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A critical realist approach to thematic analysis: producing causal explanations

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Abstract

Thematic analysis (TA) is one of the most popular methods in social science. There are several different approaches to TA that hold different ontological commitments, ranging from positivistic coding reliability TA to constructivist reflexive TA. However, there has been less focus on developing an approach that is informed by critical realism, with the notable exception of Wiltshire and Ronkainen. The first part of this paper proposes a five-step critical realist approach to TA. This approach aims to produce nuanced causal explanations of events, countering the mistaken assumption that qualitative research cannot produce causal knowledge. The second part of the paper brings this critical realist approach to TA into conversation with three alternatives: coding reliability, reflexive, and Wiltshire and Ronkainen's approach. The approach to TA in this paper builds on the strengths of these alternatives, offering an accessible way to adopt a critical realist philosophical grounding when doing TA.

Keywords

Critical realism; thematic analysis; methodology; methods; qualitative

Introduction

Thematic analysis (TA) is one of the most popular methods in social science. There are several different approaches to TA that are informed by very different ontological and epistemological assumptions. At one end of the spectrum is coding reliability TA (Boyatzis 1998) that draws on positivistic assumptions, and at the other end is reflexive TA (Braun and Clarke 2019) that is grounded in philosophical constructivism.[1] These approaches have very little, if anything, in common – they differ on the research questions they ask, the steps they involve the approaches to ensure quality, and the type of conclusion they seek to produce (Braun et al. 2018).

Despite the breadth of approaches to TA, there has been less focus on developing a critical realist approach to TA. This is a significant gap. A critical realist approach to TA would help many researchers who seek to apply critical realism in their research. Also, if critical realism is right in its claim to be the most appropriate theory of ontology – the one that best

captures the way the world actually is, a point defended elsewhere (Collier 1994; Gorski 2013) – then a critical realist approach to TA is not only useful but necessary for social science to avoid ontological mistakes. For example, a critical realist approach to TA should reject the idea that qualitative research cannot speak of causes – we can, and very often should, be producing causal knowledge through qualitative research (Danermark et al. 2001). However, the application of critical realist philosophy to inform methodology is not a simple process, and this paper should be seen as part of the growing literature that seeks to develop critical realist-informed methods and commentary (Fletcher 2017; Brönnimann 2021; Hastings 2021).

The challenge of developing a critical realist approach to TA has been taken up in a recent paper by Gareth Wiltshire and Noora Ronkainen (2021). The authors provide an excellent overview of why we need a critical realist approach to TA and then proceed to offer an insightful proposal for what this approach could look like. This paper draws inspiration from Wiltshire and Ronkainen (2021) but ultimately proposes a different approach that diverges on several key aspects. Most notably, this paper develops its approach to TA using different critical realist concepts, with the narrower aim of producing causal explanations, and it includes some additional methodological steps. The intention is not to replace the model offered by Wiltshire and Ronkainen (2021) – there are times when their model is more applicable – but rather to bring them into conversation, and present researchers with an alternative that might better suit some research projects. This paper hopes to adopt the same spirit as Wiltshire and Ronkainen (2021) acknowledging that there is always 'room for further development … and welcome[s] interrogation of both the principles and practices … proposed here' (18–19).

This paper aims to outline a critical realist approach to TA and to compare its strengths and weaknesses with alternative approaches. The paper is structured as follows:

- The first section outlines a five-step critical realist approach to TA. Research on students' experiences of Kenyan higher education (HE) is used to illustrate the approach.
- The second section compares this paper's approach to TA with three alternatives: coding reliability TA, reflexive TA, and Wiltshire and Ronkainen's (2021) model.

Outlining a critical realist approach to TA

It is necessary to make three initial comments to clarify the nature and scope of the critical realist approach to TA proposed in this paper. Firstly, this paper does not claim to offer the one and only approach to TA. Theassumptionthat critical realism is the most appropriate philosophical theory of ontology and epistemology does not entail that all TA should be done in one unified way. Using Creswell's (2009) terminology, some research approaches are exploratory (seeking to describe phenomena) and others are explanatory (seeking to explain the causes of phenomena). Each of these approaches will be appropriate in different research contexts.While exploratory projects are more appropriate in under-researched areas, exploratory research should be the norm in more well-documented fields. Critical realism explains that we should ultimately seek causal explanations in our research (Bhaskar 2008a), i.e. that explanatory research should follow-on from exploratory research.

This paper offers a critical realist approach to TA that is appropriate for explanatory research projects, as it ultimately seeks to develop causal explanations. This model is not appropriate for exploratory research, which might be better suited to some aspects of Wiltshire and Ronkainen's (2021) model, or using an alternative method entirely, such as content analysis (Hsieh and Shannon 2005). Although this limitation is important, it should be remembered that most social science topics have been considered before, which means that explanatory research should be commonplace.

The second thing to note is that this paper's approach to TA is communicated using a five-step list. This format aims to be clear and accessible, but should not be taken to imply that TA is a simple linear process of moving from step to step. Research rarely progresses in such a linear way, and there are good reasons why research should not follow a rigid process (Braun and Clarke 2019). Following steps in a rigid and sequential way does not remove researcher bias, as some positivistic accounts might imply (Boyatzis 1998), and instead prevents us from learning over the course of our research. Ironically, this can stop us from correcting mistakes and limits our ability to adapt to new insights that arise later in the analysis. A strict linear approach to methods hinders knowledge production (Braun and Clarke 2019), and this paper's approach to TA should not be interpreted in this way.

Thirdly, a case study is used throughout this paper to illustrate how the approach to TA can be applied within a specific piece of research. This research was conducted by the author of this paper in 2018, and aimed to study the opportunities and barriers that people faced in Kenyan HE. This was a small study, involving six semi-structured interviews with Kenyan graduates from different HE providers and subject areas. The interviews lasted approximately 45 min each and covered a large range of topics including: access to university, retention, and success at university, and graduate outcomes.

The model of TA proposed in this paper is summarized in Table 1. The remainder of this section outlines each of these steps in more detail.

Table 1. Summary of the five-step critical realist approach to TA

Step 1: Develop your research questions	• Identify the experiences and/or events of interest, and develop one or more causal research questions.
Step 2: Familiarize yourself with the data	• Skim read a large proportion of the data. • Make notes on initial thoughts and questions.
Step 3: Apply, develop and review codes	• Apply descriptive codes to the data using a data-led approach. • Develop these codes by processes of standardization (use the same wording for

	similar codes) and consolidating (use theoretical terms to unite different codes). • Review codes by assessing their validity.
Step 4: Develop and review themes	• Develop themes (causal explanations of experiences/events). • Review themes by assessing their validity.
Step 5: Generate conclusions and reports	• Reflect on the overall analysis and review the validity of conclusions. • Consider how to best communicate the conclusions.

Step 1: Develop your research questions

The first step of the critical realist approach to TA outlined in this paper precedes any data analysis, focusing on your research questions. Although it may seem unusual to include this as part of a TA method, a similar step is found in other methodological outlines (Arksey and O'Malley 2005) and this topic receives a detailed discussion in some of Braun and Clarke's (2021) later work. Ideally, this reflection on your research questions would come before data collection, as a change in the research questions may have implications for the type of data that you collect. However, this does not mean that it is always best to plough on with your existing research questions – as you learn, it can be a good thing to adapt and refine your research questions.

This paper proposes that your research project should contain at least one research question that seeks a causal explanation of a particular event or experience. To understand this, it is necessary to introduce three concepts from critical realist theory: experiences, events, and causal mechanisms. These three concepts are introduced in Roy Bhaskar's foundational text of critical realism, Realist Theory of Science (Bhaskar 2008a), first published in 1975. He explains that our research should distinguish between these three concepts, and not to do so would be to make an ontological mistake. The three concepts can be explained as follows:

- Experiences are the perceptions and feelings of agents as they go through the world. For example, the Kenyan graduates experienced what it was like to access HE.
- Events are the things that are experienced by agents. We can talk about single and specific events (e.g. how one particular graduate accessed a university in Kenya) or we can talk about events in a more general way (e.g. how students accessed universities in Kenya).
- Causal mechanisms are the things that produce the events, i.e. they cause the events to occur. For example, the ethnicity of Kenyan graduates might influence their access to university – ethnic structures might cause some students to experience barriers or opportunities for university access. In the social world, many causes can occur at once, and interact in complex ways (Bhaskar 2015). This means that we must talk of

causal tendencies. Ethnicity may tend to influence access to Kenyan HE, but this does not mean it impacts all students in the same way, at all universities, and at all times.

This paper's approach to TA requires at least one of your research questions to focus on causal mechanisms. While it is okay to have research questions that focus on experiences (e.g. How do students experience accessing HE institutions in Kenya?) or events (e.g. How many students access HE institutions in Kenya, and how does this break down for different ethnic groups?) it is necessary for explanatory research to ask a causal question. These causal questions look at the causes that underlie an experience or event. For example, it might ask: What influences students' access to HE institutions in Kenya? It is also possible for these causal research questions to ask about the nature of a specific cause: How does ethnicity influence students' experiences of accessing HE institutions in Kenya?

This first step is a playful provocation to everyone doing TA: if you've not asked a causal research question, have you got a good reason for this? The response that 'qualitative analysis cannot produce causal knowledge' is not a good reason. Critical realism demonstrates that this idea, held by both positivists and philosophical constructivists, is incorrect. It is in-depth and intensive qualitative research that is best placed to make causal conclusions (Danermark et al. 2001). One good reason for not having a causal research question is that an exploratory research project is more appropriate, but this would need to be justified. There is also an ethical aspect to this focus on causal questions – if you want your research to tackle injustice, you need to understand the causal processes that maintain injustice and prevent movement to a more just future (Bhaskar 2009).

Step 2: Familiarize yourself with the data

The second step of this approach to TA is adapted from the first step of Braun and Clarke's (2006) reflexive model of TA. It recommends that researchers prepare their data for analysis and familiarize themselves with it. This involves three basic elements:

- Preparing the data for analysis: either upload the data into a qualitative data management software, such as NVivo, or prepare this for paper-based work.
- Familiarizing yourself with the data: skim all, or at least a substantial proportion, of the data. Note any initial thoughts and questions.
- Documenting information about the data: learning logistical information about the data, for example how was the data collected, who was interviewed, in what settings, and any other information that could be useful for the analysis process.

Whatever the research project, there will always be some initial work to prepare your data for analysis. This preparation will vary dramatically by the type of qualitative data being analysed, and the structure of the research team (solo researcher versus a larger team). One broad recommendation is to use an electronic data management software, such as NVivo. This is not to say that some of the steps in TA could not be paperbased, for example when reading through the data or during initial coding, but for the vast majority of projects the data generated during TA becomes unwieldy and challenging to manage without the help of some software. Therefore, do use an electronic management software when you can.

When you have prepared your data for analysis, then next thing to do is to familiarize yourself with it. This is particularly important when you have not collected, transcribed, and translated the data yourself, but it is also important even if you have. This will probably be the first time that you have sat down and read through a large proportion of the data in a short period of time. You will be able to start to assess whether the data are appropriate to answer your research questions (saving a lot of time if you find that it is not). This familiarization process is likely to involve a skim read of a substantial amount of the data, if not all of the data. Although this skim read is much less substantive than the engagement that will happen later in the research process, this is an excellent opportunity to note down any initial thoughts, questions, associations, and surprises. These initial reactions to the data are easily forgotten in later research stages when the data are more familiar, but these initial insights often contain kernels of truth, interesting things to look at, and key things to focus on. Even at this early stage noting down these initial thoughts and questions can help to remind you the ways your project could contribute to the field. Write these down in a document, which this paper will call a Thoughts and Questions document, or start a note in the software you are using.

When it came to my research project on Kenyan higher education, Step 2 was relatively short as I had collected and transcribed the data myself. I read through each interview and jotted down some notes, and then reflected on the interviews as a whole, which was documented in a Thoughts and Questions document. Reflecting at this early stage was useful to identify things that had surprised me and challenged my assumptions. For example, coming from a UK context, I had assumed that the student loan system in Kenya would operate in a similar way, but actually found that this was an unpredictable source of funding for students who were often paid late. This was documented in this note in the Thoughts and Questions document:

> The influence of finances on students' experiences was much more important that I assumed. It seems to be very common to have issues paying for rent and tuition fees, as well as meeting smaller costs like being able to print out your assignment. Most students had to rely on money from parents, as the government loan was too unpredictable.

The final aspect of Step 2 is to make sure that you have gathered the logistical information associated with your data. Again, this could be stored in the Thoughts and Questions document. This involves collecting information such as: how was the data collected, who was interviewed, in what settings, and any other information that could be useful for the analysis process. Again, this is more important if you have not collected the data yourself. But even for those who have, this process can provide reminders that can be easily forgotten. In my project, I noted that the interviews took place in both public and private settings, which might have influenced some of the conversations. There was also a technical glitch in one of the interviews and the recording was corrupted, meaning that the transcript is not a transcription of the interview, but the recollection of the interviewer, which was then approved and edited by the interviewee.

Step 3: Apply, develop and review codes

Having familiarized yourself with your data, it is now time to start to think about coding. This third step can be divided into three sub-steps: applying codes, developing codes, and reviewing codes. As with the overall method, movement back and forward between the

three sub-steps is recommended as you learn throughout the research. This is not a linear process.

Step 3.1 Applying codes

This paper recommends initially taking a descriptive approach to coding, following a number of recommendations from reflexive TA (Braun and Clarke 2021). This descriptive approach to coding applies relatively long descriptive codes to the data, rather than single word codes. The aim of descriptive coding is to capture some of the data's nuance within the codes, whether this is semantic (explicit, surface level meaning) or latent (implicit, assumptions under the surface) (Clarke and Braun 2018). The relative focus on semantic or latent aspects is determined by your research questions and context. All of this contrasts with an approach to coding that seeks to label the data with short codes, which Braun and colleagues (2018) say treats codes as 'domain summaries'. If codes are treated as domain summaries, this makes the process of coding analogous to sorting the data into different categorical buckets – this is non-descriptive and would tend to be semantic.

A descriptive approach to coding tends to be more data-led than theory-led, i.e. the codes will attempt to describe the data as it appears, rather than applying more abstract theoretical concepts from the outset.[2] This more data-led approach aims to encourage you to consider the data as it is, rather than immediately fitting it into your pre-existing theories and concepts. This has the benefit of allowing the data to surprise you, to challenge your preconceptions, or to move beyond previous theorizing – whereas theory-led coding has more of a tendency to encourage you to find what you seek. Although dataled and theory-led coding should not be treated as a strict binary – all researchers come with a position and an understanding of previous research (Danermark et al. 2001) and it is inevitable that theory informs your coding – a data-led approach does encourage you to be more open to surprises and challenges to your initial conceptions. This means that it is fine to use some theoretical terms within our initial codes, as long as they remain descriptive. For example, the theoretical concept of 'social capital' could be used as part of a code social capital in the family aids university access if an interviewee talks about the importance of their uncle to getting into university.

What does this descriptive coding look like in practice? From the research project on Kenyan HE, one of the initial codes used was: family connections are key to getting a job, and can trump education. This code was data-driven, in the sense that it was not generated from theory before the coding process. Similarly, it is a relatively long code that attempts to describe the data, rather than using a very short code like 'employability' or 'family influence' to put the data in different conceptual buckets. This code was applied to several interesting parts of the data including:

- When interviewees turned to a family member to help them in the job market. Family members helped graduates get jobs or internships at their company, and also used their social connections to help get work elsewhere.
- One interviewee related a story about a friend who was able to get a graduate-level government job through his father, despite not having a degree.
- Another graduate described her reluctance to ask her family for help in getting a job, although she felt resigned that she would have to turn to them in the future.

A descriptive approach to coding does have some drawbacks. Perhaps the largest issue is that it can lead to a large number of codes. After coding a small part of your data, the number of codes can quickly multiply and grow to become unmanageable. To counter this weakness, we need the second sub-step in Step 3: developing codes. It is by taking the time to develop the codes, that you can maintain the positives of a descriptive approach to coding, while avoiding the problematic proliferation of codes.

Step 3.2: Developing codes

To stop the descriptive approach to initial coding from generating a huge number of codes, it is necessary to develop your codes. Developing codes should not wait until you have coded all your data. Instead, it is recommended that you shift back and forward between applying codes to your data and then developing these codes. It is hard to be prescriptive about when you should move between Step 3.1 and 3.2. As an example, in the Kenyan HE project I applied codes to two 45-minute interviews before looking to develop the codes. This code development process was repeated after applying codes to every two subsequent interviews. The benefit of this cycling between Step 3.1 and 3.2 is that it can make the code development process much easier to handle. If you wait until all your data has been coded before considering code development, then you will likely have so many codes that the development process will be very challenging. You can avoid this headache by cycling between the sub-steps throughout the coding process.

Developing codes involves two slightly different processes that this paper will call standardization and consolidation. Standardization refers to the process of bringing together codes that say the same thing, but are phrased in a slightly different way. For example, the codes ethnicity has a role within recruitment and ethnicity of interviewers or business can influence ability to get a job say much the same thing, so it helps to standardize these into one, say by only using the second code. This one standardized code could then be applied to other instances when you return to Step 3.1 and code the next part of your data – this is much easier when using an electronic management system like NVivo. This standardization process does not fix your codes nor prevents them from changing in the future. For example, if it later became clear that the ethnicity of a business influenced people's ability to get a job by (1) direct ethnic discrimination in interviews and (2) making graduates less willing to expose themselves to situations where they might experience this discrimination, then the above code could be adapted to: ethnicity of interviewers or business can influence ability to get a job, and graduates often avoid applying for jobs with businesses run by people of a different ethnicity.

This standardization process is also a time that you can start to impose a more systematic structure to your codes. This systematic structure will vary massively between research projects. In the case of my Kenyan HE project, I began to start each of my codes with the numbers 1, 2, or 3, that referred to my different research questions (which considered university access, university success, and graduate experiences, respectively). By adding a number at the beginning of the codes I could both group the relevant codes together and keep the nuance in the descriptive parts of the code, e.g. 3 – ethnicity of interviewers or business can influence ability to get a job, and graduates often avoid applying for jobs with businesses run by people of a different ethnicity. Developing this more systematic structure

is not necessary for all projects, it is essentially personal preferences of how you choose to manage your codes.

As part of this standardization process it is important to reflect on the validity of your newly standardized codes. Using Wiltshire and Ronkainen's (2021) terminology, as based on Maxwell (1992), you need to consider the descriptive validity of your codes. This involves asking whether your codes accurately describe the data. Sometimes you may find that you have applied a code to some data that it does not describe very well, and so you should remove the code from this data. At other times you may find that the code is relevant to the data, but the code itself could be changed to better describe the data. Considering this descriptive validity when standardizing codes is particularly important, as bringing together of codes in the standardization process is a key moment when codes might end up being applied to data that they do not describe particularly well.

The second process in code development is consolidation. This refers to a process of thinking about whether there are any general or theoretical terms that could be used in your descriptive codes. One way to think about this consolidation process is in terms of the critical realist concepts of experiences (the perceptions of things by agents) and events (the things that are perceived by agents). The application of descriptive codes in Step 3.1 focuses on the experiences of agents, as you are trying to describe the data in your codes. In Step 3.2, we begin to not only consider the experiences of a specific agent, but also the more general events. For example, you might begin to consider access to university, rather than one agent's experience of accessing university. This consolidation process focuses on the questions: do some of my codes refer to the same event? If they do, does it make sense to consolidate these codes, by using a more general or theoretical term within the code?

This consolidation process is best explained through an example. Within the Kenyan HE project several of my initial codes referred to students' experiences of specific types of living arrangements, including Hostels are a core part of university experience, University accommodation can be overcrowded and insecure and Private renting can impose challenges for students. All these codes refer to specific living arrangements. It is possible to consolidate these codes together, using the more general term accommodation to develop the more general code: Accommodation is a core and unstable part of student experience. In a sense, the initial codes are closer to graduates' experiences, as they mention the specific type of accommodation, whereas the consolidated code shifts more to a general event, i.e. the role of accommodation in university life in Kenya. This code development made sense for my project but would not make sense for all. If my research questions had focussed on how different accommodation types influence university experiences, then this would have been an inappropriate way to develop the codes as I would have lost the nuance around the different types of accommodation. However, as my project was only interested in the broad barriers and opportunities that Kenyan students face, this was an appropriate change to make – the nuanced experiences remained in the underlying data, but the code was consolidated to reflect the more general event.

It is also essential to consider validity throughout this consolidation process. Specifically, does the application of more general concepts in the codes continue to accurately reflect the experiences in the data? This is a question of interpretative validity (Maxwell 1992;

Wiltshire and Ronkainen 2021). This can be judged by taking the time to look back at the data that have been coded, and reflecting on whether the code offers a misleading, distorted, or partial impression due to the use of a more general concept. It is not uncommon for code consolidation to result in codes being applied to some data that does not reflect particularly well, which is why this cycling between Step 3.1 and 3.2 is so essential. For example, it is possible that when I return to my data, the code Accommodation is a core and unstable part of student experience is inappropriate if I found that it was only university-owned hostels and halls of residence that led to instability, whereas those in private accommodation were able to thrive. If this were the case, it would be appropriate to remove the term 'accommodation' and return to the original codes that mentioned specific types of accommodation. This back and forth is an essential part of the research process.

Step 3.3: Reviewing codes

The final aspect of Step 3 is reviewing codes. This stage focuses on the validity of your codes, reviewing their descriptive and interpretative validity. Although Step 3.2 has already considered these two types of validity, Step 3.3 allows you to return to these questions after all of your data has been coded. This emphasizes the importance of considering validity after all the coding has been applied and developed in Steps 3.1 and 3.2. Through reflecting on these questions of validity, you might decide to go back and change how a code is applied to some data, or you might change the wording of the code itself to better reflect the data. Specifically, in Step 3.3 it is helpful to reflect on:

- Do my codes accurately describe the data that they have coded? (Descriptive validity)
- When I use more general concepts in my codes, do they continue to accurately reflect the experiences in the data? (Interpretative validity)

In addition to these questions of validity, there are other important things that can be done as part of this review process. It can be helpful to keep a document, perhaps the same Thoughts and Questions document from Step 2, to capture your insights, thoughts, questions, anything that surprises you, any ideas that you have had challenged, any tensions that you can see with the theories or existing research that you are aware of. Many of these thoughts appear during the research process, and the danger is that if this analytical work is left until later in the research process, then you may forget them. More than this, a Thoughts and Questions document can help to counter a weakness of TA. TA is great at looking at the content that is present in the data, but it is less good at looking at things that are not there – the gaps and the silences, the things that are not said, the people who are not referred to. However, it is these more 'negative' aspects that can be essential to understanding the causal processes (Bhaskar 2008b). The document can also be used to begin to document contradictions – such as how interviewees statements can come into tension with themselves over the course of an interview – as well as your evaluations of interviewees' ideas.

For example, within the Kenyan HE project, my Thoughts and Questions document contained:

- Silences: I documented how an interviewee stressed the reputation of their university when discussing university access, but this was absent when the conversation turned to employment. This silence on university reputation in the context of employment could be important, it could suggest that university reputation has less influence on employment than other factors.
- Contradictions: there was an interviewee who shared experiences of ethnic discrimination at their university in Nairobi, but then went on to claim that 'tribalism' only happens at regional universities. This apparent contradiction suggests that graduates from Nairobi sometimes position regional universities as places of widespread ethnic discrimination, which they contrast to their 'modern' surroundings, even if this is in tension with their own experiences.
- Evaluations of interviewees' ideas: one interviewee suggested that the Vice Chancellor directly influenced student recruitment and introduced ethnic discrimination. However, the interviewee went on to show a lack of knowledge of the admissions process and it became clear that this claim was not based on first-hand knowledge.

Step 4: Develop and review themes

Having outlined three of the five steps, you would be more than justified in asking 'If this method is called thematic analysis, where on earth are all the themes?'. It is in Step 4 that themes enter the scene. In this paper's approach to TA, a theme is defined as a causal explanation – so the development of a theme is the development of a causal explanation. Specifically, you are trying to develop causal explanations that answer your causal research question(s) from Step 1. These causal explanations will try to outline how particular causal mechanisms produce the experiences and events we see in our data and codes. For example, if one of my research questions is concerned with the causes of inequality in Kenyan graduates' experiences in the job market, then Stage 4 is the first time that I will try to understand the causes that underlie these different experiences.

This approach to TA has a sort of tripartite structure: the three critical realist concepts of experiences, events and causes roughly correspond to data, codes, and themes. The experiences of people remain in the data itself,[3] the codes consolidate these experiences to talk of events, and themes consider the causal mechanisms that produce these events and experiences. These are not rigid distinctions. It is probable that some causal aspects make it into your descriptive codes. For example, the code graduates believe that ethnicity influences their ability to get a job, and they often avoid applying for jobs with businesses run by people of a different ethnicity implies that ethnic structures influence graduates' ability to gain employment, both through explicit discrimination by employers, and by influencing how graduates try to find jobs. Here, the code contains the participants' opinion about the causes that underlie the event. However, it is only when you turn to the development of themes in Step 4 that you start to scrutinize the causal claims that are implied in some of your codes. It is only then that you turn explicitly to the question: what causes underlie the experiences and events of interest?

Step 4 can be separated into the two sub-steps of 'developing' and 'reviewing', which has similarities with the development (Step 3.2) and reviewing (Step 3.3) of codes in Step 3. It is in the 'development' of themes that you begin to create causal explanations of events. This

is done through retroductive reasoning – this is a form of reasoning that asks: what is the best explanation of what must have happened for this event to occur? Or more simply, what best explains this event?[4] In the Kenyan HE project, this involved asking questions such as: what explains why graduates have different experiences of the job market? It can be daunting to ask these causal questions. But, as was argued in Step 1, it is exactly this type of causal question that we should be asking in our research, and qualitative research is particularly well placed to offer answers to these questions (Danermark et al. 2001).

Luckily, you have a few things that help you start developing causal explanations that answer these questions. Firstly, there is the research that has gone before you. Much of this research will explain the causes that underlie similar events to the ones being studied. In my case, there is plenty of research on the impact of ethnicity in accessing public resources in Kenya (Briggs 2014; Kanyinga 2016), which suggests that ethnicity may have a role to play in HE. Secondly, there are the participant's own understandings of what causes their experiences – this is why your codes can sometimes mention causes. These understandings can be an excellent place to begin answering causal questions (Bhaskar 2015). Participants often have some sense, whether mistaken or not, of the causes and influences on their experiences. However, the fact that previous research and participants' own understandings can help you begin to answer these causal questions, does not mean that your answers can only stem from these two sources. It is perfectly possible to conclude that a cause mentioned by neither participants nor previous research is important,[5] as long as this conclusion can be justified by reflecting on its validity in Step 4.2.

This brings us onto Step 4.2, the 'reviewing' sub-step of Step 4. This is where you begin to consider the validity of the themes or causal explanations you have developed. To reflect on the validity of your causal explanations involves considering what Maxwell (1992) calls theoretical validity. This involves considering whether 'retroductive claims have a sound logical basis (judgemental rationality) and consider the extent to which they account for what the analysis has so far revealed (explanatory power)' (Wiltshire and Ronkainen 2021, 7). This is essentially asking you to reflect on whether the explanations that you give are plausible and appropriate.

For example, is the conclusion that ethnicity influenced graduates' ability to get a job valid? It has a basis in the things that graduates said themselves. All of the graduates that I interviewed discussed the influence of ethnicity in their search for a job. If ethnic structures really do influence a graduate's ability to get a job then this would explain the experiences of explicit discrimination that my interviewees described, like tales of how recruitment managers prioritized candidates of their own ethnicity. Similarly, it would explain the ways that ethnic structures impact the decisions that graduates make themselves – influencing their decision of whether to apply for a job or not, and how this pushes them to apply for jobs in their home region where their ethnic group tends to be more common. In this way, a causal explanation of the ways that ethnic structures influence graduates' ability to get jobs, seems to have a basis in participants' own understandings and has the power to explain many of the experiences of the interviewees. This gives confidence that the causal explanation is valid; graduates' experiences of employment really are influenced by ethnicity.

Step 5: Generating conclusions and reporting

If producing causal explanations is the ultimate aim of the approach to TA outlined in this paper, it might seem unusual to have a step that follows Step 4. However, this additional Step 5 is an opportunity to consider the contribution you are making to the academic literature, the potential implications of your conclusions, and how to effectively communicate your conclusions to the audience in a clear and transparent way.

On the first of these three benefits, the opportunity to consider how your study's findings relate to the wider literature and knowledge base involves considering the points of agreement, disagreement, and extension that are offered by the conclusions in your paper. This might also involve thinking about the limitations of your research, and therefore suggesting potential ways to develop the research agenda in the future, whether pushing to new contexts, or collecting alternative data within the same context.

On the second of these benefits, Step 5 offers a chance to reflect on the implications of your findings. This goes beyond simply reflecting on your contribution to the academic literature, and instead looks at how the knowledge produced might be useful to society. Hopefully, this has not been left to Step 5, and your project had pre-planned impact strategy – however, after causal explanations have been developed and conclusions have been made, this is an opportunity to turn these into impact. For example, if the project identified a number of causal mechanisms that hinder and negatively impact graduates' lives, then what can be done to transform these, and how can those with the power to change them be made aware of your research?

On the third of these benefits, taking the time to consider how to communicate the results to the audience is one of the most intellectually challenging parts of research, and should be given the same thought and attention as the analysis stage. There is little point conducting excellent research that then gets hidden behind impenetrable and dense text. Instead, think about how to communicate with your audience, presenting your research in a way that helps them to judge the robustness of the analysis as well as understanding the key conclusions.

When it comes to communicating the results, Wiltshire and Ronkainen (2021) propose an excellent diagram to communicate the causal explanations in your analysis. This diagram combines causal mechanisms, with the events it tends to produce, and with the experiences of participants in your research.[6] Figure 1 below shows how this could be developed for one example in the Kenyan project. The diagram can both help to communicate the research findings, as well as open the conclusions of the research to scrutiny.

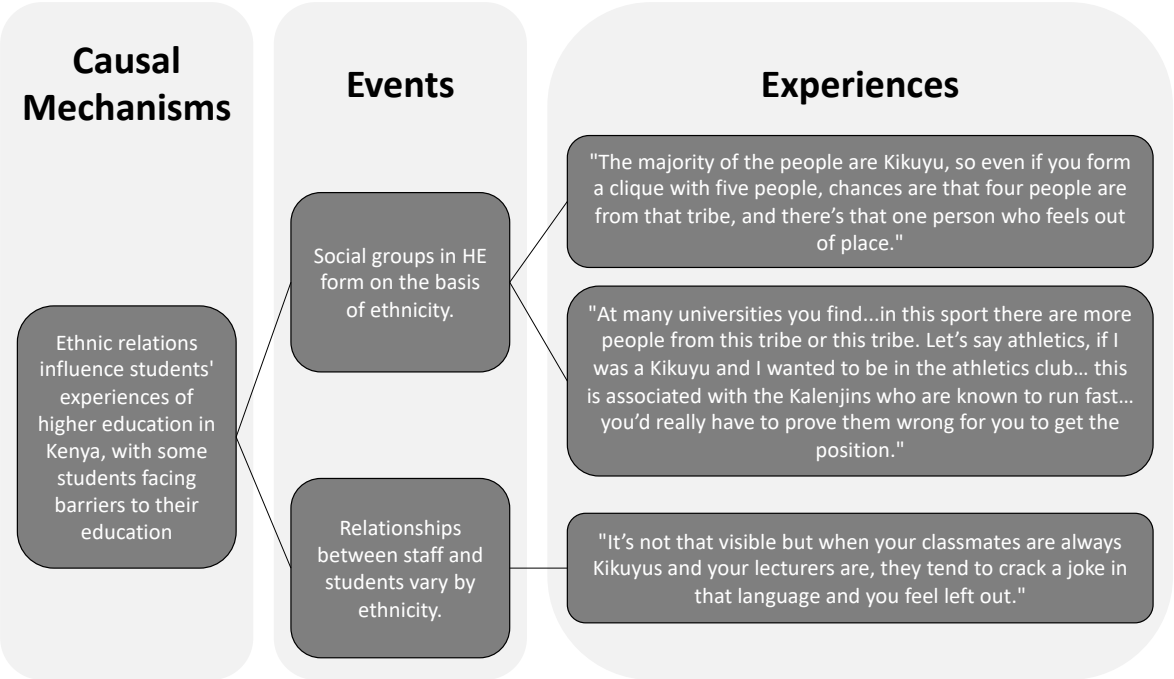

Figure 1: A causal explanation diagram, adapted from Wiltshire and Ronkainen (2021)

Comparing with other approaches to TA

Having outlined a critical realist approach to TA, this section compares the approach to three alternatives: the coding reliability approach, the reflexive approach, and Wiltshire and Ronkainen's (2021) model.

Compared to the coding reliability approach

The coding reliability approach used by scholars such as Boyatzis (1998) is an approach to TA that is influenced by positivism. It seeks to transform qualitative data into a quantitative form, which can then be analysed using statistics. This is done by conceptualizing 'themes' as one-word categories or 'domain summaries' (Braun et al. 2018), and then labelling the data with each of these themes. This process is analogous to putting your data into different buckets (Braun and Clarke 2019), where the buckets represent the themes – for example, one part of the data might go into the 'Employment' bucket, and the next sentence goes into the 'Academic Classroom' bucket. Rigour and validity are attempted to be ensured by two main processes to remove researcher bias: by specifying the themes before any analysis has been done, and by comparing the coding of multiple researchers. The output of this method tends to be quantified statements (Boyatzis 1998) roughly in the form: e.g. X% of participants raised Y as a reason why people did Z.

The model of TA in this paper differs from the coding reliability approach in a number of important ways – many of these differences stem from a rejection of the positivistic assumptions that underlie the approach. Firstly, the idea that we need to translate qualitative information into a quantitative form to produce useful knowledge is challenged. Critical realism makes a strong case that it is qualitative information that can be particularly useful when we are trying to understand the causal mechanisms that produce events,

whereas quantitative information tends to be more useful for identifying correlations and patterns in events (Danermark et al. 2001). Nuanced causal explanations are developed through detailed and in-depth analysis, often qualitative, rather than more abstract and general quantitative analysis. This rejection leads to a different conceptualization of 'themes'. When we acknowledge that qualitative research can produce causal knowledge, themes can become more than just short one-word domain summaries. It is because qualitative research is best able to produce causal explanations, that the approach to TA in this paper is justified in conceptualizing themes as causal explanations rather than domain summaries.

The models of TA also differ in their approaches to rigour and validity. The coding reliability approach aims to remove researcher bias to achieve valid conclusions, whereas critical realism believes this is a mistake. Critical realism shows us that knowledge production will always be fallible and subjective (Bhaskar 2008a), so there is no sense in which we can remove the researcher from the research process. Hence, the coding reliability approach of fixing themes before the analysis is rejected – it attempts to achieve the unachievable by removing all researcher bias. This approach does nothing more than fix researcher biases at one point in time, and prevents us from reflexive thinking about these as the research progresses. Instead, from a critical realist perspective, rigour and validity come from researcher reflexivity (Wiltshire and Ronkainen 2021). This is why the model of TA in this paper incorporates explicit steps to prompt researchers to reflect on the validity of their codes and themes. Also, the approach to TA in this paper does not require multiple researchers to code the data in order to be valid – it is perfectly possible to do TA in a rigorous way as a solo researcher or as part of a team. The key is whether the conclusions can be justified, which come from reflecting on questions of descriptive, interpretative, and theoretical validity (Maxwell 1992).

Compared to the reflexive approach

The second approach to TA considered in this paper is Braun and Clarke's (2006) six-step process, which has later been termed 'reflexive' TA (Braun and Clarke 2019). This approach progresses through the following steps: data familiarization; generation of codes; generating themes; reviewing these themes; defining and naming the themes; and producing a report. The coding process in Step 2 is relatively data-led, and can be used to identify both semantic (explicit, surface level meaning) and latent (implicit, assumptions under the surface) codes (Clarke and Braun 2018). This approach rejects the conceptualization of themes as one-word categories or 'domain summaries', and instead takes themes to be:

> creative and interpretive stories about the data, produced at the intersection of the researcher's theoretical assumptions, their analytic resources and skill, and the data themselves. (Braun and Clarke 2019, 594)

The reflexive approach to TA is influenced by underlying assumptions from philosophical constructivism. Braun and Clarke (2019) tend to describe their work as influenced by the 'qualitative paradigm', rather than using the term philosophical constructivism adopted in this paper.[7] They explain that this underlying philosophy stresses researcher subjectivity – we do not observe the world in a simple objective way, instead the researcher is always an active participant in the research. Braun and Clarke believe that the consequence of this subjectivity is that the knowledge we produce is 'interpretative stories' (2019, 594).

From the outset, it should be clear that there are a number of points of agreement between the reflexive TA and the approach outlined in this paper. Braun and Clarke's (2006) 'data familiarization' and 'producing a report' steps serve as the inspiration for Step 1 and 5 in this paper's model of TA. Similarly, the decision to advocate a more descriptive approach to initial coding draws much from Braun and Clarke's (2006) work. Further, both models share a commitment to the idea that qualitative research is valuable in its own right. In many ways, the approach to TA in this paper is an attempt to build upon Braun and Clarke's model (2019) and their critique of the coding reliability approach, but doing so in a way that brings back ontological realism. This has parallels to the way that critical realism could be said to build upon the philosophical constructivist critique of positivism, maintaining researcher subjectivity alongside ontological realism.

However, there are also a number of key differences between the approaches. Perhaps most importantly, the approaches to TA aim to do two different things. Braun and Clarke's (2019) reflexive method emphasizes the production of 'interpretative stories about the data' (594), which seems to stem from the irrealist tendencies in philosophical constructivism. In contrast, the critical realist model in this paper makes the case that the outcome of our qualitative research should be causal explanations. Philosophical constructivism is right that knowledge does not consist of universal quantitative laws, but this does not mean that all knowledge is simply the production of stories – we should, and we can, produce causal knowledge about the world, albeit in fallible ways. This is not to say that there are never times when it would be appropriate to produce stories as the output of our research. For example, if a research topic is at an early stage of development and people's experiences have been little detailed before, then it might be very appropriate to produce these stories – although this might be better characterized as 'fallible descriptions of experiences' rather than 'stories'. However, as was argued in Step 1, social scientific research should both communicate and represent people's experiences (exploratory research) and then move on to produce causal explanations that allow us to understand, and potentially to intervene in, these events (explanatory research).

In terms of the actual methodological steps, there are also several more subtle differences between the two models, many of which stem from different ontological assumptions. For example, the approach to TA in this paper does slightly more to emphasize theory-driven aspects of coding. While the reflexive approach to TA maintains a largely descriptive and data-led approach to coding throughout the method, the approach to TA in this paper pivots from a descriptive approach in Step 3.1 to a more theory-led approach when the codes are developed in Step 3.2. This is an attempt to hold a middle ground – a descriptive approach to coding allows our data to surprise us, but as we develop these codes it is helpful to use theory and more abstract concepts, helping to build on pre-existing work in the field.

Compared to Wiltshire and Ronkainen (2021)

The third approach to TA is Wiltshire and Ronkainen's (2021) model. To avoid confusion, this paper will refer to this third approach as Wiltshire and Ronkainen's model, even though it is also influenced by critical realism. From the outset, it is necessary to acknowledge the importance of this model, and to recognize the influence this has had on this paper. The two approaches agree that the coding reliability and reflexive approaches to TA adopt

problematic philosophical assumptions, which presents an opportunity to develop an approach to TA that is grounded in critical realism.

In Wiltshire and Ronkainen's (2021) model, there are three different kinds of themes: experiential, inferential, and dispositional. Experiential themes try to capture the subjective viewpoints of actors, inferential themes offer more abstract and theoretically informed summaries of these viewpoints and their actions, and dispositional themes capture the causes that underlie the events of interest. The authors emphasize how these themes are developed from a non-linear research process – rigour and validity do not come from simply following a list of steps.

There are a number of strengths in Wiltshire and Ronkainen's (2021) model of TA, many of which have been incorporated in the model presented in this paper. Firstly, Wiltshire and Ronkainen (2021) offer important critiques of the coding reliability and reflexive approaches to TA. They rightly critique the assumption that qualitative data cannot lead to causal conclusions, an assumption shared by both the coding reliability and the reflexive approach. For Wiltshire and Ronkainen (2021), critical realism gives them confidence that qualitative data can produce causal explanations of events – these are found in their third type of theme: dispositional themes. Another strength is in the attention and treatment of validity in Wiltshire and Ronkainen's (2021) work. They argue powerfully that we should be explicit about what it means to be reflexive and the types of questions we should ask, in order to have confidence that the conclusions we reach are valid. Also, the causal explanation diagram (see Figure 1) is explicitly modelled on a similar diagram in Wiltshire and Ronkainen's (2021, 17) paper.

Although there is a great deal of overlap between the two models, there are several differences. Perhaps the most important of these stems from the fact that the two models use slightly different critical realist concepts to develop their model of TA. Wiltshire and Ronkainen (2021) rely on the three domains of reality, whereas the model in this paper uses the concepts of experiences, events, and causal mechanisms. Although these two sets of concepts are related, there is a subtle difference that has important consequences. By applying the three domains of reality, Wiltshire and Ronkainen (2021) identify three different types of themes (experiential, inferential, and dispositional), which correspond to the three domains (empirical, actual, and real). In contrast, by applying the concepts of experiences, events, and causal mechanisms the model of TA in this paper divides things differently – experiences are located mainly in the data, events are located mainly in the codes, and causal mechanisms are located in the themes. This means that the approach to TA in this paper limits a theme to what Wiltshire and Ronkainen (2021) call a dispositional theme.

The more narrow focus of this paper has a number of benefits. Firstly, if we are seeking to encourage researchers to use our models of TA, there is an argument that the concepts of experiences, events, and causal mechanisms are easier to understand than the three domains of reality. While many researchers have some intuitive sense of what an experience, event, and causal mechanism is, the three domains of reality are much trickier concepts, which could hinder its accessibility. This case for dropping the three domains of

reality from critical realism, and only talk about experiences, events, and causal mechanisms has been made in more detail elsewhere (Fryer and Navarrete, 2022).

Secondly, by narrowing the definition of a theme to a causal explanation, this pushes researchers to produce causal explanations in their work. To use Wiltshire and Ronkainen's (2021) terms, this paper proposes that the aim of TA should be the production of dispositional themes. This can be seen as a strength, when we consider that we are working in a social science context that is influenced by the mistaken idea that qualitative research cannot produce causal explanations – a mistake held by both positivism and philosophical constructivism. By making themes synonymous with causal explanations, the approach to TA in this paper offers a strong rebuttal of this mistaken assumption and pushes researchers to produce causal explanations. There is a risk that Wiltshire and Ronkainen (2021) do not provide this same provocation to researchers because only one of their three types of themes involves causes – it is relatively easy for researchers to only consider experiential and inferential themes, ignoring any causal explanations in the dispositional themes. From a critical realist perspective, this failure to consider causes, although appropriate in some research contexts, would be a mistake in much of our research.

Thirdly, the concepts of experiences, events, and causal mechanisms help to show why TA does not follow a uniform linear pattern. There is a constant movement between data (experiences), codes (events), and themes (causal mechanisms) in the research process as we reflect on validity. Interpretative validity involves asking whether the more general concepts in the codes continue to accurately reflect the data, which is the same as asking whether the events we have identified reflect peoples' experiences. Similarly, theoretical validity involves asking whether the themes can account for the codes, which is the same as asking whether the causal mechanisms that we have outlined are adequate to explain the events.[8] In contrast, the movement between experiential, inferential, and dispositional themes in Wiltshire and Ronkainen's (2021) model is slightly less clear and intuitive.

There are a number of other smaller differences, such as the decision of whether to use a list to describe the approach to TA, or whether to include a consideration of research questions or not. However, the similarities between the two methods are much greater than the differences – both being determined to make space for a critical realist approach to TA. Without Wiltshire and Ronkainen's (2021) model this paper would have been weaker, and for that I am very grateful. I hope that the two models are read together, and perhaps even improved together in conversation.

Conclusion

This paper has outlined a critical realist approach to TA that focuses on producing causal explanations. This approach is developed in contrast to the aims of the coding reliability and the reflexive approach to TA. The model outlined in this paper restricts the aim of TA to the development of causal explanations of events, rather than quantitative statements or interpretative stories. This paper applies the critical realist concepts of experiences, events, and causal mechanisms to develop this approach to TA, contributing to the growing methodological literature that attempts to apply critical realist principles. While this model does not claim to be the only appropriate use of TA, as non-causal approaches may be useful

in more exploratory research, this paper does contend that this model of TA could be used in most research contexts.

The model of TA proposed in this paper involves a five-step process: (1) develop your research questions, (2) familiarize yourself with the data, (3) apply, develop and review codes (4) develop and review themes, and (5) generate conclusions and reports. This was summarized in Table 1. Throughout this method it is recommended that researchers move back and forward between the steps, rather than representing a linear step-by-step process.

The paper is written in explicit conversation with three types of TA, especially Wiltshire and Ronkainen's (2021) recent paper that outlines a thoughtful application of critical realist principles to TA. There are a number of ways in which this paper builds on Wiltshire and Ronkainen's (2021) model, including drawing on their theorizing on validity. However, there are subtle but important differences between the two models. The model in this paper applies slightly different critical realist theory, utilizing the concepts of experiences, events, and causal mechanisms rather than the three domains of reality. This aims to make the model more accessible for those researchers who are less familiar with critical realism Further, the restriction of a theme to a causal explanation is intended to emphasize that qualitative work can, and should, produce causal explanations.

Notes

1. This paper adopts the term philosophical constructivism to describe a philosophical position that holds (1) a largely irrealist ontological position, accepting only the reality of a limited subset of phenomena such as discourse, and (2) an epistemological position that holds that knowledge is theory-determined, leaving no room for distinguishing better and worse accounts of the world. Note that many social scientists who identify themselves as 'constructivist' would not meet this definition – under these terms, they would instead be better described as some form of critical realist as they do seek to understand causes in the world. The term philosophical constructivist helps to distinguish the philosophical position (ontological irrealism and extreme epistemological subjectivism) from the identities of individual researchers.
2. Some authors call these inductive and deductive approaches to coding, rather than data-led and theory-led. This paper has adopted the latter because the former terms have specific philosophical definitions, which do not perfectly correspond to the coding process.
3. The data are not an objective capture of agents' experiences. For example, if we are considering interview data, the things that the interviewee says are influenced by the interviewer, both in terms of the questions asked, the body language, and the perceived interests and social position (Kvale 2009). However, whilst remaining attentive to these dynamics, there is no reason that interview data could not provide information about peoples' thoughts and experiences.
4. This paper takes 'retroductive reasoning' as synonymous with inference to the best explanation. For a more detailed discussion of this area, see Ritz (2020).
5. Note that any causal mechanism has probably been mentioned in some other theory, but maybe not as applied to your research context.

6. This diagram follows a similar basic structure to that found in Wiltshire and Ronkainen (2021), but is adapted to emphasize the terms: causal mechanisms, events, and experiences.
7. The term 'qualitative paradigm' is not used because there is a risk this conflates methodology (i.e. qualitative research) and ontology.
8. Descriptive validity is not mentioned in this paragraph, as it does not connect data, codes, and themes. Descriptive validity can be thought of as asking whether the researcher has understood and described the data or experiences appropriately.

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

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References

Arksey, Hilary, and Lisa O'Malley. 2005. "Scoping Studies: Towards a Methodological Framework." International Journal of Social Research Methodology 8 (1): 19–32. doi:10.1080/ 1364557032000119616.

Bhaskar, Roy. 2008a. A Realist Theory of Science. 3rd ed. London: Verso.

Bhaskar, Roy. 2008b. Dialectic: The Pulse of Freedom. 1st ed. Abingdon: Routledge.

Bhaskar, Roy. 2009. Scientific Realism and Human Emancipation. 2nd ed. Abingdon: Routledge.

Bhaskar, Roy. 2015. The Possibility of Naturalism: A Philosophical Critique of the Contemporary Human Sciences. 4th ed. Abingdon: Routledge.

Boyatzis, Richard E. 1998. Transforming Qualitative Information: Thematic Analysis and Code Development. California: Sage.

Braun, Virginia, and Victoria Clarke. 2006. "Using Thematic Analysis in Psychology." Qualitative Research in Psychology 3 (2): 77–101. doi:10.1191/1478088706qp063oa.

Braun, Virginia, and Victoria Clarke. 2019. "Reflecting on Reflexive Thematic Analysis." Qualitative Research in Sport, Exercise and Health 11 (4): 589–597. doi:10.1080/2159676X.2019.1628806.

Braun, Virginia, and Victoria Clarke. 2021. "Conceptual and Design Thinking for Thematic Analysis." Qualitative Psychology, doi:10.1037/qup0000196.

Braun, Virginia, Victoria Clarke, Nikki Hayfield, and Gareth Terry. 2018. “Thematic Analysis.” In Handbook of Research Methods in Health and Social Sciences, edited by Pranee Liamputtong, 843–860. Singapore: Springer.

Briggs, Ryan C. 2014. “Aiding and Abetting: Project Aid and Ethnic Politics in Kenya.” World Development 64 (Supplement C): 194–205. doi:10.1016/j.worlddev.2014.05.027.

Brönnimann, Andreas. 2021. “How to Phrase Critical Realist Interview Questions in Applied Social Science Research.” Journal of Critical Realism, 1–24. doi:10.1080/14767430.2021.1966719.

Clarke, Victoria, and Virginia Braun. 2018. ‘Thematic Analysis: An Introduction”. University of West England, June. https://www.youtube.com/watch?v=5zFcC10vOVY.

Collier, Andrew. 1994. Critical Realism: An Introduction to Roy Bhaskar’s Philosophy. London: Verso.

Creswell, John W. 2009. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. 3rd ed. London: SAGE.

Danermark, Berth, Jan ch Karlsson, Liselotte Jakobsen, and Mats Ekstrom. 2001. Explaining Society: An Introduction to Critical Realism in the Social Sciences. 1st ed. London: Routledge.

Fletcher, Amber J. 2017. “Applying Critical Realism in Qualitative Research: Methodology Meets Method.” International Journal of Social Research Methodology 20 (2): 181–194. doi:10.1080/ 13645579.2016.1144401.

Fryer, Tom, and Cristián Navarrete. 2022. ‘Let’s stop talking about the three domains of reality’. Critical Realism Network. https://criticalrealismnetwork.org/2022/04/26/stop-talking-about-thethree-domains

Gorski, Philip S. 2013. ““What Is Critical Realism? And Why Should You Care?”.” Contemporary Sociology 42 (5): 658–670. doi:10.1177/0094306113499533.

Hastings, Catherine. 2021. “A Critical Realist Methodology in Empirical Research: Foundations, Process, and Payoffs.” Journal of Critical Realism, August, 1–16. doi:10.1080/14767430.2021. 1958440.

Hsieh, Hsiu-Fang, and Sarah E. Shannon. 2005. “Three Approaches to Qualitative Content Analysis.” Qualitative Health Research 15 (9): 1277–1288. doi:10.1177/1049732305276687.

Kanyinga, Karuti. 2016. “Devolution and the New Politics of Development in Kenya.” African Studies Review 59 (3): 155–167. doi:10.1017/asr.2016.85.

Kvale, Steinar. 2009. “Epistemological Issues of Interviewing.” In InterViews: Learning the Craft of Qualitative Research Interviewing, edited by Svend Brinkmann and Steinar Kvale, 2nd ed., 47– 60. Los Angeles: SAGE.

Maxwell, Joseph. 1992. “Understanding and Validity in Qualitative Research.” Harvard Educational Review 62 (3): 279–301. doi:10.17763/haer.62.3.8323320856251826.

Ritz, Bridget. 2020. “Comparing Abduction and Retroduction in Peircean Pragmatism and Critical Realism.” Journal of Critical Realism 19 (5): 456–465. doi:10.1080/14767430.2020.1831817.

Wiltshire, Gareth, and Noora Ronkainen. 2021. “A Realist Approach to Thematic Analysis: Making Sense of Qualitative Data Through Experiential, Inferential and Dispositional Themes.” Journal of Critical Realism, March, 1–22. doi:10.1080/14767430.2021.1894909.