documents or other cultural artefacts.

As it mentioned in the previous chapter, qualitative research approach is in some cases, considered as a flexible approach which uses semi-structured methods such as in-depth interviews and participants observations where further questions are adopted according to participant responses. For travel behaviour and demand on highways, such approach could be useful to investigate which parameters (toll fare, driver income, fuel price or other) influence drivers habit to use or avoid particular highway section. Considering differences between quantitative and qualitative methods, the authors of this paper believes the qualitative research, combined with quantitative research would be appropriate for investigation of travel demand on highways in general - such kind of research is also known as mixed research and is suitable research method for pragmatic researchers (Johnson et al., 2007; Glogowska, 2010; Harrison III, 2013; Antwi and Kasim, 2015; Saunders et al. 2016). In their study, Johnson et al. (2007) define mixed method research as an approach where the researcher combines elements of qualitative and quantitative research approaches for breadth and depth of understanding and corroboration. In mixed method research based on the philosophy of pragmatism, the qualitative and quantitative parts of study might be conducted simultaneously or sequentially to

address a research question or a set of related issues. As Antwi and Kasim (2015) note, a researcher with mixed method sees positive value in both the quantitative and the qualitative views in human behaviour – in this case, drivers behaviour. Otherwise, any sage of only quantitative or qualitative research approach can cause limited and incomplete research for many research issues, especially in investigation of drivers behaviour and travel demand on highways where is necessary to collect quantitative (such as change in, toll fares, income and fuel prices) and qualitative data (such as interviews, survey conduction to determine highway users travel habits.). Therefore, when using two methods as a combination, such kind of research approach can help the researcher to interpret and better understand the complex reality of a given situation and the implications of quantitative data (Mack et al., 2005).

It is suggested that the critical distinction between qualitative and quantitative research is technical matter whereby the choice between them is to do with their suitability in answering particular research questions (Bryman, 2001). Another distinction between the two research methods is that qualitative research is primary inductive where data are collected, and theory development represents a result of the data analysis, while quantitative research is deductive since theory and hypotheses are developed as a result of the data analysis. In the end, as Mack et al. (2005) emphasise, the critical difference between quantitative and qualitative method research is in their flexibility where generally quantitative methods are relatively inflexible. Furthermore, even if it would seem to be better if research approach is flexible so the researcher can more adopt the research process to his needs, the inflexible study is likely to be more stable from the beginning to end, since it allows for meaningful comparison of responses across participants and study sites.

It has been widely argued that critical realism research embraces both qualitative and quantitative methods (Easton, 2010; Wynn and Williams, 2012; Zachariadis, Scott and Brrett, 2013). As Hu (2018) states, in practical terms, the difficulty of using quantitative methods in critical realism philosophy lies in the question of what kind of research objects can be quantified.

Table 2. Comparing Quantitative and Qualitative Research Method – Summary

	Quantitative	**Qualitative**
General framework	- Seek to confirm hypotheses about phenomena - Instruments use a more rigid style of eliciting and categorising responses to questions - Use highly structured methods such as questionnaires, surveys, and structured observations	- Seek to explore phenomena - Instruments use more flexible, iterative style of eliciting and categorising responses to questions - Use semi-structured methods such as in-depth interviews, focus groups, and participant observation

Analytical objectives	- To quantify variation - To predict causal relationships - To describe the characteristics of a population	- To describe variation - To describe and explain relationships - To describe individual experiences
Data format	- Numerical	- Textual
Flexibility in study design	- The study design is stable from beginning to end - Participants responses do not influence or determine how and which questions researchers ask next - The study design is subject to statistical assumptions and conditions	- Some aspects of the study are flexible (for example, the addition, exclusion, or wording of particular interview questions) - Participant responses affect how and which questions researchers ask next - The study design is iterative, that is, data collection and research questions are adjusted according to what is learned

Source: Adapted from Mack et al. (2005)

4   Conclusion

Numerous of studies have investigated different research philosophies and methodologies for investigations in business and management which represent which vary on researcher's ontological, epistemological and axiological assumptions (Burrell and Morgan, 1979; Crotty, 1998; Johnson and Duberley, 2001; Fleetwood, 2004; Blaikie, 2004; Saunders et al., 2016). Even each researcher prefers using specific research philosophy for conduction of investigation in business and management, Tsoukas and Knudsen (2003) emphasise that there is no the best philosophy to use, but it depends on situation and researchers ontological, epistemological and axiological assumptions. Although different research approaches and methodologies vary between researched issue, after reviewing of the available literature, this paper is focused and advocates two research philosophies that would be appropriate for investigating changes of travel behaviour and travel demand on highways – critical realism and pragmatism research philosophy.

On the basis of reviewed literature and ontological, epistemological and axiological assumptions of the authors of this paper, this paper has discussed the background of critical realism and pragmatism research philosophies, their key characteristics and research methodologies, since the aim is to correlate their features to future investigation of travel behaviour and travel demand on

highways. Even the authors of this paper advocates combining together critical realist and pragmatic research approaches for the purpose of investigation of travel behaviour and demand, it is useful to remind the reader of this paper with Johnson and Duberley (2001) study where, regarding ontological and epistemological positions, critical realism and pragmatism are correlated, and they do not mutually exclude each other.

Regarding the central question of this paper, the authors of this paper concludes that critical realism and pragmatism are and practical to use a combination of research philosophies for future investigation of travel behaviour and travel demand on highways, where the most appropriate approach would be to use Danermark et al. (2002) 6 stage model as guidance for developing investigation with the application of practical approach of pragmatism with the primary aim to answer research question which would be the case in a future study

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