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# Critical realism and constructivism: merging research paradigms for a deeper qualitative study

Critical realism  
and  
constructivism

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## Abstract

**Purpose** – Traditional approaches in qualitative research have adopted one research paradigm linked to an established typology. This paper addresses the unconventional application of two research paradigms in one study. A critical realist approach was used to augment a constructivist analysis of data in a research project seeking to explore the meaning that managers in small to medium enterprises (SMEs) attach to hazard identification, the construction of a hazard profile reflective of the business and its use in assisting to manage hazards within the SME's safety management system framework. Critical realism offered a complementary but essential framework to explore causal mechanisms that led to a deeper understanding of the findings by searching for the processes and causality that lay beneath the social and organizational phenomena observed.

**Design/methodology/approach** – This paper compares the two research paradigms in order to seek junctures and apply them to a research project. Analytical tools applied to each research paradigm within the project are presented, followed by a new multiparadigm conceptual model that integrates critical realism and constructivism, providing an original contribution of knowledge to this field of qualitative research.

**Findings** – The adoption of a multiparadigm model enabled not only the interpretation of social phenomena but also the determination of its causality, enabling a more insightful answering of the research question and leading to a deeper insight into the phenomenology that was studied. This research approach widens the boundaries of qualitative inquiry within organizational research by promoting strategies that challenge more traditionally anchored research typologies, and consequently contributes to better research outcomes.

**Research limitations/implications** – This study was conducted across four organizations. Similar research is encouraged across a greater number of case studies to validate the process of using a constructivist and critical realist paradigm to gain a more insightful understanding of events and their causality.

**Practical implications** – The comparison of two research paradigms and consequent provision of a conceptual model (Figure 3) provides potential for the development of further multiparadigm models for research projects within the field of organizational management.

**Social implications** – This paper has the potential to promote engagement and collaboration between research scholars seeking to explore the use of multiple research paradigms.

**Originality/value** – Such an approach has not previously been widely discussed or adopted to examine qualitative data, and advances theory in qualitative research. The application of two research paradigms using such an approach can be applied to businesses in a number of different contexts to gain a more insightful understanding of research participant perspectives, observable events arising from those perspectives and their associated causality.

**Keywords** Constructivism, Qualitative study, Critical realism, Research paradigm

**Paper type** Conceptual paper

## Introduction

This paper firstly outlines the context underlying a research project, termed the “background research project” that was conducted in several small to medium enterprises (SMEs) in 2018, and explains how two qualitative research paradigms were identified, compared and selected for use within the research approach and research design. Details surrounding the



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background project and the adoption of constructivism and critical realism in one study is explained and supported by the provision of tools used to analyse data within these two paradigms. Finally, a new conceptual multiparadigmatic model linking critical realism and constructivism that supports the background research project is provided, as a contribution to knowledge that can assist other researchers to adopt interpretive practices that search for deeper explanations in qualitative inquiry.

Recent research regarding how SMEs identify and manage safety hazards (Legg *et al.*, 2009; Masi and Cagno, 2015; Schwatka *et al.*, 2018) has proposed vulnerabilities across SMEs in areas of organizational structures, poor resourcing of the business and a lack of expertise all contributing to poor hazard identification and management of safety. A safety science research project was undertaken across four businesses in Australia and sought to explore the meaning managers within SMEs attach to hazard identification, the construction of hazard profiles representing the business and their use in assisting to manage hazards within each organization's safety management system (SMS) framework.

The research approach was qualitative in nature and adopted a case study design. An in-depth exploration of the process of hazard profiling was undertaken across four businesses, where research participants in each SME were tasked with designing their own hazard profile according to how the business functions by allocating broad hazard groups to parts of the business. Each business created the hazard profile over a period of approximately eight weeks. Data collection procedures occurred over this period, with visits to each SME comprising observations, interviews and focus groups used to gather data on observed actions and associated discourse as participants engaged with the project. Research participants designed their own hazard profile within the facilitated research activity culminating in a hazard profile that was then compared against their hazard management strategies.

The overall research approach employed a collaborative design, engaging managers as research participants to create a hazard profile based on the internal context of their own business (Bogna *et al.*, 2018, p. 10). The research identified three contextual factors that influenced the ontological approach adopted for the research and was moulded by the epistemology regarding SMEs and their management of safety hazards in the workplace.

The first contextual factor required the creation of a hazard profile utilising a participatory approach to engage research participants and draw on their tacit knowledge (Pandey, 2013). Secondly, the internal business context comprising organizational and operational factors required consideration in order to shape the hazard profile to the unique needs and perspectives of the business (Micheli and Cagno, 2010). Thirdly, the perspectives of the research participants and other stakeholders within the business were of primary importance in designing a hazard profile that would be accepted as relevant and aligned to their particular perspectives and beliefs (MacEachen *et al.*, 2010).

A research project requires a foundation that can articulate, support and validate a research approach, and be aligned to particular paradigms which in turn inform the research design and research methods. A constructivist approach was identified as having the potential to address this foundation, and through the construction of a hazard profile also presented an opportunity to identify and potentially alleviate vulnerabilities SMEs experience in hazard identification and hazard management. While the project initially adopted a constructivist paradigm, data analysis suggested that a further interpretative approach was necessary to derive underlying meaning from the social phenomena observed. This led to the adoption of critical realism as an additional and complementary methodological approach.

A critical realist approach had the capability to identify and confirm what might work regarding hazard profiling and the identification of hazards for SMEs, by exploring the

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causality associated with the creation of a hazard profile and what actions arise from its construction. These two paradigms are addressed in the next section of this paper.

Critical realism  
and  
constructivism

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### Use of research paradigms

A paradigm is a concept made prominent by [Kuhn \(1970\)](#) as an orientation towards theory and research, where shared ideas and concepts guide users and followers of a field of study and inquiry. Definitions regarding this concept have evolved since this time. A research paradigm is defined by [Guba and Lincoln \(1994, p. 105\)](#) as “the basic belief system or world view that guides the investigator, not only in the choices of method but in ontologically and epistemologically fundamental ways”. A paradigm incorporates a group of beliefs that act as a set of primary principles that reflect a position within a world and “the range of possible relationships to that world and its parts” ([Guba and Lincoln, 1994, p. 107](#)). Prominent typologies or taxonomies ([Brand, 2008](#)) that propose various research paradigms have been developed by [Burrell and Morgan \(1979a, b\)](#), [Crotty \(1998\)](#) and [Guba and Lincoln \(1994\)](#).

[Burrell and Morgan's \(1979a, b\)](#) book on organization theory provides a typology matrix to illustrate four broad paradigms based on theoretical assumptions regarding social science, the nature of society and the analysis of social theory. The four-paradigm model has been dominant in organizational analysis research ([Hassard and Cox, 2013](#)). It comprises the functionalist, interpretive, radical humanist and radical structuralist paradigms in a four-cell grid and is organised across a horizontal continuum from subjective to objective, and a vertical continuum from regulation to radical change. [Burrell and Morgan \(1979a, b, p. 23\)](#) propose that these sociological paradigms can be used for the analysis of social theories, but the model is “founded on mutually exclusive views of the social world” [Burrell and Morgan \(1979a, b, p. ix\)](#) implying that the underlying ontology and epistemology associated with each paradigm is incommensurable with another paradigm, and therefore the typology was not aligned to the use of two research paradigms within the background project discussed in this paper.

A further reason for the non-selection of the typologies presented in [Burrell and Morgan's](#) matrix was due to their alignment to investigator values, where the study is directed towards an objective and “mutually exclusive views of the social world” ([Burrell and Morgan, 1979a, b, p. iix](#)), rather than contextual values where the research objective seeks to apply a methodology to a context to understand that context without aiming for a predetermined outcome. Researchers undertaking the project concurred on how the research question associated with the project required consideration for exploring how SMEs would subjectively construct, negotiate and order a hazard profile into a meaningful composition that might be of use to them. This required alternative typologies and approaches.

[Crotty \(1998\)](#) presents a different typology to that of [Burrell and Morgan](#), presenting a number of paradigms that he calls “theoretical perspectives” ([Crotty, 1998, p. 3](#)) although five are discussed in some depth, being positivism/post-positivism, interpretivism, critical inquiry, feminism and postmodernism. [Crotty](#) locates objectivism, constructionism (but not constructivism) and subjectivism within a classification of three epistemologies as to how meaning is made by those being researched. [Crotty](#) poses an initial useful suite of questions for the researcher regarding methods, methodology, theoretical perspective and epistemology that need to be answered in order to guide the research process towards the selection of an appropriate paradigm. In this sense, [Crotty](#) offers a more research centric approach than [Burrell and Morgan's](#) typology that may better place the researcher in the middle of the research process and proposes that paradigm classification and definition is malleable but requires justification within a research approach ([Crotty, 1998, p. 13](#)).

The researchers used [Crotty's](#) initial suite of questions to assist in planning a research approach, defined by [Creswell \(2014, p. 3\)](#) as the plan and adopted procedures that “span the

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steps from broad assumptions to detailed methods of data collection, analysis and interpretation” and research design that provides the overall representation of the chosen methods and their rationalisation (Saunders *et al.*, 2009, p. 43). However, the research question associated with the background project required a search for a paradigm that incorporates the identification of an individual’s world views and associated subjective meanings and perspectives within workplace social contexts, and whether actions arising from those views are triggered by certain phenomena. This led the researchers to search for further typologies that embrace this approach within the field of organizational inquiry.

Within the field of qualitative inquiry, social research paradigms proposed by Lincoln *et al.* (2011) include critical theory, constructivism, positivism and post-positivism. Perspectives associated with the use of social constructivism seek to determine the social objects that are “constructed, negotiated, managed, reformed, exchanged and organised by human beings in their attempts to make sense of what is happening around them” (Kelemen and Rumens, 2011, p. 9) through the analysis of social discourse arising from recorded data (Fairclough, 2005).

The search for a research paradigm that associates social perspectives with meaning as seen by those being researched led to the selection of constructivism as the primary paradigm to be used for the background project. However, the determination of triggers contributing to the research participants’ reality proved elusive through the lens of constructivism alone, as social constructivism “views social structures as merely taxonomic groups” (Peters *et al.*, 2013, p. 338), the epistemology of which is essentially concerned with the gathering of knowledge based on subjective meanings and social phenomena and actions associated with those persons being studied within a defined social context (Kivunja and Kuyini, 2011; Wahyuni, 2012, p. 70). This study could potentially be reduced to one of discourse alone rather than also exploring the causality underpinning the discourse and resultant actions observed by research participants with the research project, a dialectical approach argued by Roberts (2014) as assisting in the connection between a discussion of ideas and opinion and causal powers.

Determining the causality of this reality in order to better answer the research question required the identification of underlying initiators that informed and shaped the participants’ construction of that reality. In order to identify antecedents contributing to that reality, a search for research paradigms that embrace causality was initially identified within Guba and Lincoln’s (1994, p. 109) typology on post-positivism. Centred within the ontology of positivism, the research paradigm of critical realism offered a complementary framework to explore causal mechanisms. Some social science researchers have recognised common features within certain research paradigms, for example where post-positivism is also labelled as critical realism (Wahyuni, 2012, p. 70). Hoddy (2019, p. 113) states that “critical realist enquiry aims at developing causal explanations that map the components of a social phenomenon across stratified reality, spelling out what the relevant objects, structures, mechanisms and conditions are to that phenomenon”. This prompted the researchers to question whether the combining of different research paradigms into one research project could be synergistic and yield a deeper explanation regarding the observed phenomenology.

According to Burrell and Morgan (1979a, b, p. 24), “[t]o be located in a particular paradigm is to view the world in a particular way” and, as a consequence, researchers do not mix paradigms. This view has been reinforced by Morgan and Smircich (1980) who argued that because each paradigm is radically different and incommensurable with the others, changing paradigms was rare – something akin to a religious conversion. However, this view has been consistently challenged (see Clegg, 1982; Alvesson, 1987; Hassard, 1991; Van Maanen, 1995a, b; Scherer and Steinman, 1999).

Hassard (1991), for example, observed that each Burrell and Morgan paradigm is limited in its methodological scope and, as such, it would be inappropriate to address various topics

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using particular paradigms. He suggested the development of a typology or contingency model for organizational analysis which specifies appropriate combinations of topics, methods and paradigms, which he termed “multiple paradigm research” (Hassard, 1991, p. 275). Hassard (1991) described the use of the Burrell and Morgan model as the framework for producing four accounts of work behaviour in the British Fire Service. Results were obtained by using a theory and methodology from each paradigm as the basis for research. He suggested that multiple paradigm research, if operationalised successfully might allow the learning of the languages and practices of a wide range of academic communities and, in turn, develop analytical skills representative of their forms of life.

The study by Hassard (1991) was criticised by Parker and McHugh (1991). They suggested that Hassard’s research attempted to address the whole issue of paradigm incommensurability and questioned his claim that he was able to internalise each paradigm so successfully to allow him to switch roles in order to immerse himself in each paradigm and provide an authentic account from each perspective. They were of the view that Hassard’s research was not multiparadigmatic, but rather just reflected the outcome of different methodological approaches.

Despite this criticism, Hassard and Cox (2013) revisited the Burrell and Morgan model with the aim of re-establishing the multiparadigm concept for undertaking organizational research. Through a meta-theoretical analysis of the major intellectual movements to emerge in recent decades – namely, post-structuralism and, more broadly, postmodernism, they note that this contemporary intellectual milieu “is underpinned by a qualitatively different set of intellectual assumptions” (Hassard and Cox, 2013, p. 1717) to those reflected in traditional sociological perspectives. They suggest that this strengthens the argument for marrying pluralistic theorizing to methodology, resulting in a research strategy based on paradigm triangulation, which involves post-structural meta-theories deployed alongside those for agency and structure as the basis for undertaking pluralistic investigations.

In the same vein, Cunliffe (2011) revisited the Morgan and Smircich (1980) paradigm typology taking into account the changes in organization and management theory over the intervening 30 years. She concluded that because organizational research is now a more pluralistic, contested and methodologically varied discipline, the Morgan and Smircich (1980) typology has a number of limitations. In particular, the distinction between subjectivism and objectivism, which lies at the heart of the original typology, has been disputed (see for example, Clifford and Marcus, 1986; Bourdieu, 1994; Deetz, 1996). Cunliffe (2011) offers a revised typology that includes intersubjectivity, which contemporary hermeneutic and dialogic interpretations (e.g. Bahktin, 1981; Bahktin *et al.*, 1986; Shoter, 2008) construe as ontology. Garfinkel (1967) and Shutz (1970) frame intersubjectivity as a commonly experienced and understood world of shared meaning, interpretation and culture. While we experience and interpret the world from within our own biography as free actors, we also share our world with others in a mutual relationship.

This suggests that paradigms are not classified in any one decisive way (Patton, 2002, p. 79). Since research paradigms are primarily a theoretical social construct, they cannot be claimed as “incontestable logic or indisputable evidence” (Guba and Lincoln, 1994, p. 108). Research within organizations is experiencing an expansion of its boundaries through “a multiparadigmatic profile, and methodological inventiveness” (Buchanan and Bryman, 2007, p. 483). The use of multiple research approaches, where “qualitative researchers deploy a wide-range of interconnected interpretive practices, hoping always to get a better understanding of the subject matter at hand” is supported by Denzin and Lincoln (2013, p. 7). Similarly, Gioia and Pitre (1990, p. 585) propose that “multiple views created by different paradigms might be linked”.

The adoption of more than one interpretive practice can facilitate the interdependent analysis of research data and extrapolation of meaning and knowledge beyond what might

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be found by using one interpretive model. Researchers should consider the potential to use more than one theoretical approach, since what “was earlier recognized as a causal form and functional explanation can, in contrast, be formulated in a narrative that connects chains of indeterminate events and complex interactions” (Grover *et al.*, 2008, p. 45).

The choice for how the research approach and research design were developed for the background project was influenced primarily by the research question, potential for evidential material and the organizational context of the SMEs to be researched. Buchanan and Bryman (2007) contend that these factors are equally important in research design when seeking methods that align with what it to be researched. These factors were considered of primary importance within the background project.

Two research paradigms were adopted, examined and contextualised, and they are compared and contrasted in Table 1. The research question associated with the background project is presented below to serve as a context for the discussion of the research paradigms that follow. The research question associated with that project is as follows:

- (1) Does a hazard profile mapped to an SME’s business parameters identify and record the SME’s safety hazards?

The data collection methods of observation, interviews and focus groups were applied within a constructivist paradigm, where the research participants’ world views were recorded as the research activities progressed. A critical realist approach to a case study design can be identified within the research question, where the phenomenon of interest relating to hazard profiling is constructed as a research activity that has the potential to occur as a recognisable event and so poses questions regarding what caused the event or events to occur (Easton, 2009).

Phenomena can be recognised as “physical or social events, or episodes . . . [and] are more clearly explained or understood when placed in appropriate contexts that brings them into sharp relief. . . [and] become meaningful events, in the sense of influencing action, when noticed or observed by a group of people” (Cupchik, 2001, p. 4). The adoption of two research paradigms sought to more clearly explain how the social phenomena associated with the research activity of hazard profiling could be explored by seeking the triggers that lie beneath the social phenomena that was observed.

### **Constructivism and critical realism: features and limitations of each paradigm**

Constructivism considers knowledge as a social construct, resulting from exchanges and interactions between individuals and the settings within which they are formed (Orlikowski and Baroudi, 1991; Kelemen and Rumens, 2011; Creswell, 2014). Constructivism relies on the analysis of social discourse that is recorded through data captured in activities such as observations and interviews. Through this analysis, constructivism seeks to identify world views, subjective meanings and perspectives within social contexts and is dependent on the beliefs and opinions of those being researched to lead the researcher to identify patterns and themes in the “complexity of views rather than narrow meanings in a few categories or ideas” (Creswell, 2014, p. 8). Constructivism aims to understand the social world of those being studied and requires the interpretation of that world from the points of view of those residing within it. Constructivism maintains that worldviews can be endemic to individuals or influenced within groups of individuals, and that these can be formed and evolve within social structures established or used by those individuals (Peters *et al.*, 2013).

The constructivist paradigm, when assessed against a research philosophy that incorporates ontology, epistemology and methodology underpinning the inquiry (Lincoln and Guba, 2013, p. 37), assumes a “relativist ontology . . . a subjectivist epistemology . . . and a naturalistic set of methodological procedures” (Denzin and Lincoln, 2013, p. 27).

Fundamental questions/elements  
*Lincoln and Guba (2013, p. 37)*

Comparison of constructivism and critical realism research paradigms: implications for a research project

Research paradigms

| Constructivism   | Critical realism   | Junctions and divergences  | Implications for the research   |
|--|--|--|---|
| <p>The situations studied have multiple realities. A relativist ontology based on the exploration of conceptual schemes owned by individual research participants. Reality is socially constructed. (<i>Zhang et al., 2011; Denzin and Lincoln, 2013</i>)</p> <p>Social reality relies on language</p> | <p>A realist ontology. An objective reality that is independent of individual's perception of reality (<i>Syed et al., 2009; Wynn and Williams, 2012</i>)</p> <p>The "real stratification of being is separate from our knowledge of being"</p> <p>Seeks mechanisms that generate phenomena through the actual events that occur and the empirical. (<i>Peters et al., 2013, p. 338</i>), (<i>Bhaskar, 1998</i>)</p> | <p><i>Junction</i></p> <p>Acceptance of the theory dependent nature of research</p> <p>Critical realism does accept that individual subjectivity contributes to defining reality. (<i>Fleetwood, 2005</i>)</p> <p><i>Divergence</i></p> <p><i>Constructivist</i></p> <p>Social structures and associated practices are constructed by individuals and are not recognised as having causal powers</p> <p><i>Critical realist</i></p> <p>Social structures and associated practices have causal powers. (<i>Peters et al., 2013</i>)</p> | <p>Adopting a critical realism paradigm allows for further exploration of the identified ontologies of individual research participants, using structures and mechanism to explain the recorded events, supporting a realist ontology</p> |

(continued)

Critical realism  
and  
constructivism

**Table 1.**  
Comparison of research paradigms and implications for the research project



Table 1.

Comparison of constructivism and critical realism research paradigms: implications for a research project

| Fundamental questions/elements<br><i>Lincoln and Guba (2013, p. 37)</i>   | Research paradigms  | Junctions and divergences  | Implications for the research   |
|---|---|--|---|
| <p><b>Constructivism</b></p> <p>Subjectivist epistemology. The researcher interacts with research participants and interprets and co-creates their own meaning of the data. (<i>Denzin and Lincoln, 2013</i>)<br/>The researcher and participants work together to generate knowledge.<br/>Meanings are linked to dialogue and social interactions (<i>Peters et al., 2013</i>)</p> | <p><b>Critical realism</b></p> <p>A wide-ranging, interpretivist epistemology. Relationships, ideas and knowledge structures that contribute to causal mechanisms, events and experiences that generate particular tendencies (<i>Peters et al., 2013, p. 343</i>)<br/>Social reality comprises language and social structure<br/>The determination of knowledge claims are dependent on specifying elements (mechanisms) that exist so that the events and experiences of others can be validated (<i>Wynn and Williams, 2012</i>)</p> | <p><b>Junction</b></p> <p>Language and social structure is sought<br/>Multiple explanations accepted</p> <p><b>Divergence</b></p> <p><b>Constructivist:</b><br/>Knowledge is generated from the research participants. There may be no truth beyond the social constructs of the research participants</p> <p><b>Critical realist:</b><br/>Knowledge is generated through an exploratory process that identifies structures and mechanisms that cause events and contribute to the phenomena</p> | <p>“A natural and social reality should be understood as an open stratified system of objects with causal powers” (<i>Morton, 2006, p. 2</i>)<br/>Knowledge can be generated both from social interactions and from the search for structures and mechanisms that contribute to and allow that knowledge to be observed in an event</p> |

(continued)

Fundamental questions/elements  
*Lincobn and Gaba (2013, p. 37)*

Comparison of constructivism and critical realism research paradigms: implications for a research project

| Constructivism  | Research paradigms  | Critical realism   | Junctions and divergences   | Implications for the research |
|---|---|--|---|-------------------------------|
| <p>Data are gathered through natural discourses (observations, interviews, focus groups) where the researcher is an observer and recorder<br/>(<i>Denzin and Lincoln, 2013</i>)<br/>Themes and concepts are identified and formulated</p> | <p>Pluralist approach, where a variety of research methods can be used<br/>(<i>Syed et al., 2009</i>), including a naturalistic methodology<br/>Identify physical and social structures and associated relationships<br/>Identify and elucidate on causal mechanisms and tendencies within various structures and mechanisms that interact with events<br/>(<i>Wynn and Williams, 2012, p. 796</i>)</p> | <p><i>Junction</i><br/>Allows action research (activity-based research structured around involvement of research participants)<br/><i>Divergence</i><br/>Explanation via seeking of discourse associations essential<br/>Causality not addressed<br/><i>Critical realist:</i><br/>Explanatory via uncovering causal mechanisms<br/><i>Junction</i><br/>Accepts accounts collected via social discourse<br/><i>Divergence</i><br/><i>Constructivist:</i><br/>Explanation based on socially constructed reality<br/><i>Critical realist:</i><br/>Explanation seeks causal mechanism as a basis for judgements<br/>(<i>Fleetwood, 2005</i>)</p> | <p>During the data collection process, the researcher can contextualise features of the objective world in addition to constructs from the social world that contribute to or link causation to events<br/>A realist approach to the analysis assists in explaining why particular events occur</p> <p>The interpretation of events must rely on substantiating judgements made in regard to observed phenomena from discourse and observations, and its interpretation through analysis that seeks causal regularities</p> |                               |

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Critical realism and constructivism

Table 1.

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Findings presented within [Table 1](#) support the view that a constructivist paradigm provides a limited reflection of socially constructed reality, which can be summarised through identifiable relationships, themes and concepts associated with a specific context and existing at a certain point in time. The knowledge generated is associated with those being studied and may not be reproducible in other circumstances. Therefore, the application of findings from such research may not be widely applicable to different organizations and their management.

However, what can be analysed further is the causality associated with socially constructed reality using another research paradigm, to seek the roots of socially constructed reality in structures that are potentially replicable in other contexts and hence offer a further contribution to knowledge. The paradigm of critical realism seeks to move beyond judgments made about a social reality confined to a set of world views, observations and deductions to one where “some grounds for determining whether some representations constitute better knowledge of the world than others” ([Fairclough, 2005](#), p. 922) can be made.

The paradigm of critical realism, when assessed against a research philosophy that incorporates ontology, epistemology and methodology underpinning the inquiry, assumes a realist ontology ([Syed \*et al.\*, 2009](#); [Wynn and Williams, 2012](#)) that seeks the generation of actual events. It accepts a broad interpretivist epistemology that acknowledges social reality but seeks its linkage to causal mechanisms and structures ([Peters \*et al.\*, 2013](#), p. 343) and accepts a variety of research methods that can be incorporated in naturalistic settings ([Mingers \*et al.\*, 2013](#)). The axiology associated with critical realism seeks a proposition for change ([Syed \*et al.\*, 2009](#)), an objective not overtly transparent within the constructivist paradigm. At a fundamental level, the foundations of critical realism examine the interaction of structure and mechanisms that produce conditions contributing to the generation of identifiable events ([Sayer, 1992](#); [Bygstad and Munkvold, 2011](#); [Wynn and Williams, 2012](#); [Mingers and Standing, 2017](#)). Each principle underlying the foundation of critical realism will now be addressed briefly.

Within the context of critical realism, structure is recognised by [Sayer \(1992, p. 92\)](#) as “sets of internally related objects or practices”. Therefore, structures may comprise a physical or social form. Within the background project, structures were identified as the social interactions and the relations between persons within the SME. This was underpinned by the hierarchy of governance, and associated classifications and congregations of groups that engaged with each other within the workplace.

Mechanisms are fundamental to a critical realist methodology ([Bhaskar, 1998](#)), and are viewed as either a causal power or tendency ([Sayer, 1992](#)), but exist independently of the events they may generate. Mechanisms may include “dispositions, capacities and potentials to do certain things, but not others” ([Fleetwood, 2004](#), p. 46) and so are able to influence or affect an outcome or event. In the background project, mechanisms comprised the management systems used within the organization of the SME, the collaborative activities used by the research participants to construct the hazard profile and the incorporation of tools used to visualise the phenomenon associated with a hazard profile.

An event is generated through one or more mechanisms having causal powers or tendencies to contribute to the event ([Mingers and Standing, 2017](#), p. 172) and is observed as an occurrence or action resulting from a mechanism, or several mechanisms ([Wynn and Williams, 2012](#), p. 792). In the background project, events comprised the physical construction of a hazard profile and other occurrences such as the modification of the SMS and accompanying creation of action plans in response to items research participants identified as requiring attention within the enterprise. The causality of such events could not be explored further within the paradigm of constructivism but could be investigated for the triggers contributing to them arising from the structures, mechanisms and associated causal powers recorded within the research data.

A summary of the two paradigms is presented in [Table 1](#). Firstly, the fundamental questions or elements proposed by Lincoln and Guba (2013, p. 37) relating to research philosophy have been itemised, against which the common elements and tensions between constructivism and critical realism are compared and contrasted. Distinctions can be made across the fundamental elements of ontology, epistemology, methodology and axiology. A summary of these is itemised within the junctions and divergences, and the implications for utilising both paradigms within the research process project are summarised in the final column.

The paradigm of critical realism offered a framework to explore causal mechanisms relating to the realities created within a constructivist paradigm, in order to identify antecedents contributing to those realities. However, a critical realist analysis required a launching pad from which empirical data could be incorporated and analysed. The paradigm does not draw on the use of empirical research as a conduit to establish and explore the causal framework. Rather, the researcher is required to establish that connection and arrange it in some way to establish a starting point for the analysis. A further limitation of critical realism proposed by Fairclough (2005, p. 928) is that the paradigm does not incorporate an analysis of discourse as a predecessor to its use, where discourse is captured as recorded empirical data. The paradigm of critical realism requires support from other sources in order to apply its methodology.

Critical realism relies on the search for structures and mechanisms that contribute to events within an interpretivist epistemology but lacks methodological development in this regard (Fletcher, 2017, p. 182). Fairclough (2005, p. 927) summarises this dilemma succinctly where “one cannot reach relations between discourse and other social elements, including the constructive effects of discourse, in the absence of methods for analysing . . . interdiscursive features of texts in some detail”. This limitation was addressed in the background project through firstly aligning events identified within the research to the empirical data (see [Table 2](#)) and consequently analysing each event within a critical realist framework (see [Figure 1](#)). The methods of analysis used in this approach are discussed further on in this paper.

The junctions and implications for the research provided in [Table 1](#) provided a basis from which to build a research approach and research design for the background project. These informed the choice of research methods that comprised the data collection methods, data coding and data analysis. These are discussed in the following section of this paper.

### **The background project: the adoption of constructivism and critical realism in one study**

The adoption of a constructivist paradigm within the background project sought to determine how research participants construct meanings and perspectives associated with the development of a hazard profile and its alignment to the ways the SME’s safety hazards are recorded and managed. A central principle of the research was to enlist the understandings and tacit knowledge of managers within SMEs, by framing research activities and placement of research participants within an epistemological framework bordered by their own work settings. The adopted axiology for this project allowed for an interpretation of the phenomenology as research participants saw it. The ontological standpoint allowed for the discovery of multiple realities and the construction of new meanings to the worldviews of the research participants. The social constructs were co-created through the use of research methods facilitating interaction between research participants through dialogue and social interactions.

The background project initially adopted a research paradigm and research methods that contributed to determining the perspectives and worldviews of participants engaging with the phenomenology associated with hazard profiling and its association with the organization’s

**Table 2.**  
Sample of data  
analysed within the  
background project

| Thematic analysis data collection tool: interviews   |  |
|--|--|
| Research question  | Breakdown of question (phenomenological concept)   |
| Codes  | Categories   |
| Themes   | Significant statements   |
| Events (analysed in critical realism framework)  |  |
| Does a hazard profile mapped to an SMEs business parameter identify and record the SMEs hazards? | <p>HPC<br/>HPDF<br/>VM4HP<br/>CA</p> <p>Hazard profile (activities, products, services)<br/>Key informants<br/>acknowledge HP<br/>Hazard-Risk association<br/>Alternative categories for HP design – Activities, People (Products) Services</p> <p><i>Hazard profile design</i><br/><i>Leadership by key informants</i><br/><i>Omission of risk from the hazard profile</i><br/><i>Visual depiction</i></p> <p>The mapping helped with clarity. It showed the whole situation. (SME "B") I think we have been too focussed on the risk. You know, you look at the matrix and then it is this particular risk. And everyone cannot agree. And then we go and try to fix it but it is a bit not . . . right. You know . . . the likelihood and consequence. The measure of risk can be a distraction. We did not have that here with this profile. (SME "B")</p> <p>The likelihood and consequences is the big distractor. People are lazy, you know. If they can see more paper work, they will shift things around with the scores, so it always comes up easy for them and then they do not have to do anything. (SME "D")</p> <p>The design was useful. It helped to show all of the hazards and the variety of hazards. We had not thought about it being laid out like that before. (SME "C") We would start with this process. It might look a bit different to what we started with, but we would do it this way again (SME "A")</p> <p>What I did notice is a similarity between it and the risk register, but we mainly use the risk register for site-based risks. It is not a starting point, so the profile approach was good (SME "B")</p> |
|  | <p>HPC<br/>HPDF<br/>NS</p> <p>Spreadsheet<br/>Activities, Products, Services<br/>People<br/>Hazard-Risk association<br/>Alternative categories for HP design</p> <p><i>Hazard profile design</i><br/><i>Visual depiction</i><br/><i>Omission of risk from the hazard profile</i><br/><i>Hazard identification</i><br/><i>Hazard control</i></p> <p>Entry of additional columns in HP (SOP, Manual, Procedures, Doc) in excel spreadsheet to assist with mapping (SME "B")<br/>HP. Creation on spreadsheet (SME B and D)</p>  |

(continued)

*Deductive codes*

HPC Hazard profile concept  
HPDF Hazard profile design features  
HPUS Usefulness of hazard profile  
HPBC Alignment of hazard profile to SME business contexts  
SMSKN Knowledge of OHSMS  
Smsuse Use of OHSMS  
HPSMSLANK Links between hazard profiling and the OHSMS  
VM4HP Visual mapping as a tool for creating hazard profiles  
RL Reflective learning arising from the research activity

*Inductive codes*

CA Collaborative approach  
CS Communication strategies  
NS New strategies for development of hazard profile and links to OHSMS  
TK Tacit knowledge

**Source(s):** Data analysis tool developed by the authors

Critical realism  
and  
constructivism

Table 2.

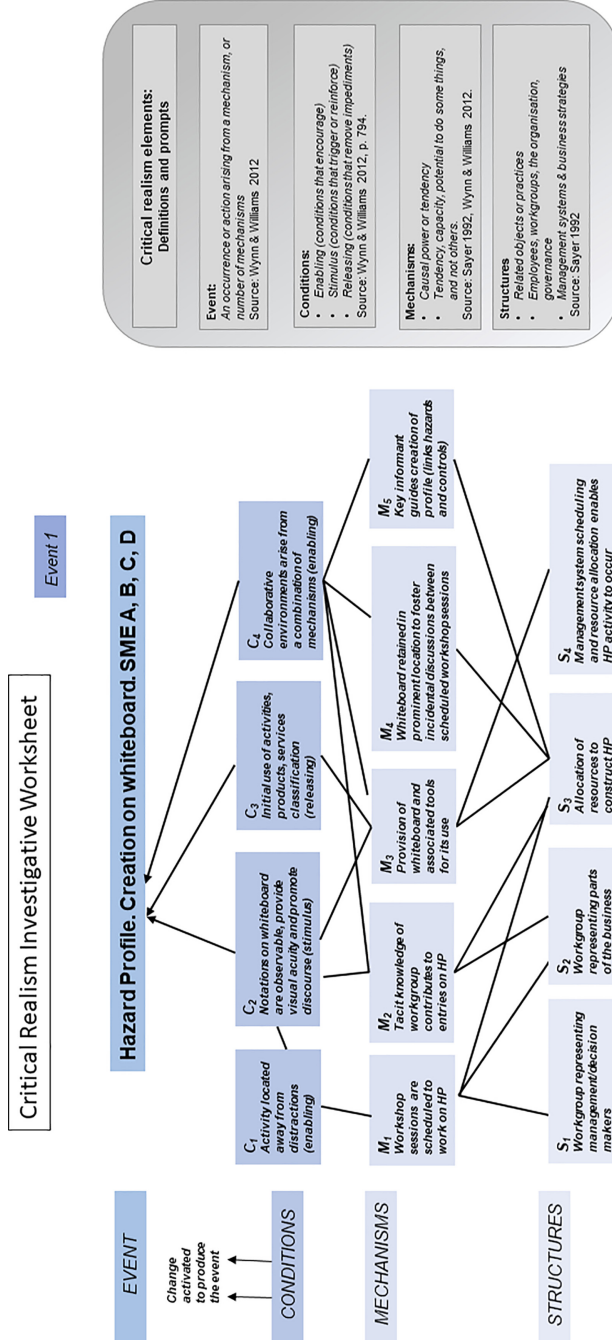


Figure 1. Critical realism investigative worksheet

Source(s): Structure adapted from Sayer: 1992 by the authors

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SMS framework. However, during the course of the research design, it became apparent that the underpinning contributors to the adoption and use of a hazard profile were an important precursor to its use that required a broader exploration and analysis.

An evaluation of subjective responses from the research participants, gathered within an environment comprising group observation, individual interviews and focus groups disclosed various intersubjective group dynamics that required a reflexive analysis. The analysis was drawn from the recorded observations and spoken interactions, and collated and analysed within a constructivist framework. The data were firstly analysed for its relevance and importance regarding the phenomenology arising from the research question. It was then condensed and transposed on to a summary table (see [Table 2](#)) and a thematic analysis conducted. This method identifies and reports patterns and associated themes within qualitative data ([Braun and Clark, 2006](#)) and requires the reduction of data into meaningful chunks that align to the research question and associated phenomenology.

The research question was aligned with the discourse and coded, categorised and themes drawn from the data using a hermeneutic method of analysis, described by Goodrick and Rogers (2015, p. 576) as an iterative process that moves forwards and backwards between the data to draw meanings and themes. The use of codes and categories assisted in the reduction and clustering of data into meaningful themes, supported by significant statements arising from interviews and focus groups discussions (see [Table 2](#)).

From this process, themes and accompanying findings related to the phenomenology could be discussed. However, this analysis suggested limitations within the constructivist approach, where themes and relationships relating to the reality of the discourse and observations would be representative of one reality but could not be further analysed to identify the triggers that potentially contribute to that reality. The determination of triggers contributing to the reality of the research participants through further exploration was not possible by using constructivism on its own. Determining the causality of a reality to better answer the research question required the identification of underlying initiators that empowered the research participants' construction of reality.

The boundaries of constructivism were limited to the accumulation and sorting of social constructs. The elucidation and exposition of meaning associated with the collected data reached a standpoint, confined by the relativist ontology and subjectivist epistemology associated with this paradigm resulting in the identification of themes and concepts based on natural discourse and observation (see [Table 2](#)).

The theoretical framework of constructivism did not offer a basis to conceptualise social interfaces and interactions with a linkage to some causality. Constructivism does not seek stratification and the recognition that various social structures may have causal powers ([Peters et al., 2013](#)). Due to this limitation, the paradigm of critical realism was used as an expanded additional framework, described as "analytical dualism" by Fairclough (2005, p. 916) in order that the analysis could address both the relativist and realist ontologies in order to further explore the phenomena. The authors decided that a dualism of paradigms could be best applied in a table format (see [Table 2](#)) where research data and its analysis could be presented and compared across the two paradigms.

The analysis of data using a constructivist approach is shown within columns labelled as codes, categories and themes within [Table 2](#), and a linkage to their causality as illustrated in a critical realist analysis is presented in the final column of [Table 2](#). Events identified within the data as occurrences or actions undertaken by research participants were aligned to the phenomenological concepts associated with the research question and accompanying data and tagged as key matters that should be explored further for causality by using a critical realist approach (see [Figure 1](#)).

This is a key illustration of how two research paradigms were used within one analytical tool, where categories and themes arising from the data analysis were linked within a matrix



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to events identified within the research activities. Events, as recognised within a critical realist paradigm were allocated within the final column of [Table 2](#) against a phenomenological concept and underlying research question and could be traced back and forth to data analysed within a constructivist paradigm. From here, each event in the final column of [Table 1](#) was analysed using a critical realist approach (see [Figure 1](#)).

The analysis of events identified in [Table 2](#) using a critical realist paradigm arising from the constructivist data required the display and connection of social interactions and outcomes associated with each event within a critical realist framework. Guidance on the application of analysis methods for critical realism is scarce in addressing ontological and epistemological assumptions ([Hoddy, 2019](#)) and in the use of methodological approaches ([Fletcher, 2017](#)). One exception is Sayer's (1992, p. 237) depiction of a sequential process for the application of an analytical process. This presented a logical and useful method to analyse each event identified from within the constructivist analysis (see [Figure 1](#)) and was adapted for use in the critical realist analysis.

Sayer's conceptual model illustrates the potential association between structures, mechanism and events and encourages the use of a sequential process by which events can be explored through a determination of the structures, mechanisms and causal factors giving rise to an event. This model was adapted and used in the background project to identify and analyse the following separate events within the constructivist analysis:

- (1) Hazard profile: creation in selected mediums;
- (2) Identification of hazards;
- (3) Use of OHSMS in creation of hazard profile;
- (4) Procedures are linked to hazard profile;
- (5) Additions made to hazard profile;
- (6) Use of hazard profile to rectify hazards using a systems tool;
- (7) Hazard profiling triggers a need for communication strategies;
- (8) Additions made to hazard profile independently of research activity.

These events would not have been identified for causal analysis if the additional paradigm of critical realism was not used to identify them within the constructivist analysis.

[Figure 1](#) presents a critical realist analysis of one event listed above and also in [Table 2](#) and draws on observations and discourse taken from data gathered during the constructivist phase of the research to allocate key items within either the structures, mechanisms or conditions. A causal path is then illustrated to the event which is named in the top of the diagram.

The underlying structures and mechanisms within the background project comprised the stratified layers of management and associated social relationships within the SME. This offered a basis from which to search for causal mechanisms, being the elements that provided the capacity and tendency for certain things to occur, which under certain observed conditions led to the occurrence of each event.

This approach offered ways to amplify the rigour of the inquiry and provide firm linkages to the recorded discourse, its associated codes and themes. Events identified within a constructivist paradigm were able to be taken beyond the confines of the constructivist analysis. A search for how the events were generated from the material conditions and social structures existing within the workplace led to identified linkages between each event and the causal mechanisms and structures giving rise to the event (see [Figure 1](#)). This provided a foundation for the causality associated with each event, thereby contributing to findings that provided greater depth in answering the research question.

The research question associated with the background project asked whether a hazard profile mapped to an SME's business parameters can identify and record the SME's safety hazards? Evidence collected and analysed within the project was compelling in confirming the usefulness and efficacy of a hazard profile in identifying and recording the SME's hazards. The answering of this question was extended by the critical realist analysis, as the study also identified a range of organizational and operational factors that contribute to hazard identification and hazard profiling within SMEs. These are summarised within the research findings as a series of inputs that SMEs can use to guide the development of a hazard profile and comprise the following:

- (1) Provide of a conducive environment for the development of a hazard profile;
- (2) Schedule and conduct collaborative sessions;
- (3) Participants represent a cross sectional knowledge of the operations;
- (4) Use of a key facilitator;
- (5) Incorporate the SMS into hazard identification;
- (6) Use a framework for the profile based on an international safety standard;
- (7) Use the SMS to manage and record newly identified hazards;
- (8) Use visual mediums to record and share the profile.

The determination of these inputs would not have been possible without the application of a causal analysis within the study, since the triggers within the structures, mechanisms and conditions that supported the events would not have been identified within a constructivist framework. However, the causal analysis was reliant on the availability and input of social discourse that was gathered and recorded as empirical data. This linkage provides one example of research paradigm commensurability.

An adjunct to this approach could feasibly have incorporated critical sensemaking (Aromaa *et al.*, 2019). Based on the work of Weick (1995), critical sensemaking proposes the use of a set of properties that enable the researcher to examine identity construction, signs used to promote sensemaking within those being studied and a determination of social stimuli occurring within the studied environment that influences how sense is made. Findings made by Aromaa *et al.* (2019) arising from an examination of publications concerning critical sensemaking propose four directions that critical sensemaking can take. These are the conceptualisation of critical sensemaking theory, the study of how it contributes to the study of agency, the contextual sensemaking made by those being studied and that of researchers themselves, and finally the fusion that seeks to establish how other theories can be enriched. Such an approach presents opportunities for future research where it is combined with a constructivist approach.

The proposition for analysing data within the research paradigms of constructivism and critical realism should be supported by a conceptual approach that can contribute to knowledge and encourage future research and the widening of paradigmatic boundaries through the adoption of new methodologies (Buchanan and Bryman, 2007). A conceptual model is proposed in the final section of this paper as a contribution to knowledge and call for future research in this field.

### **A conceptual model linking critical realism and constructivism**

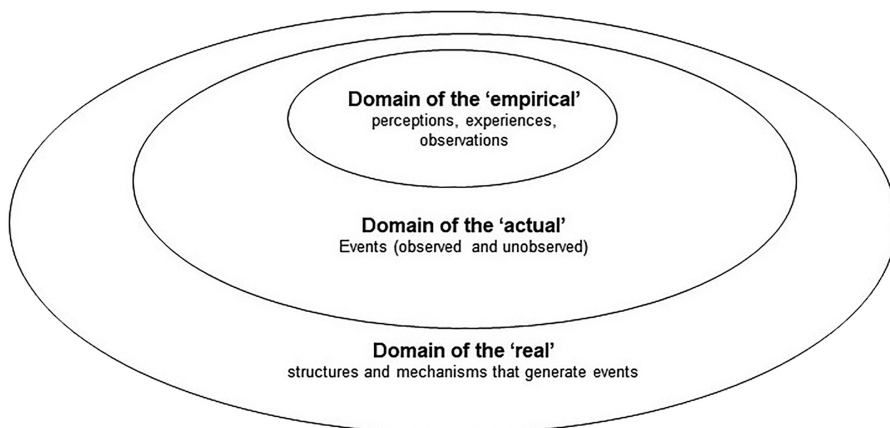
The use of both constructivism and critical realism as research paradigms for the background project can be summarised as follows:

To adequately interpret the structural influences that affect people's lives, the first object of research is to discover what is in people's minds about the world of human affairs. Social reality is interpreted by discovering what people report its reality to be for them . . . Later stages involve explaining the operation of structural influences, and using that knowledge to promote emancipatory change of some kind as a morally binding response. Corson (1997, p. 169)

The empirical data gathered within a constructivist framework in the background project were underpinned by a range of social phenomena reflecting the worldviews and realities arising from the exchanges between the research participants during the project. Social phenomena derived from empirical observations is subjective and complex (Creswell, 2014, p. 8), necessitating complex meanings associated with such experiences to be identified. Hoddy (2019) presents a critical realist view of stratified reality within which those meanings exist and explains that the foundational basis and complexities of empirical observations reside in an empirical domain that is linked to and part of a larger domain of the actual world, where associated structures and mechanisms generate events that are associated with experiences, perceptions and observations contained within the empirical domain. A stratified critical realist view of this is proposed by Hoddy (2019, p. 113) in Figure 2.

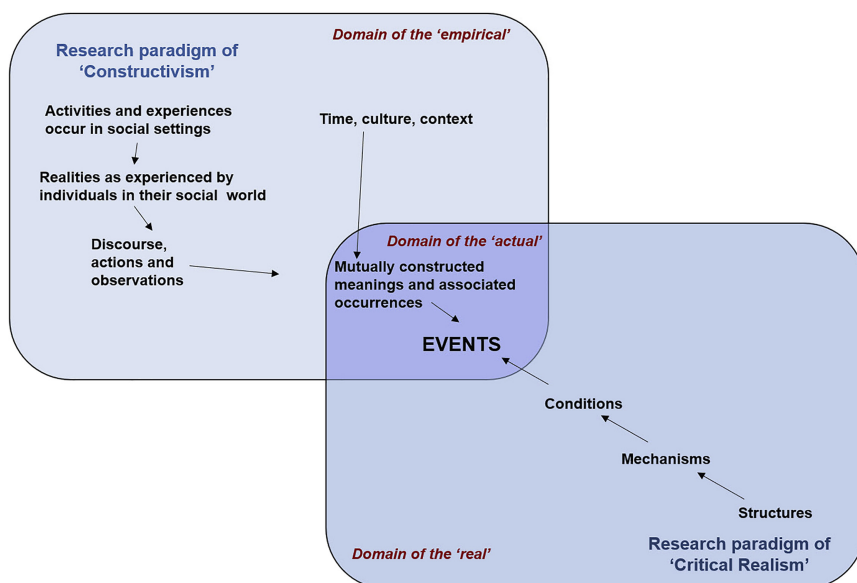
The model proposes that the domain of the "empirical" incorporates "perceptions, experiences and observations" (Hoddy, 2019, p. 113). These features are associated with a constructivist paradigm. In this domain, a reality is found within the recorded discourse obtained from those being researched, reflecting their world views and social world. The outer domains of the "actual" and "real" are aligned to the physical and social structures within an event and the realism of acknowledging structures and mechanisms exist that contribute to those events. Hoddy's model relies on empirical data as a foundation that resides empirically, deep within the model and must be accessed to be applied and be of use in a critical realist view. This implies a significant relationship between constructivism and critical realism, where the critical realist view requires empirical data for its own existence.

This conceptualisation adopts a critical realist view of stratified reality (Hoddy, 2019) by incorporating the epistemology and methodology associated with the two research paradigms of critical realism and constructivism and is extended in a new conceptual model by the authors (see Figure 3). Drawing on the work of Hoddy (2019, p. 113), Sayer's critical realist model of structures, mechanisms and events (1992, p. 117) should also be acknowledged, since it depicts a sequential process that incorporates the domains of the



**Figure 2.**  
A critical realist view of stratified reality

**Source(s):** Hoddy (2019, p. 113)



**Figure 3.**  
A conceptual model  
linking the foundations  
of critical realism and  
constructivism

**Source(s):** Designed by the authors. Adapted from Sayer (1992, p. 117) and Hoddy (2019, p. 113)

“actual” and “real” proposed by Hoddy (2019). Collectively, two domains of the empirical and the real can be compared and an overlap proposed, as shown in Figure 3. Events are firstly acknowledged as they arise from the empirical data obtained through a constructivist approach, after which they are also identified as an event within the critical realist paradigm and can be analysed for their causality using a critical realist inquiry.

A junction of events shown in Figure 3 has been addressed in the background project, where the data analysed in Table 2 can be tracked across to the final column that itemises the events. Each event named within the “domain of the empirical” as it would reside in Figure 3 was analysed for causality in the “domain of the real” using a Critical Realism Investigative Worksheet (see Figure 1). This analytical methodology can feasibly be developed further to synthesise such expressions in the development of other researchers’ own multiparadigmatic models.

A need for uniting a critical realist analysis and social change is proposed by Masi *et al.* (2019, p. 53), where an “interaction between a set of mechanisms promoting the social change and a context that enables or disables these mechanisms” can be used to identify the interplay between social construction and an analysis of the causality to better determine and explain what has worked within the research inquiry and for whom. This in turn assists to help “create a fuller understanding of organizational practices” (Cunliffe, 2011, p. 666). Within organizational inquiry a multiparadigmatic model can be used to support this process in order to illustrate and justify alternative and innovative methodologies that aim to find deeper explanations to support the research question.

## Conclusion

This research project found that employing the unconventional application of a constructivist paradigm in conjunction with a critical realism paradigm contributed to a

richer analysis and more insightful understanding of causality in answering the research question. This approach supports Hassard and Cox's proposal (2013, p. 1717) that a synergy of paradigms be adopted within a research model and also embraces the recognition of overlapping domains of stratified reality as proposed by Hoddy (2019) and shown in Figure 3. Combining these in a research strategy based on paradigm triangulation afforded a greater decipherment of the research question by using a methodological approach aligned to the ontology and epistemology associated with both paradigms. This also utilised Cunliffe's (2011) call for applying intersubjectivity to the research methodology in order to find greater significance within the realm of organizational inquiry.

A multiparadigm approach, beginning with the development of a comparative matrix as provided in Table 2 and followed by the transposition of detail into a second paradigmatic tool based on causality (see Figure 1) enabled narratives obtained within a constructivist framework to be explored further than what was possible using one research paradigm. The boundaries of constructivism were challenged and explored further by using a paradigm that facilitates the seeking of causality associated with constructivist derived data. This approach illustrates a logical application for researchers to further explore constructivist derived narratives and observations, to make sense of the social world of research participants and their associated actions by seeking causality associated with those narratives and observations.

A research project can adopt positions that incorporate different paradigms within the research approach and research design. A pragmatic approach can assist in drawing on strengths from different research paradigms, which as human constructs should be challenged and malleable to further interpretive practices that can find deeper explanations in qualitative inquiry.

Within the background project, the application of research paradigm commensurability helped to determine how various social structures and organizational strategies contributed to actions used for creating a hazard profile. This could then better explain how others can use those structures and strategies for their own benefit. What is needed from researchers is the fortitude to restructure and adapt what has been used in past paradigmatic models that are essentially important but transitory human constructs, in order to use approaches that better answer the research question.

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