Experiences of Educational Researchers in the Use of the Case Study Design During the Covid-19 Pandemic: Lessons From a South African Rural Setting

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Abstract
This article explores the usefulness of the case study design in the creation of educational knowledge during uncertain times such as wars, disease outbreaks, famine, and pandemics, including Covid-19 pandemic. This is done at a time when others still doubt its contribution to the creation of knowledge. They criticize it for among other things, its lack of robustness and, its dependency on single case occurrences. In the current Covid-19 pandemic circumstances, further advantages of its application may be highlighted. Thus, the question is: to what extent does a case study design contribute toward knowledge creation during uncertain times? This article reflects on the experiences of educational researchers in using the case study design and its contribution to the creation of knowledge during the Covid-19 pandemic in a rural South African setting. Data was generated through semi-structured interviews with four researchers who were purposively selected to participate in the study and was analyzed by developing categories and themes. Despite the constraints imposed by the pandemic, such as the inaccessibility of participants during data creation, the case study design proved to be a suitable alternative approach. The article argues that the use of the case study design is appropriate during uncertain times because of its flexibility and plausibleness. This includes, the understanding of the dynamic nature of the Covid-19 pandemic, and its management. For example, the case study design enables researchers to highlight the unique nature of different contexts created by the Covid-19 pandemic. It might also assist researchers in assessing and constructing additional data while observing social distancing. The implication of the study is that researchers need to consider the use of the case design in dealing with emergent issues. It may also help policy makers in the understanding and management of future public health advocacy campaigns regarding Covid-19 pandemic.

Keywords
case study, methods in qualitative inquiry, critical theory, grounded theory, interpretive description

Introduction
Traditionally, the use of case studies relies on, amongst other techniques, the use of face-to-face interviews or interactions with the research participants in order to gain an insider-perspective (Buffel, 2019; Islam et al., 2021). With the advent of Covid-19, researchers, especially those in the social sciences and humanities, were caught off-guard because generating data through face-to-face interviews or interaction with the participants suddenly included the “new normal” which emphasises social distancing as part of the steps to avoid contracting the virus (Kuckertz et al., 2020). Many research projects that depended on immersion in the social milieu had to be flexible and innovative in accessing participants to generate data (Dane, 1990; Liebenberg, 2020). A knowledge gap seems to be emerging in the literature, when conducting social research using a case study design during pandemics, such as the current Covid-19 one (Lourenco & Tasimi, 2020). This knowledge gap becomes even wider when it comes to poorly resourced communities like those found in the Limpopo Province of South Africa. In the absence

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of any guidance when needing an alternative method of data collection, some senior students and researchers, from anecdotal evidence, decided to change their research designs to desktop research, document reviews, and systematic reviews. Possible solutions to this dilemma need to be explored. Hence, it is this knowledge gap that our study sought to fill. The purpose of this article is therefore, to determine the extent to which the case study design can contribute toward knowledge creation in uncertain times such as in the Covid-19 pandemic. As Dodds and Hess (2020) indicate, we saw this as an opportunity to highlight the challenges encountered and the possible strategies that could be applied to deal with such challenges; strategies that may be helpful in understanding and managing the research processes during the Covid-19 pandemic. The use of the case study design was deemed relevant due to its plausibility in providing nuanced and contextual data. Subsequently, it is appropriate in helping policymakers to adopt a holistic approach in developing and managing policies related to the use of the case study design during the Covid-19 pandemic. Furthermore, it may also contribute toward helping research institutions to develop research protocols that are relevant and adaptable for researchers to understand and navigate in their research projects during the Covid-19 pandemic. Against this backdrop, it is important to explain the case study design and understand its different perspectives and approaches, in its use during the Covid-19 pandemic. This was done to select an appropriate approach for the study. To this end, the following section seeks to explain the case study design and its different perspectives.

Case Study Research Design

Different explanations of the case study design emanate from the pertinent literature. (Baxter & Jack, 2008; Cheek et al., 2018; Kegler et al., 2019; Merriam, 1998; Stake, 1995; Yazan, 2015; Yin, 2009). Of all these explanations, those with the emphasis on the holistic approach and context-sensitivity were of importance to us in understanding and managing the Covid-19 pandemic. Further, these explanations, point toward different types of case studies. Baxter and Jack (2008) provide a useful classification of seven types. These are: an explanatory case study, which focuses on explaining the relationships between variables; the exploratory study, where the emphasis is to explore a phenomenon, without giving clear cut answers; the descriptive case study, which is used when the researcher wants to describe the characteristics of a phenomenon. In addition to the former, there is the single case study, which enables researchers to do research on an individual, group, an event or an organization; the multiple case study, which enables researchers to explore differences within and between cases; the intrinsic case study, used by researchers when they want to understand the case better (peculiarity or ordinariness) and finally, the instrumental case study, which is used to accomplish something rather than understanding a particular situation.

In this article, a single instrumental case study was conducted focusing on the experiences of educational researchers in using the case study approach during the Covid-19 pandemic. This case study, as defined by Stake (1995) was used as an instrument to understand and manage knowledge creation during the Covid-19 pandemic. This includes: the understanding of the dynamic nature of Covid-19 pandemic contexts, and its management. For example, the case study design might enable researchers to highlight the unique nature of different contexts posed by the Covid-19 pandemic. It may also assist researchers in constructing a data set while observing Covid-19 regulations such as maintaining social distancing.

However, despite its advantages as outlined, we were conscious of the criticisms that have been labeled against the use of the case study design (Baxter & Jack, 2008). The criticisms have led to divisions amongst scholars where on the one hand some criticize its use (Abercrombie et al., 1994; Campbell & Stanley, 1966; Flyvbjerg, 2006; Idowu, 2016; Ishak et al., 2014; Larrinaga, 2017; Meniff, 1988; Rule & John, 2015) while on the other hand, others see the case study as a suitable design for use in qualitative research (Baxter & Jack, 2008; Bell, 1993; Brix, 2017; Duff, 2012; Hakim, 1987; Hossieni et al., 2012; Mason & Bramble, 1978; Gaye & Smith, 2016; Vissak, 2010; Willis, 2014; Yin, 1994; Zainal, 2007; Zucker, 2009).

Regarding this debate, based on the findings of this study, the article argues that the use of the case study design is appropriate during uncertain times because of its flexibility and plausibility, and its contribution to the creation of knowledge during the Covid-19 pandemic. One of its features, for example, is its ability to enable researchers to understand the unique nature in dealing with different contexts posed by Covid-19 pandemic and its management.

The History of the Use of Case Studies During Pandemics

The history of the use of case studies during pandemics does not appear to be well documented. The literature, instead, highlights the history of the use of case studies in general instead of specific case studies during pandemics in particular (Schurink, 2003). There seems to be no information available on its use in volatile circumstances such as social upheaval and pandemics. For example, there are studies on researching sensitive topics (Lee, 1993), conducting research in dangerous places (Felbab-Brown, 2014 and Sluka, 2020; Goldstein, 2014; Williams et al., 1992), performing research in unfamiliar territories, and doing research in repressive regimes (Earl, 2003), but no study has been done on the experiences of researchers conducting research using the case design during a pandemic such as Covid-19 where access to participants is restricted by lockdown regulations. The dearth of literature on the use of case studies in South Africa, and elsewhere, during uncertain times and how to collect data during pandemics such as the Covid-19 pandemic, need urgent attention. The information may provide guidance to specifically education researchers, who need to
immmers themselves in the social milieu of the participants. It may also help to provide guidelines that could be used to generate data during lockdown. It is within this context that this study was conducted to explore the experiences of researchers during the Covid-19 pandemic.

In addition, it is noteworthy to indicate that social scientists have been renowned for contributing to a better understanding of and providing responses to disease outbreaks (Vindrola-Padros et al., 2020). However, the use of case studies in particular has not been given the attention it deserves. This is despite its relevance and its potential to contribute to the understanding and management of disease outbreaks such as the Covid-19 pandemic. Its contribution to the understanding and management of disease outbreaks, is evidenced by the different incidences where it was used. The study by Black (2006) on the Bubonic plague, uses the case study design to highlight the mutation and infectious nature of the disease outbreaks. It helped to understand the disease and its management. The management involved early detection and isolation of the patients. Similarly, Yang (2018) on the Yersinia pestis outbreak, indicates the need for the recognition of the disease and that it should be managed by isolation. Chowdhury et al. (2020) focus on understanding the impact of Covid-19 on the food industry such as job losses. Additionally, they propose management strategies, one of which is migration to online operations. Finally, pandemics such as the Covid-19 outbreaks, do not only need epidemiological data to understand, but they also need an understanding of social practices because by its very nature, it is a social phenomenon that disturbs the social order (Teti et al., 2020). Consequently, Qian and Jiang (2020) emphasize the importance of social distancing to manage its spread to those who are not yet infected.

Theoretical Framework

A theoretical framework is one of the most important aspects when conducting any research, including case study research. It helps to guide the researcher in the formulation of the problem, the purpose, the significance of the study and also the research questions, methodology and data analysis (Osanloo & Grant, 2016). As already indicated, case studies may be approached from different epistemological positions. It can be approached from the positivist position (Yin, 2009), from Social Critical Theory (SCT; Crowe et al., 2011), the Interpretative approach (Stake, 1995) and from the Constructivist approach (Merriam, 1998). Due to the nature of this study, it focused on the experiences of educational researchers in using a case study approach during the Covid-19 pandemic for knowledge creation. A Social Constructivist approach was adopted as the lens through which to observe the study. The participants were taken as contributors to the creation of knowledge even though it was done during the pandemic where social distancing made physical contact with the participants difficult because they could not gain access to places where participants were working or staying. As Soudien (2020) indicates, the pandemic has reconstituted our routines and disrupted how we usually do things.

Case Study Research Question

As Baxter and Jack (2008) indicate, once the case of the study has been determined, what follows should be the research question of the study. One of the issues that should be considered in formulating the research question is that it should not be too broad. For the researcher to be able to avoid asking broad questions, it is important to consider issues such as time, place, activity, and context. In this study, the research question is outlined as follows:

What are the experiences of researchers in using a case study design during the Covid-19 pandemic?

The question was answered by generating the following sub-research questions:

- How do researchers use the case study design during the Covid-19 pandemic?
- To what extent does the use of the case study design during pandemics such as the Covid-19 pandemic enhance flexibility in terms of planning?
- Are there challenges in the use of a case study design during the Covid-19 pandemic?
- How can researchers deal with the challenges?
- What lessons can be learned about the use of the case study design during the Covid-19 pandemic?

Sampling

A purposive sampling strategy was used to select the four educational researchers (two males and two females). They were part of an independent study to investigate the perceptions of teachers on the use of teacher support materials in the implementation of inclusive education in schools in Limpopo Province. We were prompted by the thought that the researchers would give us valuable insights since they had been involved with data generation in several projects, including in their own post-graduate studies. In summary, the selection of four participants was informed by the following criteria: they were the only researchers recruited for the independent study, and they were also trained in the construction of data sets using the case study design.

Data Set Construction

We used semi-structured individual interviews as the main source of data construction. We found that the interviews were appropriate in the creation of a space for the participants to have a voice. The technique, as indicated by Adams (2015) and Gillham (2000), helped us to explore issues that could have remained unanswered. We were able to get to the depth of meaning and insight in issues related to the application of a case study design. Furthermore, it helped us, as Kvale (2008) explains, to use probes and to pick up on non-verbal cues that contributed to achieving an in-depth understanding of the
phenomenon “social distancing.” Since the participants were familiar with us, they felt free to relate issues that they otherwise would not have been able to relate to persons they did not know. Rubin and Babbie (2010) explain that when the participants are familiar with the researcher, they are able to talk freely. The participants in this study could thus talk freely about their challenges and frustrations in conducting qualitative case study research during times of social disruptions. We preferred to use semi-structured interviews because as Edwards and Holland (2013) assert, they provide structure for comparison between different interviewees in the study, through using the same questions.

Ethical Considerations

Rashid et al. (2019) point out that ethical considerations are critical when researchers use a case study research approach. This is principally due to the invasive nature of the approach in the interaction between the researcher and the participants. Consequently, in this study, to protect the participants’ rights, safety, dignity and well-being, ethical issues were considered and implemented. The participants were informed about the purpose of the study and that participation was voluntary. The recording of the interviews was done after permission was sought from the participants and the identities of the participants were kept anonymous. Instead, we used pseudo names such as participant 1, participant 2, participant 3 and participant 4. Concession was also sought from the participants as a way of protecting them from any harm that may result from their participation in the study.

Trustworthiness of the Study

The four researchers were purposively selected to participate in the study based on the following three selection criteria: (i) they were part of the team Teaching for All materials that evaluated the upscaling of inclusive education through teaching materials, and (ii) they were registered as postgraduate students (masters or doctoral) in the School of Education, (iii) having been involved in qualitative data collection before.

Dependability

We ensured that the process of data construction was dependable by taking the following steps. All the interviews with the researchers were conducted telephonically because of the Covid-19 restrictions. The interviews lasted approximately 45 min for each of them. We conducted the interviews ourselves and made detailed notes during each session.

Transferability

The study was conducted in the context of the Teaching for All project. The project sought to pilot the teaching of inclusive learning materials to promote inclusive education in South African primary schools. The research aimed at empowering researchers who were registered for their postgraduate studies.

We envisaged that lessons learned from this case study could be transferred to the researchers and indeed to ourselves.

Confirmability

We ensured that we had room for self-reflexivity to allow them to continually look at their strengths and limitations in the case study approach. We did that by engaging the four researchers through their lived experiences. The engagement with the researchers made a significant contribution to our better understanding of the case study design.

Data Analysis

De Casterlé et al. (2012, p. 360) argue that qualitative data analysis can be a complex, laborious and time-consuming process. Indeed, the process can be frustrating, particularly to novice researchers in the absence of clear-cut guidelines on how to analyze qualitative data using a particular method. Therefore, this section discusses how we systematically navigated our way through this process by using both deductive and inductive approaches to make sense of the data. Firstly, we followed Miles and Huberman’s (1994, p. 11) recommendations when they explain that the process of data analysis should follow three concurrent processes, namely, data reduction, data display, and conclusion drawing/verification. We thus, read the data transcripts through several times until we had distilled what we found to be manageable data or the essence of their stories. Then we coded the data on a data matrix. According to Miles and Huberman (1994, p. 11), codes are tags or labels which are assigned to whole documents or segments of documents (i.e., paragraphs, sentences, or words) to help catalog key concepts while preserving the context in which these concepts occur. The coding process included development, finalization, and application of the code structure. Using codes, we examined what was articulated, that is, the content, and how it was said, that is, the language usage. The process of coding came up with the following common threads in coding: a) a flexible plan for data construction, b) the accessibility of participants, c) planning the process, d) unwillingness to participate, and e) network challenges.

From the process of coding we kept moving back and forth between data analysis and the literature to make meaning out of emerging concepts as Azungah (2018) advises and were able to merge the empirical evidence from the data with theoretical explanations (Miles et al., 2014). The literature consulted included studies both from the past pandemics (Black, 2006; Bradley et al., 2007; Yang, 2018) and from current studies conducted within the Covid-19 context (Chowdhury et al., 2020; Qian & Jiang, 2020; Teti et al., 2020). This oscillation between the past literature on pandemics, and the current literature produced during the Covid-19 pandemic helped us to develop themes in order to answer the research question. Thus, the past literature helped us to leverage our data analysis on the past principles and theories. On the other hand, the current literature helped us to remain relevant to the current events.
We were also able to distil the essences, meanings, and norms, order, patterns, and rules which led us to the themes that emerged.

**Findings and Discussion**

The study found that researchers encountered challenges in constructing data during the Covid-19 restrictions. However, these challenges were mitigated by the flexible and plausible nature of the case design, and its ability to enable the researchers to be innovative. This observation becomes clearer when examining the individual themes that emerged during data analysis, namely: a) challenges encountered b) strategies in dealing with the challenges and the emerged plan.

**Challenges and the Strategies to Overcome Them**

Several challenges were encountered in the use of a case study design for conducting research during the Covid-19 pandemic. The challenges included the inaccessibility of the participants, the participants’ unwillingness to participate, and the mobile network’s poor connectivity. Participant 3 summarizes the challenges encountered by stating:

They are a lot you know; you know firstly some of the participants are unwilling to participate maybe through telephone because you if you are not in contact with the person it is not easy. Maybe eh . . . some of my participants say madam I am not willing to participate you know there is no way maybe you can say madam participate. And another challenge is that others just agree but later on when you try to call them they are nowhere to be found . . . you know some they just put their phones off or their phones were just ringing without being answered.

Meaningful engagement with research participants is a challenging, but promising feature due to its potential for obtaining an insider perspective of the phenomenon under study. In our case we wanted the researchers to solicit data from the teachers who had used the T4A teaching materials. We wanted the teachers to share their experiences of the materials. We deemed that the case study design was appropriate to hear experiences (Walker et al., 2014). But, according to the excerpt above, it is a huge challenge to overcome when using the case study approach.

However, despite this challenge, our data shows that the ubiquitous nature of the case design can overcome this hurdle if applied skilfully. For example, Participant 2 when asked what strategies he used to overcome this challenge he indicated that he had to be diplomatic and tactful, for instance, such as not taking too much time, cracking a joke to prevent the discussion from becoming boring (Goncalves et al., 2015).

Besides the challenge of inaccessibility, we found that constructing data telephonically was another hurdle. The researchers struggled with issues of connectivity, which ranged from no connectivity to poor or unreliable networks. When we asked Participant 1 how he overcame this challenge, he indicated that he used different networks; for example, he had different starter packs, for Vodacom, MTN and Telkom, as backups. He argued that the strategy worked for him. It is true, as Engel and Green (2011) suggest, the use of cell phones in collecting data need not be perilous. Indeed, researchers need only to overcome challenges associated with using these devices. With careful planning, these challenges can be dealt with. To mitigate the real and perceived threats of technology use in schools the following areas need to be addressed: awareness and knowledge, policies, student education and understanding, and parent involvement.

This finding resonates with the observation by Potter et al. (2010) who conducted a study on the experiences with and attitudes toward technology held by the participants using a case study design. They experienced difficulties with regard to access to the setting, and the unavailability of some of the participants who needed to be interviewed. Rashid et al. (2019) advise researchers who intend to use a case study design that they should prepare themselves thoroughly to deal with this type of challenge.

**Flexible Plan**

Research is defined by many (Blaxter, 2010) as a systematic investigation into and a study of materials and sources in order to establish facts and reach new conclusions. In a quantitative study such a plan is often predestined with every step clearly laid out. This understanding of research as a fixed plan has certain weaknesses. One such a weakness is that the researcher is bound to the plan and cannot change it when circumstances dictate otherwise. For example, if the data generation plan is a quantitative design, and in instances where it is no longer possible to use such a design (such as restricted access to participants), the project may need to be discontinued. But with a case study design the researcher may change the plan to adapt to the new need. In our study we found this to be true. When the participants were asked how Covid-19 affected their plan to collect data, they indicated that they had to change aspects of their approach. Participant 1 had this to say:

you know I was affected because it was not possible to collect data through one on one interviews due to Covid-19 regulations and lockdown restrictions levels, so I ended up collecting data through a telephone instead of using our common instrument of collecting data such as day to day observations and other instruments.

Another (Participant 2) said:

so it was kind of hard to get hold of the people or the participants because now we couldn’t meet up with them personally so we only had the option of either doing it telephonically or via virtual, then we opted for telephonic interviews.

This finding is consistent with other studies elsewhere. Rowley (2002) found that compared with an experiment, the case study researcher has much more control over the variables
than if an experiment were used to investigate a situation. Houghton et al. (2013) point out the flexible nature of a case study design. Low and Ng (2018) confirm this when they indicate that researching economic performance using a case study based design is ideal because of its flexible strategies to improve economic performance in the face of uncertainties. However, Houghton et al. (2013) caution researchers in the use of such flexible strategies in terms of rigor. They indicate that when using the case study design, it is essential to ensure prolonged engagement and persistent observation, triangulation, peer debriefing, member checking, an audit trail, reflexivity, and thick descriptions of the data.

**Implications of the Results**

The overall findings reflect on the dynamic nature of the case study research design. The findings confirm our contention that the case study design remains a definitive alternative design that is appropriate to use during social crises like the Covid-19 pandemic. The findings have the following implications. 1). Researchers might consider the use of the case study design as an alternative during unforeseen social circumstances like the one posed by Covid-19 because it enables them to highlight the unique nature of different contexts. A one-size fits all approach is inappropriate in dealing with pandemics because they are a social phenomena. 2). It can also assist them to construct data while observing Covid-19 regulations such as maintaining social distancing. 3). The case study design may also help policy makers in the understanding and management of the Covid-19 pandemic. For example, it may provide valuable rich information which could enhance their management strategies. 4). It may also provide insider perspective of issues that might help policy makers to be better informed in the management and understanding of future public health advocacy campaigns regarding Covid-19.

**Limitations of the Study**

It is important to note that the study might have certain limitations. For example, the self-reporting by the researchers might have been compromised. The caution is in line with Fadness et al. (2009) assertion when they indicate that reality can be distorted in many ways when seen through self-reporting.

**Conclusion**

In this article, we have argued that the case study design is appropriate during uncertain times because of its flexibility and plausibility, and its potential to contribute to the understanding and management of Covid-19. We have used the experiences of four researchers to highlight its relevance and importance during pandemics such as Covid-19. The findings of the study, may contribute to the importance of social science research in the understanding and management of pandemics. Specifically, their value may be in pointing out that pandemics are social problems that cannot rely on epidemiological data only for solutions, but also on qualitative data using the case study design.

Avenues for future research may include the use of the case study design to: 1). Explore the rationale for the currently proposed Covid-19 management strategies, for example, what does social distancing mean in the context of cultural cohesion. 2). Assess the effectiveness of government communication strategies on issues related to Covid-19 pandemic in the context of illiterate communities where communities do not use English as a medium of communication. 3). Determine the extent to which cultural issues (such as the use of Indigenous Knowledge Systems) are taken into consideration in dealing with issues related to the Covid-19 pandemic. And, finally, 4), explore the psychological experiences of researchers during the Covid-19 pandemic.

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