

2021

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[10.1080/14767430.2021.1966719](https://doi.org/10.1080/14767430.2021.1966719)

Brönnimann, A. (2021). How to phrase critical realist interview questions in applied social science research. *Journal of Critical Realism*. Advance online publication. <https://doi.org/10.1080/14767430.2021.1966719>

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To cite this article: Andreas Brönnimann (2021): How to phrase critical realist interview questions in applied social science research, Journal of Critical Realism, DOI: [10.1080/14767430.2021.1966719](https://doi.org/10.1080/14767430.2021.1966719)

To link to this article: <https://doi.org/10.1080/14767430.2021.1966719>



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Published online: 28 Aug 2021.



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How to phrase critical realist interview questions in applied social science research

Andreas Brönnimann 

School of Business and Law, Edith Cowan University, Perth, Australia

ABSTRACT

The tenets of critical and social realism are well supported in the literature. However, researchers following a realist paradigm have concerns about the lack of methodical guidance for qualitative interviewing, despite their affirmation about the importance of in-depth interviews. A conducted review of empirical realist literature provides evidence of an absence of guidance and commonality regarding interview planning practices. To overcome this absence, this paper composes a guiding framework to assist researchers to phrase more appropriate interview questions in realist research. The steps are founded on critical and social realist concepts while guided by methodological realist principles. Its contribution aims to not only improve the practice of realist inquiry methods but also to introduce more research transparency. A more transparent method for interview questions can lead to increased validity and afford replicability of mechanism-based theories resulting from empirical realist research.

KEYWORDS

Interview questions; applied critical realism; applied social realism; morphogenetic approach; research methods

Introduction

Interviewing is the quintessential instrument of realists to collect in-depth information from participants. Critical realists, as opposed to positivists and relativists, strive to use in-depth information collected from qualitative interviewing methods to explain social world phenomena (Bhaskar 1978). Interviews allow to gain access to a complex social world of causal interactions through 'richly textured accounts of events, experiences and underlying conditions or processes' (Smith and Elger 2014, 14). While critical realism is open to general research methods with respect to the phenomenon and the object of research interest (Sayer 2000), there is only little to be said about specific realist method considerations (Vincent and O'Mahoney 2018). Given the fact that in-depth interviews represent a realist's preferred choice of data collection (Wynn and Williams 2020; Porpora 2016), the lack of specific guidance for realist methods presents a problem to some researchers. Particularly, novel researchers less familiar with realist perspectives risk phrasing interview questions incapable of extracting essential realist

CONTACT Andreas Brönnimann  a.broennimann@ecu.edu.au  School of Business and Law, Edith Cowan University, 270 Joondalup Drive, Joondalup WA 6027, Australia

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information. There have been calls for more reliable guidance to structure empirical realist inquiry methods. Manzano argues that ‘there seems to be a need for technical guidance on how to conduct realist interviews but this need is not always explicit’ (2016, 5). Following from this lack of guidance and despite the ontological and epistemological richness of critical realism, realists have raised their concerns about confusion during empirical social inquiry in critical realist approaches (Hoddy 2019; McAvoy and Butler 2018). This particularly applies to the rigour required in creating suitable critical realist research questions for interviewing purposes. More specifically, interview questions are to be capable of addressing the nuances of the underlying ontological and epistemological implications.

A review of critical realist case literature, conducted in this paper, provides evidence for this emergent concern. The review aims to understand the concepts used in applied realist case research to construct realist-informed interview questions. It was assumed that appropriately phrased questions logically extend the critical realist perspective and can be linked to the mechanisms identified (Mukumbang et al. 2020). However, despite a clear tendency towards qualitative inquiry methods using in-depth, semi-structured interviews, the review uncovered only very limited transparency and commonality amongst critical realist researchers about interview question considerations.

This lack of a more structured approach to realist question design affects research endeavours and their findings in different ways. For instance, it can negatively impact the research validity, which realists understand as the accuracy in mechanism descriptions (Venkatesh, Brown, and Bala 2013). Diminished validity may result from mechanism descriptions lacking the required details of logical and causal explanation due to inconsistencies in the underlying data. Furthermore, a realist’s acknowledgement of fallible research implies an advocacy for research replication and theory testing. Replication allows to challenge and refine posited mechanism theories. However, this requires all relevant information to be made clear in detail as part of the original research. Otherwise, attempts of mechanism replication are severely impeded because of ‘imprecise and fragmented theorizing, inadequate research designs, and inevitable reliance upon untested assumptions’ (Miller and Tsang 2011, 140). Moreover, the current state of methodical concern unnecessarily fuels reoccurring critiques that question the overall value of qualitative interviewing as a research method (Porpora 2016).

Following from the identified lack of methodical guidance in current practice, the purpose of this paper is to address this growing concern. This paper provides a guiding framework to assist critical realist researchers with phrasing more appropriate interview questions. Its aim is to develop interview questions that are more coherent with the underlying realist philosophy to support retroductive data analysis methods. The framework rests on the concepts of the stratified ontology by Bhaskar (1978) and the morphogenetic approach by Archer (1995). Because critical realism is a philosophy, but not a methodology, it also considers the methodological realist principles by Wynn and Williams (2012). In combination, these concepts provide structure to direct the development of questions, that can explicate events as well as social structures and agency in a distinct, yet more realist-conform, order. Case research questions will illustrate and support the practical impact of the framework.

The structure of the paper unfolds as follows. First, the core concepts of critical and social realism as well as the realist research principles are revisited to establish an initial philosophical foundation. Next, the results of a literature review on the current

methodical inquiry practices applied in realist research are discussed. After that, the main realist inquiry framework is developed, and its application is supported by case research questions. The subsequent discussion argues the beneficial impacts of applying the presented framework in applied critical realist case research. The discussion includes not only how structured realist-driven questions withstand critique by strengthening the value of qualitative interviews. It also emphasizes how more realist-rich data adds to more valid and trustworthy mechanism findings resulting in an increase in validity. Furthermore, from more research transparency emerges more opportunity for better replication studies. Lastly, the conclusion summarizes the framework's contribution to qualitative inquiry methods in critical realist research.

Critical and social realism

Critical realists separate reality into three domains (Bhaskar 1978). At the bottom is the real domain where everything exists. In the middle is the actual domain and at the top is the empirical domain. Real things possess an internal structure, from which dispositional powers and liabilities emerge. These allow effectful interactions between things (Armstrong, Martin, and Place 2002; Gnassounou and Kistler 2016). Powers allow a thing to activate externally directed forces towards other things. Contrarily, a liability is an internally directed susceptibility, which other things can act upon (Bhaskar 1978; Fleetwood 2011).

However, it is not only the state of being of things that defines the totality of reality. The existence of things is merely relatively enduring. Changes to a thing's existence state involve processes of becoming, leading to a state of being, as well as processes of absenting, leading to a state of absence. Absence, in this sense, relates to a state of not being in an expected space–time location or because of a thing's non-existence due to it having ceased to exist or never having reached a state of existence. Existing and absent things, both, exert the potential of dispositional tendencies to impose causal effects through interactions on other things existing in the same space–time-period (Norrie 2010).

Realists refer to these interactions between things as causal mechanisms. They are unobservable and their operation depends on situational conditions created by the flux of intervening dispositions of other things. Their hidden and conditional operation only allows researchers to hypothesize about mechanisms. Upon actualization, a mechanism may lead to events. Unobserved events remain in the actual domain. However, some events may emerge into the empirical domain as they are observed and experienced by people (Sayer 2000).

Social realism applies a critical realist perception to the social world. While Bhaskar (1978) defines a general reality with change grounded in causation, Archer (1995) organizes social reality in her morphogenetic approach into structures, culture, and agency. Their dispositional properties allow them to causally interact in morphogenetic cycles. Each cycle consists of a conditioning ($t_1 - t_2$), an interaction ($t_2 - t_3$) and a morphogenesis/morphostasis phase ($t_3 - t_4$).

During the conditioning phase ($t_1 - t_2$), pre-existing macro-level structures and culture act through situational mechanisms to shape and condition agents at the micro-level. Structures, such as organizations, departments, or work teams, have emerged from previous agency interactions. Emergence refers to a structure's properties, which cannot

be attributed to any of its parts that have their own powerful properties. Culture consists of beliefs, ideas, theories, and norms. Components of culture can be 'theories, beliefs, values, or more strictly between the propositional formulations of them' or mysteries and myths (Archer 1995). Culture has 'to be grasped as an element which moulds action situations' for agency (Archer 1996, 304). Properties emerge from existence as well as from the absence of structural and cultures components (Archer 2007). For example, the existence or lack of the right to free speech differently conditions actions of people and groups. Structural and cultural situational mechanisms create enabling and restricting conditions. Archer (1995) defines four situational conditions that predispose people to distinct courses of actions. Conditions and agencies' current situations may either be mutually supportive (necessary complementary), they may be mismatched (necessary incompatible). They may also be stimulative for certain actions (contingent complementary), or conditions may be disjointed from agency's intentions (contingent incompatible).

These conditions shape people's initial world views at the micro-level. People begin as primary agents who become involved with others in society. While some people feel content with their social conditions, others may feel a desire to overcome societal restrictions to achieve personal goals. Goals describe a desire for maintaining something or for attaining something currently absent and, therefore, provide reasons for actions (Norrie 2010). However, actions of primary agents are uncoordinated and can therefore not substantially affect their situation. Primary agents need to liaise with other like-minded agents to form collectives of goal-determined corporate agents. While some structures and culture prevail over time, they are not considered immutable. Thus, corporate agency can cause change to create new structural and cultural formations.

During the interaction phase ($t_2 - t_3$), people reflect on their situational conditions they find themselves in. Depending on their personal goals and priorities, people will consider different actions. These actions represent action-formation mechanisms at the micro-level. Part of external action formation are reflections that occur as personal deliberations through the mind's inner voice. These personal deliberations mediate on the impact of existing and absent emergent properties of pre-existing structures and culture to feasibly determine viable courses of action. Four distinct modes of reflexivity, inherent within social beings, govern individual and collective deliberations about action choices. Autonomous reflexives are independent and rational thinkers who prioritize goal achievement over social relations. They tend to confront existing social structures and cultures with a transformative mindset. Communicative reflexives rely on their social network to actively discuss concerns. They also prefer continuity as they feel content and perceive change as a disturbance. Meta reflexive people reflect critically on their own internal conversation to evaluate possible behavioural effects on their group (Scambler 2013). Their choices for action towards change or continuity depend on the contextual situation. Lastly, fractured reflexives are passive social agents without real projects nor personal goals and considering their situation leads to more distress. Their personal indifference and passivity tolerate any change.

The situational conditions with respect to agencies' modes of reflection can lead to four modes of interactional behaviour (Archer 1996). Agents may favour protecting their current situation over change, thus causing defensive behaviour against others. This can be observed as events of suppression and change discouragement. Under compromising conditions, agents may become concessional, which emerges as coping or

bargaining events. In case of supportive conditions, agents may engage in opportunistic behaviour. This can lead to observable exploration, innovation, and experimentation events. Lastly, disjointed conditions lead to competitive behaviour and elimination of existing structures and culture. This induces events of force mobilization and destruction.

Defensive, concessionary, opportunistic and competitive behaviour are the modes of interaction between agency, structure, and culture. The actualization of such interactions occurs in transformational mechanisms during the Morphogenesis/ Morphostasis phase ($t_3 - t_4$). Transformational mechanisms may cause existing structures, culture, and agency to change. This can result in new social formations at the macro-level. Morphogenesis defines societal change, while morphostasis refers to the continuation of the existing (Archer 1995, 1996).

To recapitulate, this is to say, Bhaskar's critical realist approach and Archer's morphogenetic approach for social realism are ontologically relatable. After the emergence of a new social agent, whose internal structure exposes particular powers and liabilities, the agent is subject to social conditioning. This conditioning occurs through exercised conditioning mechanisms by pre-existing social structures and culture that have powers and liabilities of their own. For situations where the conditioning mechanism succeeds to actualize, the conditioning is successful and leads to conditioning events in the actual and the empirical domain. As the individual agent perceives changes through the presence or the absence of structures and culture in the environment under situational conditions, the agent will reflect on the conditions. This reflection may lead to behavioural actions. These behavioural actions can be exercised because the agent possesses powers and liabilities that allow engaging in interactions with other individuals and groups. These interactions are governed by social interactions mechanisms, which can lead to observable and unobservable interaction events in the actual and the empirical. Lastly, individual agents may form collectives founded on shared interests and goals. The agent collectives represent new social structures with powers and liabilities. These are powers that may change the existing social structures and culture through transformational mechanisms. These transformational mechanisms act on the liabilities of existing structures to cause change. This may lead to actual and empirical events of morphogenetic change events or morphostatic continuation of the existing structures. It is through this amalgamation of critical and social realism that allows researchers to go beyond mere empirical event conjunctions and focus on explaining why things happen over time based on mechanisms in the real domain.

Realist research methodology

Various methodological procedures have been developed to arrive at causal mechanism explanations based on retroductive inference. Retroduction aims to generate the best possible explanation based on collected data. Arriving at possible explanations is a creative process – a 'conjecture of the mind' (Peirce 1878). The researcher engages in reflexive trial and error processes by moving back and forth between the explicated data and case reality. The aim is to contemplate different mechanisms descriptions that explain the phenomenon. Examples of such methodologies are Bhaskar's RRREI(C)¹ (1978) and the DREI(C)² (1986) model of explanation. This model was extended by Danermark et al. (2005) for their own model. Mingers' (2006) model focuses on interventions. The model

discussed here uses Wynn and Williams' (2012) five 'Methodological Principles of Critical Realism'. It explains the actions required to collect and analyse empirical data.

The first principle 'Explication of Events' requires researchers to collect information about observed, empirical events from participants. Based on the events found, the second principle identifies structures and culture, and their context. Based on this collected data, realists then engage in the principle of retrodution to generate multiple viable mechanism descriptions. Next, the principle of empirical corroboration seeks validation of hypothesized mechanisms. The researcher validates or invalidates mechanism descriptions against the original data and case reality. This includes any assumptions made about the ways a presumed mechanism is thought to operate. It may be required to re-interview participants to improve the validity of mechanism descriptions. The last principle defines the application of triangulation and multi-methods throughout all research actions to accumulate richer data.

Critical realism is methodologically pluralistic, thus allowing to source data through different methodologies and methods (Wynn and Williams 2020). Purposefully mixed-method approaches can lead to stronger confirmation of mechanism findings, achieve greater completeness of mechanism descriptions, and allow retroductive exploration of phenomena (McEvoy and Richards 2006) as long as the implications of mixing different approaches are considered (Zachariadis, Scott, and Barrett 2013). However, it must be maintained that the research questions in regard to the phenomenon determine the choice of methods that are to be applied, rather than vice versa (McEvoy and Richards 2006).

All the above-mentioned methodological approaches explain the logical research steps to traverse from events to entities before retroduding possible mechanisms. However, these methodologies lack specific advice on how to phrase critical-realist-informed interview questions for social case research, causing methodological confusion when it comes to designing paradigm-conform data collection instruments.

Reviewing current realist interview question design practices

The ontological richness in realist research has afforded the analysis of complex social situational phenomena in past research. However, the lack of existing detailed methodical data collection guidelines warrants a critical literature review. A search was conducted during July 2020 on WorldCat Discovery and Google Scholar using the terms 'critical realism', 'morphogenetic approach', 'case study', and 'interviews'. Included papers needed to disseminate case research findings driven by a critical realist and/or morphogenetic approach as their philosophy while using a qualitative-driven interviewing style as their data collection method. This search identified the 15 publications listed in Table 1. The in-depth analysis of included papers focused on the reporting and considerations given to interview questions as well as how questions bridge philosophical aspects with data analysis and reported findings in critical realist case practice.

The literature review reveals varying degrees of realist paradigm influences on interview questions. While researchers elucidate their ontological position, the use of realist-informed questions is implied. Question design considerations are glanced over with general interview characteristics. These frequently include information and selection criteria about participants and the period during which a certain number of interviews were conducted.

Table 1. Literature review: Interview questions in social realist studies.

Author	Case description	Philosophical approach	Interview style	Analysis method	Explanation of interview questions
Bygstad (2010)	Information infrastructures at Norwegian airline	Critical realism	unspecified	Identification of events, entities, (micro- & macro-) mechanisms, Validation	No
Crosby (2013)	Forest sector in British Columbia	Morphogenetic Approach	face-to-face, semi-structured	Grounded theory, morphogenetic analysis	No, Questions available
Dobson, Jackson, and Gengatharen (2013)	Broadband adoption in rural Australia	Morphogenetic Approach	structured & unstructured	Abduction and retroduction	No
Fischer and Baskerville (2018)	Unified Communication and Collaboration	Critical Realism & Affordance Theory	semi-structured	Retroduction	No, Questions available
Horrocks (2006)	IS development in English governments	Morphogenetic Approach	in-depth structured and semi-structured	Grounded theory, morphogenetic analysis	No
Iannacci (2014)	Social work routine changes in English criminal justice system and IT	Critical realism & Morphogenetic Approach	semi-structured interviews, focus groups and observations	Causal chaining technique, retroduction	No
Lusted (2018)	Policy implementation in English football	Morphogenetic Approach	semi-structured	Grounded theory, retroductive analysis	No
Mihailescu and Mihailescu (2012)	Enterprise Systems Implementation Methodology	Morphogenetic Approach	semi-structured	Retrospective & causal analysis	No
Mihailescu, Mihailescu, and Carlsson (2018)	ERP Implementation Methodology	Morphogenetic Approach	semi-structured	Morphogenetic analysis	No
Mirani (2013)	IT offshoring in financial services sector	Morphogenetic Approach	interviews	Morphogenetic analysis	No
Morton (2006)	Strategic Information Systems Planning	Critical Realism & Morphogenetic Approach	interviews	Morphogenetic analysis	No
Njihia (2008)	Public sector ICT transformation procedures	Morphogenetic Approach	in-depth interviews	Q-methodology, Morphogenetic analysis	No, Questions available
Nuryatno (2017)	Enterprise Architecture at University	Critical Realism & Morphogenetic Approach	in-depth semi-structured	Morphogenetic analysis	Yes (partially), Questions available
Volkoff, Strong, and Elmes (2007)	Information System Implementation	Critical Realism & Morphogenetic Approach	observations, interviews, informal conversations	Grounded Theory	No
Wimalasena (2017)	Life experience of Sri Lankan women	Morphogenetic Approach	in-depth biographical, narrative interviews	Constant comparative method (CCM)	No

Some authors describe the adherence to a particular interviewing guide detailing the order or difficulty of questions (see, for example, Creswell 2009; Fischer and Baskerville 2018; Hunter 2012; Johnson and Christensen 2008; Lune and Berg 2017). This shall

impose a formal interview conduct structure and a sense of validity. However, interview protocols merely define the external interview form. Interview protocols help with time, question, and participant management. But they assist little in linking realist underpinnings to the development of more targeted and useful interview questions (Manzano 2016).

A few publications include interview questions, although these appear to follow more traditional, non-realist ways of phrasing questions. These question types aim at accessing participants' feelings and perspectives on life. For instance, Crosby (2013) includes questions starting with 'Do you have an opinion ...' and 'What role do you think individuals like yourself have ...'. These follow the non-realist idea that 'knowledge is constructed in the interaction between the interviewee and the interviewer' (38). Similarly, Nuryatno (2017) asks 'What do you feel are the main changes ...', 'Do you think the acceptance of the stakeholders improved ...' and 'Do you think ...' (139). Using these question forms allows the interviewee to construct an idea in the moment of the interview. But this assumes a constructionist rather than a critical realist ontology.

Other interview questions appear to represent critical realist interviews more accurately. Crosby (2013) considers more realist-driven questions like 'How did the mill closure(s) affect you and your family, and the community?' (267). This question attempts to identify structural conditioning events. Fischer and Baskerville (2018) enquire about cultural aspects by asking 'Are they specific to you or are they enforced by culture?' (6). Similarly, Nuryatno (2017) investigates interaction events using questions like 'Do you find that individuals react to the changes differently?' (139) and 'Do you see any particular governmental requirements/policy affecting the current EA arrangements significantly?' (139). These questions allow the interviewee to describe empirical observations that occurred in the real world.

In summary, most reviewed interview questions, if available, appear only minimally realist driven. Thus, they lack focus on realist concepts like events, people, structures, or culture as defined by ontological underpinnings. This contributes to the concern for more methodical guidance in realist research. Thus, further emphasis needs to be given to a more structured approach to realist interview question considerations.

Critical realist inquiry framework

Figure 1 combines the models of Bhaskar (1978), Archer (1995), and Wynn and Williams (2012) into a 9-cell-framework for developing more realist-driven interview questions. Bhaskar's (1978) view of a stratified ontology presents causal links along the vertical axis between real entities with their mechanisms at the bottom and resulting events above. At this level, the view does not differentiate between different phases of change. But, because complex change is rarely instantaneous in society, Archer's (1995) morphogenetic approach stretches the critical realist ontology axis along a 3-phased timeline. This acknowledges that mechanisms, depending on internal and external conditions, may mature and affect each other over time until eventually causing an event. Interview questions can now be directed to enquire about the final phenomenon, what interactions between people and groups caused it, and which initial social conditions must have existed. Following the principles of Wynn and Williams (2012) for each phase, questions shall enquire about the events first and then aim at identifying involved social entities.

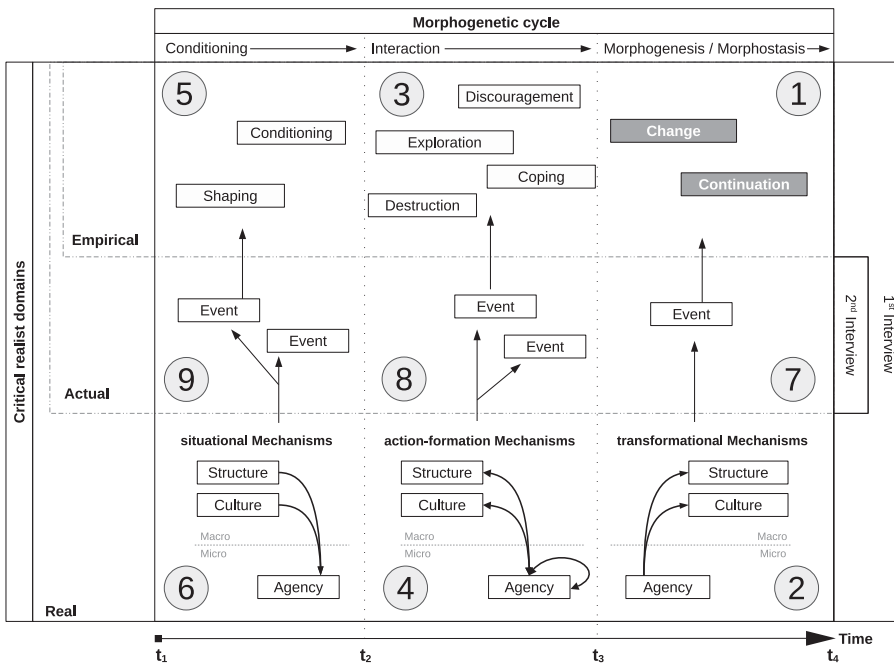


Figure 1. A critical realist inquiry framework for interview question development.

As critical realists reject causal explanations based on positivist event correlation, critical realist inquiry must make predominant use of *Why* and *How* questions that can collect causal data capable of reaching beyond mere empirical experiences (Wynn and Williams 2012). Ideally, participants respond with statements indicating real event experiences and behaviour like ‘I remember observing ...’, ‘This affected me in this way ...’, and ‘Because of that, we took the following action ...’.

The application of the framework will be illustrated using questions to understand causal interactions and emerging events from which changes in organizational business processes may potentially lead to change in structures and culture. The management and change of business processes (Dumas et al. 2018; Harmon 2019) can be understood in light of critical realism. Current business processes represent embedded social structures and culture enabling past and current operations. Existing business processes condition work behaviour and culture of individual employees and collective processes teams. Organizations as social structures have the emergent property of constant improvement, which ontologically is a desire to attain something currently absent or missing. This absence provides reasons for people to reflect on the present process conditions. Depending on their role and position, people may start to engage in intentional interactions with aims to change the existing processes. Depending on people’s favouring or resenting reflexions and resulting causal actions, these interactions may either lead to the emergence of new business processes with new roles, team structures, and culture or the continuation of the pre-existing process structure and culture. In this light, the critical realist’s aim is to explicate mechanism between structure, culture, and agency over time that led to morphogenesis or morphostasis of process structures and culture. The grid cells will be explained hereafter and are defined as:

- ① Empirical Morphogenesis/Morphostasis Events
- ② Morphogenetic/Morphostatic Structures, Culture and Agency
- ③ Empirical Interaction Events
- ④ Interacting Structures, Culture and Agency
- ⑤ Empirical Conditioning Events
- ⑥ Conditioning Structures, Culture and Agency
- ⑦ Actual Morphogenesis/Morphostasis Events
- ⑧ Actual Interaction Events
- ⑨ Actual Conditioning Events

① *Empirical morphogenesis/morphostasis events*

The social realist commences the interview by first establishing whether the phenomenon represents societal change or not. Therefore, the questions must identify events of macro-level change and the social entities affected. The researcher most likely acquired vague information about the case during the preliminary case selection stage. This knowledge helps to develop targeted interview questions to enquire about structure, culture, and agency changes specific for the case situation to identify what and how they have changed.

For instance, Volkoff, Strong, and Elmes (2007) mention successful changes to employees' daily work routines resulting from specific configurations embedded in a newly introduced enterprise systems. Njihia and Merali (2013) discuss how 'ICT policy and systems processes contributed to, and benefited from, the emergence of autonomous local agency, evidenced in agent interactions ... that ... lead to rapid structural and cultural morphogenesis, observed in many new initiatives and the exchange of ideas' (897). Horrocks (2006) associates the emergence of three reports and the successful implementation of a new information system with social morphogenesis. Interview questions that explore a successful adoption of a new business process, representing morphogenesis, can be phrased as follows:

- Describe the recent events that signify the successful adoption of the new business process. What else has or has not changed?
- What events did you realize in relation to the change of the business process?
- What has changed about the business process, but also team structures or rules and regulations? Has the business process changed entirely or only specific parts? What parts have come into existence and what parts have become absent? Have other organizational structures changed with the new process? For instance, have new business process strategies, rules, regulations emerged, changed, or ceased to exist?

If, on the other hand, the process change implementation failed, the following interview questions identify morphostasis:

- Describe the recent events signifying the rejection of the newly proposed business process. What else has changed or not?
- Describe how the business process has not changed? How was it intended to change? Have you realized if cultural values, beliefs, or customs remained the same at the end of the project?

- Explain reactions of people with respect to the process change rejection. Why and what reasons did they have to react in that particular way?

② *Morphogenetic/morphostatic structures, culture and agency*

Collective agents at the micro-level actualize their powers in transformational mechanisms to generate morphogenetic/morphostatic phenomena. Because mechanisms cannot directly be seen, the next questions are to elucidate individuals and collectives, whose powers and liabilities allow them to interact in mechanisms.

For example, Horrocks (2006) identified a working group as the 'most important agent for the potential morphogenesis of IS' because it was seen as the 'primary forum for interaction and the recognized corporate agent for any matter relating to partnership working' (149–50). Nuryatno (2017) reports on the crucial importance of having project champions with good communication skills to drive transformation. Therefore, the following questions may identify agents, at the micro-level, with their powers that lead business process change:

- Who or what groups pushed the change? Who or what enabled them to behave in this way? Why could they behave this way?
- Who did they interact with to achieve the implementation of the new business process? Why were they able to achieve the implementation?
- What kind of powers were exposed to achieve the process transformation? Why did they have those powers?

③ *Empirical interaction events*

Morphogenetic/morphostatic macro-level outcomes result from micro-level interactive behaviour between agents. This behaviour causes empirical interactive events ③. Therefore, the aim of interview questions for the morphogenetic interaction phase is to identify particular events of change as referred to earlier by Archer (1995). These events can be discouragement, coping with social situations, exploration of opportunities, and destruction attempts of existing structures and culture.

For example, Horrocks (2006) describes a coping event as a result of two interacting corporate project groups, acting as corporate agents: 'In March 1995, members of the PPG found out that an unexpected event had occurred – COMG had asked the ISSSG for a revised IS strategy' (149). Crosby (2013) describes exploration events during a crisis: 'The local schools developed a drop-in breakfast (and later a lunch) program to help ensure all the children received adequate food. Local churches developed programs offering free clothing ... and a local food pantry' (185). The following questions investigate empirical interaction events in business process change:

- Describe any observed events where people or groups acted to change the existing business process or parts of the business process. For example, change to role definitions, the flow of the business process, or the resources used?
- Describe interactions between people and groups you observed, like personal discussions, project meetings, or formal presentations.
- Describe events where collective behaviour discouraged or supported the change.

- Were groups trying to bargain change in exchange for something else or did some collectives eliminate something else first to enable or resist the change?

Interacting agents, structure and culture

Next, the identification of agents and their causal powers and liabilities involved in interactive mechanisms follows. The focus of questions needs to investigate the mode of interactive mechanism people display accordingly. The interactions can be protective, concessional, opportunistic, or competitive in nature. These depend on the emergence of corporate agency from individual agents.

An example of structure identification is explained by Horrocks (2006): 'From April 1996 onward examples of morphogenesis that are causally related to the social, socio-cultural and group interaction between T2 and T3, such as the OSS and Officers' and Members' ICT Pilot project, did begin to emerge' (149). Mirani (2013) discusses how social interactions lead to coping events, stating:

The resulting build-up of cost pressures, which were severely exacerbated by an enduring economic downturn, had caused them to fervently search for new ways of cutting costs. During this search, it was rediscovered that the company had significant funds tied up in an as yet undefined initiative in an overseas region known globally for its technology offshoring services industry. (667)

Following are example questions that can investigate interacting agents, culture, and structures:

- What did you want to change about the existing process and why specifically that? Was something missing?
- Did you influence others in rejection of the new process because your preference is to keep the daily work routine the way it has been? Why do you prefer the old work routine? Was your influencing successful? Why not?
- Did you realize benefits and risks in the new and the old process and attempted to bargain for the best possible outcome for yourself? How did you do this and why were your actions successful? Why not?
- If you recognized more benefits in the new compared to the old process, what actions did you take to promote this personal view to others? Why were your actions successful, or not successful?

The characteristic interaction-behaviour results from individuals reflecting on their social situation with respect to their goals in life and their personal mode of reflexivity. The reflection on the implications of the new business process can be enquired with the following questions:

- Who and how was the business process change first presented to you? How did you reflect on the opportunities the new business process offered your group or you personally? What reasons do you have to think this way?
- Who and why did you discuss the forthcoming changes with, if at all? Did you perceive the new process as an opportunity or a threat to your current situation?

- How have your personal goals affected your decisions about supporting or rejecting the process change? If you have been part of a group, what were your group's goals and how did they affect your group's decision making about the process change?

⑤ *Empirical conditioning events*

Conditioning events constitute the source events related to the formation of behavioural traces in people. Archer (1995, 1996) explains how existing structure and culture impinge upon people. These are structural conditioning events and cultural conditioning events happening to people. For example, Mirani (2013) mentions how 'The persistence of the economic downturn that had begun some years before had caused upper management to engage in a strategic rethink of the company's lines of business, and a renewed focus on its core competencies' (669). Questions on empirical conditioning events can be phrased like this:

- Can you recall events when, for example, the existing process team, induction and training sessions, or process descriptions have influenced you prior to the start of this business process change project? How and what behaviour did they change in you? Why was that successful or unsuccessful?
- When you started working at this organization/process department, do you recall any events where the existing process culture forced you to change your personal cultural values or beliefs? Think about organizational quality of work or process team value perception? Why or why not was this imposition successful on you?
- Why did you adopt the existing cultural values and norms, or why did you reject them and follow your own?

⑥ *Conditioning structure, culture and agents*

The next set of questions after collecting empirical conditioning events explore what pre-existing social structures and culture existed to affect the current generation of people. These conditioning structures and cultures may or may not be the same concepts as during the morphogenetic interaction phase. They affect agents by operating through conditioning mechanisms. These can potentially lead to agential conditioning events that may become observable.

Hence, the aim of interview questions for the conditioning phase is to ask about what causal powers under which conditions affected people. It then becomes possible to assign the power to a larger structural or cultural bearer. Lastly, to understand why those powers adhere to a particular structure or culture is to enquire about the inherent components of the whole structure or culture. For example, Dobson, Jackson, and Gengatharen (2013) discuss pre-existing structures, i.e. Australia as a physical structure and its government as an emergent social structure in the context of rural broadband adoption: 'Australia is large, sparsely populated, and ecologically and agriculturally vulnerable due to the climate, soils and dryness of the continent. Governments are responsible for the long-term viability of the land and have authority to grant budgets and resources' (18). Iannacci (2014) describes how the legal powers of a newly introduced criminal charging scheme

forcefully conditioned the work routines between English policemen and prosecutors to become more digitized. Therefore, questions to explicate structural and cultural entities with conditioning powers for a business process change project may include:

- What organizational social structures, like peer groups, process or management teams, formed your behaviour and perceptions related to process change and this change project in particular? How were these structures able to influence you and were they successful? Were these influences enabling or restricting your actions? Why were these impositions on you successful or not successful?
- Describe cultural values and norms that either restricted or enabled any particular actions of yours in the time before the process change project?
- Were these cultural and structural influences aligned with your personal goals?

Data analysis, according to Wynn and Williams (2012), includes retrodution and empirical corroboration. The critical realist researcher can use the structural, cultural and agential concepts, their acting powers and liabilities in relation to the temporal sequence of event occurrences to retrodude mechanism explanations. Three different mechanisms corresponding to the three morphogenetic phases are to be explicated from the interview data: Situational mechanisms in ⑥ (Conditioning Structures, Culture and Agency) explain the conditioning of people, action formation mechanisms explain the interaction patterns of ④ (Interacting Structures, Culture and Agency), while transformational mechanisms in ② (Morphogenetic/Morphostatic Structures, Culture and Agency) explain the final morphogenetic or morphostatic phenomenon. These hypothesized mechanism descriptions shall be confirmed or refuted with the interview participants in a second round of interviewing. This includes the identification of actual events, which occurred but have not been observed by people and, thus, these did not directly affect human experiences and behavioural events. It is possible to distinguish between actual elaboration/reproduction events ⑦, actual interaction events ⑧, and actual conditioning events ⑨.

⑦ Actual morphogenesis/morphostasis events

Morphogenetic/Morphostatic events in the actual domain may have occurred, but they remained unobserved and unexperienced for the moment of their occurrence. Actual events can be investigated through directed probing questions derived from the assumptions about mechanisms made during retrodution. Hence, interview questions need to investigate the unrealized events caused by agential interactions. People may experience a moment of revelation when specifically asked about actual events. Therefore, the following interview questions appear suitable for identifying actual events during process change:

- Can you confirm that the process implementation success increased effectiveness and lowered stress at work?
- Can you confirm that customer satisfaction has increased because of the new process?
- Can you think of any other events of change in the business process now, which you had not been aware of earlier during the process change project?

⑧ *Actual interaction events*

Interaction mechanisms during ④ (Interacting Structures, Culture and Agency) define action formation and lead to interaction events not only in the empirical domain during ③ (Empirical Interaction Events), but also at the actual level ⑧ (Actual Interaction Events). However, the collected research data would not include any direct mentioning of actual events as they happen possibly unintentionally and unrealized by people. Actual interaction events can be structural, cultural, or agential. Finding evidence for the existence of these events can strengthen the validity of the postulated interaction mechanism. Actual events could be surmised from either retrieved data or by conducting further probing interviews.

Action-formation mechanisms show ‘how a specific combination of individual desires, beliefs, and action opportunities generate a specific action. A plurality of psychological and social-psychological mechanisms operate at this level’ (Hedström and Swedberg 1998, 23). Social-psychological reflections on desires, beliefs and possible actions generate cognitive events. While these events, some of which may have been sub-conscious events, happened during personal deliberations at the individual level, only the events of the resulting actions may emerge into the empirical domain through real executed actions.

For the process change case study, the following questions aim at identifying actual interaction events:

- When you reflected on the possibilities offered by the new process, did you unconsciously also consider your family goals? Did this affect your subsequent actions?
- Would you still have objected to the process implementation if you had realized that your co-workers influenced you to object because the change affected them negatively?
- If more people from your department including yourself had known about the main meeting event regarding the process change, would you have attended? Could it have influenced your opinion about the process implementation?

⑨ *Actual conditioning events*

Actual events may also occur during the conditioning phase of the morphogenetic approach. Structural and cultural conditioning mechanisms that caused an agential change event may have been in operation. However, the nature of the change and the conditions present at the time may not allow the event to emerge into the empirical because the conditions for people to perceive it may not have been right. Hence, the event remained in the actual domain, yet agency has been affected, but people remained unaware of it.

People’s vested interests are driven by personal goals and motives. A congruent alignment between vested interests and the situational conditions created by structural and cultural properties leads to events of rewarding thoughts of complacency. An incongruence between vested interests and situational conditions, however, leads to events of frustrations, resentment, and action restraint (Archer 1995). Archer (2007) explains that the conditioning effect of situational mechanisms can only happen successfully when

the receiving person is susceptible to it. This susceptibility, in turn, depends on personal knowledge and skills. Because of this, questions can be phrased as follows when identifying conditioning events in the actual domain:

- Did you realize at the time that the long-term employed process participants influenced you to think that the current business process is as good as it will ever get? Would you agree that the influencing did happen?
- Did you realize that the existing cultural values oppose (or support) business process change? In what ways has this affected you?
- Why were these organizational structures and cultural elements successful in affecting you in the ways they did?

Discussion

Critical realists favour qualitative forms of interviewing for data collection for their ability to mine rich, detailed insights. In a response to the methods debate in American sociology, Porpora (2016) advocates for the importance of in-depth interviews from a critical realist view. He states that in-depth interviews are the workhorse method in social research. It is the first step 'to describe schemas, personal narratives and other personal constructs' (350) before analysing their causal relations. However, Atkinson and Silverman (1997) argue in their long-standing radical critique of social inquiry against the value of interviewing. The critique argues that interviews occur in artificially created environments and are directed by phenomenological philosophies. Phenomenology predominantly takes a Romantic view of interviewees, thereby emphasizing their individual emotions and feelings, which become the sole subject of research. Because critical realists perceive an objective stratified reality that is external to the human mind, interviews driven by critical realist underpinnings can escape some of the radical critique's arguments. Critical realist interviews avoid romanticizing participants, for they focus on peoples' relational actions with causal effects on each other in an objective reality. Reflections, experiences, and motives are not the research subjects. Rather, the research seeks to find out under what wider social conditions these reflections, experiences, and motives form and what conditional behaviour they can trigger. Critical realists create new objective knowledge by deriving explanatory descriptions from causal interactions to explain phenomena (Archer 1995; Bhaskar 1978). Hughes, Hughes, and Cocq (2020) contend in their counter argument that value does not only emerge from the interview occasion itself. Interview value gradually emerges from what and how retrieved data is used throughout the overall research endeavour of transcription, analysis, compositing of findings and subsequent publications. But paradigm-conform value from retrieved interview data can only emerge if the philosophical perspective logically informs the data collection and analysis methods. The presented framework constructs this connection by providing structured guidance for the development of paradigm-conform interview questions. This guidance will allow a realist researcher to mine more detailed, realist-rich interview data. The increased richness in the data will be appreciated during the subsequent complex retroductive analysis and the final composition of mechanisms descriptions. Causal links will be easier to be reproduced.

Similar to how ontology matters for understanding reality (Fleetwood 2005), the same ontology also matters for structuring research approaches and methodical instruments. Here, the presented model provides guidance for researchers by remaining within their ontological boundaries. From the accepted directive that ontology drives methodology and methods in research, and not the other way, it follows that the model is not to be interpreted as immutable. Moreover, it is meant to show that interview questions need to be crafted in line with the envisioned ontology. The model showcases this by carrying the ontological dualities between social structures, culture, and agencies forward into the data collection phase in the form of ontology-adhering interview questions. Hence, should the concept of affordances (Gibson 1977), for example, be of ontological relevance, then the phrasing of interview questions needs to reflect this conceptual element as well. It is these chains of methodical choice reasoning, which researchers need to disseminate more explicitly about.

To understand how the framework leads to more critical realist rich data, the sequence of questions in the framework design requires further elaboration. It has already been discussed that the conversation in critical realist interviews should move from the phenomenon of interest to the interactions that caused it and then to the interactions' source conditions. A sequential preference has been given to Archer's (1995) morphogenetic cycle by applying Wynn and Williams's (2012) explication principles of empirical events, structures, and context to each cycle phase, respectively. When discussing events that have been observed, it would appear to be more natural for the interviewee to also associate the event directly with who or what might have caused it. Focusing entirely on explicating events across all three morphogenetic phases first before moving on to the structures and context would appear more problematic. The relation between events and powerful things may be lost over the duration of the interview. This would require verification questions towards the end of the interview to establish causal relations between events and things. However, this involves rediscussing interview parts, which is not only time consuming but also confusing for the interviewee.

Similarly, following a chronological interview conversation starting with the conditioning phase and moving on to interaction and morphogenesis/morphostasis phase may lead to interviewee statements that are unrelated to the phenomenon. Interviewees would have no frame of reference to assign causal importance to events nor things. For example, because conditioning events may be temporally distant, their relevance to the resulting phenomenon may be rather an interviewee's suggestions. This is because the interviewee would be unaware of any causal links. The framework's order of inquiry keeps the association between events and things, while logically tracing the causal chain of events backwards through time. It may however be useful to follow a chronological order in follow-up interviews to verify or falsify hypotheses about mechanisms.

The argument to explicate empirical events during a first interview round and actual events during a second round follows from Bhaskar's (1978) statement that only the empirical part of reality is observable. The researcher can only postulate actual events based on reproduced mechanisms (Sayer 2010). Hence, any actual event that has not emerged to become realized by someone would not be mentioned directly in the interview data. The verification of these unobserved actual events will need to be confirmed or refuted during empirical corroboration in subsequent interviews (Wynn and Williams

2012). However, the nature of the research setting may restrict or even prohibit subsequent interviewing. For example, this may apply to research conducted in correctional facilities for safety reasons, in hospital settings due to patient care conditions, or simply because the sample has become unavailable. In these cases, the researcher may seek corroboration through other triangulation means, such as a critical realist review of the literature (Edgley et al. 2014).

A theory-based starting point drives interviews in realist evaluations (Pawson and Tilley 1997). Realist evaluators seek to evaluate the success or failure of designated programmes based on how involved people respond to interventions under given conditions. Causal configurations of reality are captured in context-mechanism-outcome (CMO) models. Despite realist evaluations' groundings in scientific realism (Pawson and Tilley 1997), realist evaluations differ from critical realism in that the former takes a theory refinement approach through gleaning, refining, and consolidating theories over multiple interview sessions. Initial theories as assumptions of expected programme operations are presented to interviewees, who can confirm, falsify, or refine them. However, realist evaluators face problems when left without an interview starting point, because the phenomena of interest can only be explained very little or not at all by existing theory (Marchal et al. 2012). In contrast, the discussed critical realist inquiry model starts at the phenomenon of interest, rather than at a presumed theory, and aims for the explication of empirical events and structures. Commencing inquiry from the phenomenon appears to be beneficial due to its independence of an existing theory. Furthermore, Porter (2015) argues that realist evaluation conflates structure, culture, and agency as part of the CMO. The relation between conditions and mechanisms causes confusion amongst realist evaluators and is still debated (Marchal et al. 2012; Greenhalgh and Manzano 2021). In contrast, the model discussed here, maintains the ontological dualities between the social entities of structure, culture, and agency and how their emergent, powerful properties influence each other in recurring cycles governed by underlying causal mechanisms. Hence, the presented model maintains an ontological contentedness in critical realism.

The radical critique also questions the validity of findings based on interviews. Generally, researchers have accepted that validation is necessary to advance knowledge in an area of study. For findings to become accepted knowledge, research conduct must exhibit high quality, rigour, and attention to detail to convey validity (Zachariadis, Scott, and Barrett 2013).

Categories of validity in qualitative research are design, analytical, and inferential validity (Venkatesh, Brown, and Bala 2013; Johnston and Smith 2010). However, critical realist understanding of validity differs from non-realist interpretations because of its ontological premises about a mechanism-governed reality. The focus of causality shifts from inferred correlations of event conjunctions to mechanisms, which describe the causal nexus between powerful things that lead to events (Lawson 1997).

Under critical realist terms (refer to table 2 in Zachariadis, Scott, and Barrett 2013, 860), analytical validity (plausibility, consistency, dependability, and theoretical validity) relates empirical event data to logical explanations of mechanisms through the retroductive process. Design validity (credibility, transferability, and descriptive validity) refers to how actual event manifestations are caused by distinct mechanisms under situational conditions. Inferential validity (confirmability, interpretive validity) refers to the insight provided by descriptions about mechanism causal potential to be operational under

similar or different conditions, yet causing the same or similar events (Johnston and Smith 2010; Zachariadis, Scott, and Barrett 2013). Hence, realist validity lies in the logical expressiveness of mechanism descriptions and their conformance with empirically retrieved interview data.

Aiming for strong validity in realist research critically hinges on purposefully designed interview questions to uncover social interaction mechanisms (Zachariadis, Scott, and Barrett 2013). When used as a methodical instrument, the framework provides a logical trace of reason about why particular information resulted from interviews, but not other information. The interview questions aim to ensure that collected data contains statements about events and social constructs. The better suited the raw data is for the intended retroductive analysis, the more logical reasoning can be included in mechanism descriptions that explain ways of operation. This clarity and transparency contribute to an increase in analytical and design validity. Having strong validity in the triad of interview data, the analysis method, and the derived causal mechanism relations increases the confidence others can have in the research. The researcher's retroductive contemplations together with their derived mechanism findings become more clear and objectively verifiable from third perspectives like the research community or others with an interest.

The critical realist view aims to infer theories to the best possible explanation based on the underlying belief that all research is fallible. This includes the design and phrasing of interview questions. In other words, theories are corrigible, which is possible through replication studies. It should not be prematurely precluded that replication is neither relevant nor possible in the social sciences. Replication studies contribute refined understanding about structures and components, their powers and liabilities, and mechanism interactions. But accurate replication of case research depends on detailed information about the conduct of the original research being available. Tsang and Kwan (1999) argue for more replication studies to be conducted in the social sciences as an important way of testing theories about reality. 'The realist views replication as an attempt to confirm the structures and mechanisms identified in the original study under similar contingent conditions' (Tsang and Kwan 1999, 765). Replication research, therefore, encourages retroductive analysis by allowing mechanisms to be used as a buttress for future research (Wynn and Williams 2012). Retrodiction seeks to relate identified mechanism behaviour with its explanation under new conditions in novel situations (McAvoy and Butler 2018). A confirmation of previously hypothesized existence of mechanisms through replication contributes hugely to the external validity of the research and its mechanism theory. While there are different forms of replications, Rosenthal (1991) advocates for at least one exact replication study and one reasonably different, such as using different methods or a different population. Unfortunately, as Aguinis and Solarino (2019) report, exact replication is most difficult to conduct due to insufficiently reported transparency, even though it would provide a major credibility leap in the original research. Research reports must become more transparent to explicitly afford detailed replicability. Case findings will become comparable on a methodical level, rather than only at the level of philosophy and the identified mechanisms. Comparing mechanisms from different case studies remains meaningless unless the methods of inquiry are also taken into consideration. Only then is it possible to derive why mechanism findings converge or diverge. The application of the presented framework in the original research

allows researchers seeking to replicate the study to better understand original research design and development decisions. It allows researchers to trace why particular questions were included for interview sessions and how the statements made by interviewees relate to them. This contributes to more transparency of the research procedure and instruments used. If the instrument used in the original study is neither understood nor questioned during replication research design, the validity of the replication research becomes questionable. Hence, the framework reduces the risk of asking non-realist questions not only in the original study but also in subsequent replication studies. It can help to evaluate the suitability of interview questions in the original realist research. Given the missing guidance for critical realist question design, the simple re-use of questions, if available at all, may lead to similar non-realist conform findings, thereby possibly encouraging the development of a misguided theory.

While the presented inquiry model focusses on critical realist question design for data collection, the collected interview data requires retroductive analysis that maintains the same ontological view. Critical realist researchers have adapted existing data analysis techniques for case research (refer to [Table 1](#)). For example, interview data analysis can follow a critical realist informed grounded theory approach ([Hoddy 2019](#)), a thematic analysis with critical realist underpinnings ([Wiltshire and Ronkainen 2021](#)), or critical realist discourse analysis ([Newman 2020](#)). In summary, ontological consistency in question design and data analysis across causal mechanism research can contribute towards greater validity and theoretical generalization.

Conclusion

Interview questions represent the bridge between a researcher's ontological perception of reality and realist findings as mechanism-based theories. Hence, giving more thought to interview question design in realist research is crucial to support detailed explanatory descriptions of mechanisms.

The framework assists with composing realist-driven questions based on established realist ontology and methodology concepts suitable for retrospective interviews. It assists with phrasing and ordering of questions. Resulting questions will be more capable of identifying realist concepts like events, social constructs, and agency. The framework guides interviews by first phrasing questions about events and social entities related to the phenomenon directly. Then, moving backwards in time, questions about the events, social entities and their interactions that are causally related to the phenomenon. Lastly, moving further back in time, questions about the initial social conditions that must have existed. These conditions must have affected structures and agency behaviour and manifested in events.

When the framework is applied, interview questions will be more paradigm-conform and result in more realist-rich data. The greater richness in the data will allow the retroduction of more detailed mechanisms leading to more logical explanations. This leads to higher validity of the research as information is more transparently presented.

Greater transparency in the research steps and mechanism explanation makes attempts of reproducing research more likely. Researchers require access to all information used in the original research that led to the mechanism discovery to corroborate the workings and conditions of the theorized mechanism.

Moreover, the presented framework contributes coherent methodical guidance following a critical realist paradigm. Its application aims to structure the design of interview questions to address the complexity in retroductive analysis. It will contribute to the realists' argument for importance of conducting qualitative, in-depth interviews. The need for improvement is supported by a review of realist case literature showing evidence of practices appearing to follow more traditional, non-realist approaches of data collection via interviews. The lack of shared practice in realist interview question design drives concerns for more explicit guidance for qualitative interviewing methods. In conclusion, the framework addresses these concerns by creating structural guidance for question design, that aims at leading to higher commonality amongst qualitative-driven realist practice.

Notes

1. RRREI(C) is an abbreviation for Resolve-Redescribe-Retrodict-Identify-(Correct).
2. DREI(C) is an abbreviation for Describe-Retroduce-Eliminate-Identify-(Correct).

Acknowledgements

I would like to thank Dr. Kylie Stevenson, A. Prof. Denise Gengatharen, and Dr. Richard Fulford for their critical reviews, comments, and recommendations for improvement on earlier draft versions of this paper. I would also like to thank the anonymous reviewers for their constructive comments and statements.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This paper was developed as part of a university-funded PhD program.

Notes on contributor

Andreas Brönnimann is a casual academic and PhD candidate in the School of Business and Law at Edith Cowan University. His research interests focus on business process management, organizational change, and social behaviour. He is taking a critical realist perspective in his current PhD research where he is investigating, from a people perspective, the social adoption mechanisms that imperceptibly orchestrate organizational change at the business process level.

ORCID

Andreas Brönnimann  <http://orcid.org/0000-0001-5568-7223>

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