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Sharon Geeling
mlnsha001@myuct.ac.za

Irwin Brown
Irwin.Brown@uct.ac.za

{eter Weimann
weimann@beuth-hochschule.de

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Sharon Geeling
University of Cape Town
mlnsha001@myuct.ac.za

Irwin Brown
University of Cape Town
irwin.brown@uct.ac.za

Peter Weimann
Beuth University of Applied Sciences, Berlin
weimann@beuth-hochschule

ABSTRACT

Despite a long interest in Information Systems (IS) development, the need to improve the success rates of IS projects remains relevant. Continuing disappointment with project performance has led to suggestions that a broadening of the project management (PM) conceptual base could bring new insights to this enduring problem. Consequently, this study acknowledges the sociological nature of IS projects and will explore the dynamic interaction of culture and leadership to expose better explanations for project performance. This interpretive study will use the Cultural Dynamics Model (CDM) as a theoretical lens, and will privilege a view of '*data as text*' over '*data as fact*' by accentuating reflexivity in the research. Four IS projects in two organizations will serve as cases in a multiple case study approach. This paper argues for a dynamic, reflexive study of culture and leadership and positions the CDM as an appropriate theoretical framework to support this approach.

Keywords

Culture, leadership, project performance, reflexivity.

INTRODUCTION

IS development has held the interest of researchers since the mid-1970s and continues to be a key area of research interest today (Hirschheim and Klein, 2012). Although many studies have focused on improvements to the System Development Life Cycle (Hirschheim and Klein, 2012), IS projects continue to suffer high failure rates (El Emam and Koru, 2008; Hastie and Wojewoda, 2015; The Standish Group, 2013). While debates on IS project performance range from skepticism regarding the extent of the problem (Glass, 2000) to multiple views on how project success should be defined and could be improved (Cooke-Davis, 2002; Fortune and White, 2006; Rahschulte and Milhauser, 2010), when assessed by time, cost and quality measures only 29% of IS projects succeed, 19% fail outright and 52% fail to meet at least one of these success criteria (Hastie and Wojewoda, 2015). Furthermore, project success rates across all industry sectors have recently fallen below 2012 levels (Project Management Institute, 2016). Further efforts to shed light on the reasons behind poor project performance are clearly still relevant.

Within the PM domain the poor state of project success rates is partly attributed to a lack of relevance of PM research to PM practice (Ingason and Shepherd, 2014; Winter, Smith, Morris and Cicmil, 2006). Consequently, interest has been shown in broadening the conceptual base of the PM field (Hanisch and Wald, 2011; Ingason and Shepherd, 2014). In particular, researchers are calling for PM research to reflect the sociological nature of projects, evidenced in the importance of concepts in PM practice like interpersonal skills, communication, leadership and teamwork, and the context sensitivity, complexity and uncertainty that characterizes project work (Hanisch and Wald, 2011; Ingason and Shepherd, 2014; Winter *et. al.*, 2006). A rich source of alternative approaches that hold promise of providing new insights into IS project performance is in the field of organizational studies. For instance, a concept like organizational culture can exert greater influence over organizational members than formal control structures and policies (O'Reilly, Chatman and Caldwell, 1991). Furthermore, not only is the organization a core component of IS research (Lee, 2010), but IS projects exist within an organizational context (Project Management Institute, 2013).

Culture in IS Research

The research attention given to culture is testament to its pervasiveness as a perceived issue in IS initiatives (Kappos and Rivard, 2008). However, the common approach adopted by researchers to IS and culture studies has left some areas unexplored. For instance, the conceptualization of culture as a set of shared values (Hofstede, 1980) has become dominant in IS research (Leidner and Kayworth, 2006). This dominance is revealed in a review of the IS and culture literature, where 65% of empirical studies at a national level used Hofstedes' national culture values (Leidner and Kayworth, 2006). At the organizational level, the Competing Values model (Quinn and McGrath, 1985) is another example of a values based conceptualization popular among IS researchers (Leidner and Kayworth, 2006). Furthermore, IS researchers tend to attribute cultural values to subjects in empirical studies on the basis of national, organizational or workgroup affiliations, rather than explicitly measuring the cultural values of each subject (Gallivan and Srite, 2005). As much as 85% of empirical IS research has adopted this approach, fostering a view of culture as consistently understood, espoused and acted on by all members (Leidner and Kayworth, 2006). The result is an impoverished understanding of cultural differences that may exist, both within national, organizational and workgroup levels, and between these levels (Gallivan and Srite, 2005). In particular, cultural incompatibility has been neglected as a potential source of problems for IS project teams (Leidner and Kayworth, 2006), despite the likelihood of cultural variation among project team members. Cultural differences can ensue from the variety of specialist skills that characterize IS project teams (Project Management Institute, 2013) and the effects of globalization (Shore, 2008). It is further argued that national, organizational, workgroup and individual levels of culture do not manifest in discrete, static layers (Signorini, Wiesemes and Murphy, 2009), but rather overlap in dynamic ways creating complex cultural *milieus* (Ravishankar, 2015; Suri and Abbott, 2013). This dynamic view of culture has been neglected in IS research (Gallivan and Srite, 2005; Leidner and Kayworth, 2006).

Culture, Leadership and Performance

The culture of a group and the actions of its leaders develops over time (Schein, 2010). Group culture can shape leadership style and leadership actions (Giritli, Öney-Yazici, Topçu-Oraz and Acar, 2013; Nam Nguyen and Mohamed, 2011), while leadership style and actions can adjust group values and beliefs (Ke and Wei, 2008; Klein, Wallis and Cooke, 2013). From a cultural perspective, leadership is conceptualized as the symbolic actions of leaders that affect the beliefs and understanding of their followers (Alvesson, 2013). The effect of leadership actions is determined by the meaning that followers attribute to leadership activity. Leadership is thus a cultural act, occurring in a cultural context, and interpreted through culturally guided cues that exist in social processes (Alvesson, 2013). The interplay of culture and leadership has contributed to the popular assumption of a relationship between culture and performance (Ogbonna and Harris, 2000). Studies of IS development teams have found culture implicated in project performance. For instance, differences in national cultural values can impact the creation and maintenance of productive teams (Martinsons, Davison and Martinsons, 2009), while cultural differences in work practices among members of multicultural teams can cause cost overruns and client dissatisfaction (Rai, Maruping and Venkatesh, 2009). In the project management context, performance is conventionally assessed in terms of time, cost and quality measures (Rahschulte and Milhauser, 2010). These assessments are subject to individual and group judgements that are culturally influenced (Alvesson, 2013). In this sense, performance assessments themselves can be considered a cultural manifestation.

This paper seeks to position an approach to the study of culture in IS projects that accommodates its dynamic and complex nature. The research methodology thus recognizes the formation and reformation of the cultural landscape, and for reflexivity on the part of researcher and research subjects. Both current culture and its history are considered to be the context for individuals and groups as they make sense of their situations and take appropriate action. It is anticipated that our approach will facilitate the emergence of new insights, exposing better explanations for poor project performance. Our study therefore addresses the following primary research question: *What is the interplay between culture, leadership and performance in Information Systems projects?* In the next section, we outline the theoretical framework and the key concepts in our research. Next, we explain how we plan to collect and analyze the data. Finally, we discuss the intended results and expected contributions.

THEORETICAL FRAMEWORK

The Cultural Dynamics Model (CDM) explicitly addresses the multi-layered, dynamic and complex nature of culture. The model draws from the work of Schein (1985) and incorporates a symbolic-interpretive perspective of organizational culture (Hatch, 1993). Assumptions, values and artefacts, the focal components of Schein's (1985) model, are extended in the CDM to include symbols as a means of interpreting complex behavior (see Figure 1), allowing the study of culture from both a functional and a symbolic perspective (Hatch, 1993). Schein's model is

further extended through the introduction of processes that encapsulate the dynamic nature of culture (Hatch, 1993). The four key processes in the CDM, manifestation, realization, symbolization and interpretation, each have two components; one responsible for the enactment of culture, and the other for reaffirming existing culture or realigning culture to accommodate new elements (Hatch, 1993). Importantly, these processes allow us to examine the interplay between culture and project activity.
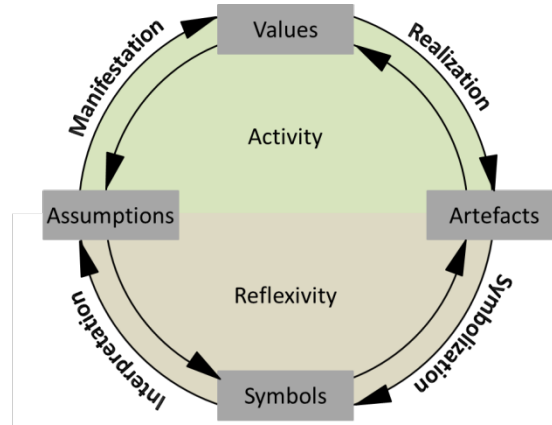

Figure 1: The Cultural Dynamics Model (Adapted from Hatch, 1993)

The CDM is best conceptualized as two wheels moving in opposite directions, rather than as four separate processes. The two wheels are interconnected; the forward wheel constructs culture while, simultaneously, the backward wheel provides the historical context that allows members to make sense of their situations (Hatch, 1993). By catering in this way for the activity and the reflexivity inherent in culture, the CDM provides a means to examine how project members interpret project interactions and outcomes and how their search for meaning influences their underlying assumptions about the organization and the project, and guides their subsequent actions.

The CDM framework allows particular instances of cultural manifestations in the context of IS projects to be examined. For instance, observed activity and actions at project team meetings (artefacts) can reveal organizational or project values. Minutes of these meetings could subsequently reveal how these values are reinforced or adjusted. The project portfolio can reveal underlying organizational assumptions, manifested as organizational values, while features in the project team environment might reveal supplemental meaning in some artefacts (symbols). Further particularization of the CDM to the key concepts in this study is shown in Figure 2. We contend that the described features of the CDM provide a good theoretical framework to serve as a sensitizing lens in our study.
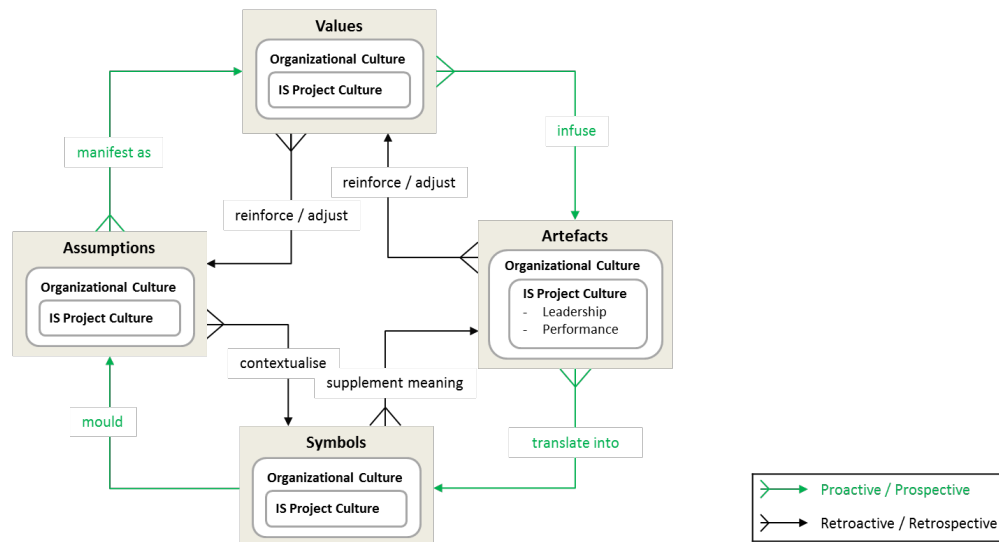

Figure 2. Particularization of the CDM to the Research Study (Adapted from Hatch, 1993)

The definitions of the key concepts in this study are described in *Table 1*.

Concept	Definition
Organizational culture	Organizational culture is conceptualized in this study as the assumptions, values, artefacts and symbols that manifest in the organization (Hatch, 1993; Schein, 2010). We include the views of organizational managers and non-managerial members (Alvesson and Berg, 1992). Furthermore, we adopt a view of organizational culture as heterogeneous, dynamic and emergent (Ravishankar, 2015; Suri and Abbott, 2013).
IS project culture	We argue that the high levels of uncertainty that characterize projects (Howell, Windahl and Seidel, 2010), requiring novel approaches from leaders and followers (Tyssen, Wald and Spieth, 2013), can predispose project teams to develop a project culture. The IS project culture is conceptualized in this study as the assumptions, values, artefacts and symbols adopted by the project team. We consider the IS project culture to be heterogeneous, dynamic and emergent (Ravishankar, 2015; Suri and Abbott, 2013).
Assumptions	Assumptions are conceptualized as the taken-for-granted beliefs about the nature of reality, human activity and human relationships (Schein, 1985; Hatch, 1993). Beliefs are priorities that have been deeply internalized (Alvesson and Berg, 1992), creating general expectations that influence perceptions, thoughts, and feelings and create a heightened awareness of particular aspects of life (Hatch, 1993).
Values	Values are conceptualized as the philosophies, goals and standards considered worthy by individuals and groups (Hatch, 1993; Schein, 2010). In this study we anticipate that values may be characterized as a) espoused; written or spoken words or phrases, b) aspirational; the values entities ought to have, what should be, c) shared; the aggregated values shared by a group and d) attributed; generally regarded by others as representative of an entity (Bourne and Jenkins, 2013). Examples include accountability, integrity, respect, courage, care and good service provision.
Artefacts	Artefacts are conceptualized as the results of activity or the activity itself (Alvesson and Berg, 1992; Schein, 1985). At the organizational level examples include organizational structure, facilities, office furnishings, websites, social media references, magazines, newsletters, technology, processes, meetings, and workshops (Jones, 1996). Examples at the project level include the project structure, project facilities & office furnishings, project communiques, technology, processes, meetings, workshops, project manager, project sponsor or other project team members (Jones, 1996).
Symbols	Symbols are conceptualized as artefacts that have acquired meaning beyond their literal form (Schein, 1985; Hatch, 1993). In this study, symbols are seen to be apparent and observable, and are considered to be contributors to the creation of order and clarity in complex situations (Alvesson and Berg, 1992). Examples include objects, actions, events, utterances, concepts or images (Jones, 1996).
Leadership	In this study, leadership is conceptualized as the symbolic actions of leaders that affect the beliefs and understanding of their followers (Alvesson, 2013). The effect of leadership actions is seen to be determined by the meaning that followers attribute to leadership activity. Leadership is thus a cultural act, occurring in a cultural context, and interpreted through culturally guided cues that exist in the social processes (Alvesson, 2013).
Performance	Performance is conceptualized in terms of conventional project performance measures of time, cost and quality (Rahschulte and Milhauser, 2010). This study acknowledges that the evaluation of performance is subject to individual and group judgements that are culturally influenced (Alvesson, 2013). In this sense, performance assessments are themselves considered to be a manifestation of culture.

Table 1. Definitions of Key Concepts

RESEARCH METHODOLOGY

Our research will be conducted from an ontology that considers reality to be a subjective construction of the mind, originating from human thought and maintained through social interaction (Berger and Luckmann, 1966). The epistemology of the research is interpretive, with an orientation in hermeneutics and the principle of the hermeneutic circle. The hermeneutic circle postulates that understanding develops through a constant movement of contemplation, from scrutiny of a whole to scrutiny of its parts, and back again (Gadamer, 1976). The researcher is required to remain open to an understanding that emerges from the parts; misunderstandings, preconceptions or assumptions are not ignored but adjusted, to ensure they remain situated in the meaning of the whole (Gadamer, 2004). Understanding is achieved when the understanding of each part is in harmony with the understanding of the whole (Gadamer, 1976). Interpretive researchers believe the intentions and beliefs of people are encapsulated in social processes. The meaning in social interaction needs to be interpreted to be understood, with every interpretation influenced by the particular situation, the particular moment in time and the social actors involved (Berger and Luckmann, 1966; Klein and Myers, 1999). This study therefore takes the position that empirical data do not represent 'facts' (Alvesson and Sköldberg, 2009). Rather, the data is considered to be 'text' (in the hermeneutic sense) that requires interpretation, a subjective act that can result in multiple interpretations of the same data (Alvesson and Sköldberg, 2009; Lee and Hovorka, 2015). The research design must therefore allow the researcher to reflect on the data from of a number of different points of view (see *Figure 3*).
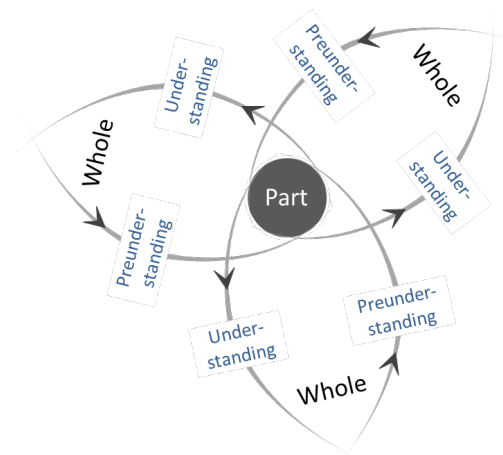

Figure 3. Hermeneutic Interpretation and Reflexivity (Adapted from Alvesson & Skoldberg, 2009)

Klein and Myers' (1999) set of principles for interpretive research already calls for sensitivity from the researcher to the possibility of multiple interpretations of the same situation by different participants ('*Principle of Multiple Interpretations*') and to possible distortions in the narrative from factors like participant bias ('*Principle of Suspicion*'). The approach in this study stretches Klein and Myers' principles by requiring the researcher to consciously adopt multiple perspectives when considering the empirical situation. Viewing the data from multiple perspectives draws attention to the limitations of a single view, allowing the achievement of greater insight through a combined understanding from different perspectives (Cecez-Kecmanovic, 2011; Klecun, Lichtner, Cornford and Petrakaki, 2014). For instance, a systems science perspective could be adopted (Lee and Demetis, 2016), followed by consideration of the role of power in the empirical situation (Ravishankar, 2015). The data will serve to support argumentation for one particular understanding over others that emerge (Alvesson *et. al.*, 2008; Lee and Hovorka, 2015).

Methods

A range of research methods appropriate for interpretive research, including case studies, ethnography, grounded theory methodology (GTM) and action research (Denzin and Lincoln, 2000) were considered. Both ethnography and action research were discounted on the basis that the research question requires the study of more than one empirical situation to produce more compelling results. The extended time in the field required by these two methods (Forsythe, 1999; Klein and Myers, 1999) is difficult to achieve with multiple empirical situations. GTM is a systematic method of generating theory grounded in empirical data (Urquhart, Lehmann and Myers, 2010). While

the method is flexible in that it can be adapted to the requirements of different types of empirical studies (Urquhart and Fernandez, 2006), it does not readily support the adoption of multiple perspectives on the same data. As reflection on the data from different points of view is a key aspect of this research design, the case study has been selected as the most appropriate method. This method is well suited to IS research and to the in-depth study of human behavior and phenomena difficult to isolate from their context (Dubé and Paré, 2003; Ulrich, 2001). Furthermore, the method is preferred for explanatory research questions with a focus on contemporary events (Walsham, 1995). Rich empirical data is a particular strength of case studies (Keutel, Michalik and Richter, 2014), allowing readers to learn vicariously and to reconstruct knowledge in a manner that makes it personally useful (Stake, 2005). This feature is particularly relevant considering the unique nature of each IS project (Project Management Institute, 2013) and the complexity of the concepts in this study (Leidner and Kayworth, 2006). Possible knowledge contributions from case studies include the extension or building of new theory and the production of exemplars (Eisenhardt, 1989; Flyvbjerg, 2006).

Our research will use a multiple case study design, consisting of four cases; this is aligned with most interpretive multiple case study designs in IS (Keutel *et. al.*, 2014), and is expected to maximize the learning opportunities in the time available (Dubé and Paré, 2003). Two projects in each of two organizations represent the cases in this study (see *Figure 4*). Theoretical sampling will be used to select two organizations, where the particular conditions of each organization are expected to produce contrasting results (Eisenhardt, 1989). Organizations will be selected on the basis of contrasting organizational cultures. Organizational life-stage and size, both antecedent contextual factors in the development of organizational culture (Gelfand, Nishii and Raver, 2006), will be used as a basis to select the organizations. A comparatively older, larger organization will represent the 'established' organizational culture, while a younger, smaller organization will represent the 'emerging' organizational culture.

Organizational Culture

		Established	Emerging
Project Performance	**Challenged**	CASE 1	CASE 3
	Healthy	CASE 2	CASE 4

Figure 4. Multiple Case Study Design

Literal replication will be achieved through the selection of two IS projects within each organization, one 'healthy' project and one 'challenged' project, allowing the comparison of two cases in similar circumstances. Project performance trends will be used to categorize a project as 'healthy' or 'challenged'; 'healthy' projects should be maintaining or improving performance trends, while 'challenged' projects should be showing deteriorating performance trends. Key participants within each project will be selected based on the need for multiple perspectives on the data (Alvesson and Sköldberg, 2009; Lee and Hovorka, 2015).

Modes of Analysis

The data for this study will be qualitative in nature, sourced from documentation, archival records, interviews, observations and physical artefacts. The selection covers most of the major sources of data for case studies and the variety provides a balance for the weaknesses inherent in each individual source (Miles, Huberman and Saldaña, 2014). This study will follow the recommended approach of doing data analysis concurrent with data collection (Miles *et. al.*, 2014). Besides providing opportunity to improve data collection strategies (Klein and Myers, 1999), importantly, this approach allows reflexivity on the findings in the context of the bigger picture, aligning the approach to the principles of the hermeneutic circle and the requirement for reflexivity in the research. Data analysis and synthesis will be done using thematic methods. Thematic codes will be used to identify meaningful features in the data (Braun and Clarke, 2006). Codes will be sorted into potential themes which will be reviewed and refined, both individually and in the context of the entire set of data. An account of the data, within and across themes (Braun and Clarke, 2006) will provide the basis for the development of theoretical propositions.

THE EXPECTED RESEARCH CONTRIBUTION

This research seeks new explanations for the performance of IS projects and to address inadequacies in the extant literature covering IS and culture research; culture is predominantly conceptualized as a set of values (Leidner and Kayworth, 2006), it tends to be treated as homogeneous and static (Gallivan and Srite, 2005; Leidner and Kayworth, 2006), the complexity of culture at multiple levels is generally not acknowledged (Signorini *et. al.*, 2009) and there is a lack of research paying simultaneous attention to culture, leadership and performance (Ogbonna and Harris, 2000). Theory will be produced through inductive reasoning, an approach that is aligned with most interpretive research in IS (Keutel *et. al.*, 2014). Four types of contributions are expected. Firstly, rich insight on the interplay of organizational and project cultures on IS projects is expected, closing the gap in the extant research caused by most IS studies treating organizational culture as homogeneous (Leidner and Kayworth, 2006). Secondly, we intend to develop concepts and generate theory to explain how organizational and project culture influences leadership actions on IS projects, and how leadership actions on the IS project influence project performance and organizational norms, addressing the need for additional studies that consider the relationships between organizational culture, leadership and performance (Ogbonna and Harris, 2000). Thirdly, the research will allow specific implications to be drawn regarding the influence of organizational and project cultures on project outcomes, contributing to the call to broaden the conceptual base of the PM field to address poor project performance (Hanisch and Wald, 2011; Ingason and Shepherd, 2014). Finally, we will make an overall contribution to growing the relatively small body of IS research focused on the relationship between culture and IS development (Leidner and Kayworth, 2006), and will further test the suitability of the CDM as a framework for the study of culture in IS.

THE EXPECTED CONTRIBUTION TO PRACTICE

From a systems thinking perspective, we suggest the enduring problem of poor project performance is a manifestation of a 'Shifting the Burden' systems archetype. This archetype represents a pervasive dynamic in management interventions, where solutions address immediate symptomatic problems, but fail to resolve, and divert attention from, the fundamental issue (Senge, Kleiner, Roberts, Ross and Smith, 1994). Consequently, we contend that an improved understanding of cultural dynamics will focus the attention of organizational leaders on more fundamental issues contributing to poor project performance and enable sustainable and more successful interventions. For instance, project managers could reflect on the composition of multicultural project teams and introduce interventions to mediate potential problems. Organizational leaders could use their insight to guide how projects are situated and managed in organizations. Furthermore, organizational leaders could support programs that cater to the growth of cultural understanding when planning the future development of IS personnel.

CONCLUSION

We claim in this paper that a study of the interplay of culture and leadership can produce new insights into the performance of IS projects. It is argued that the CDM, by accommodating a view of culture as dynamic, complex and inherently reflexive, is an appropriate theoretical framework to serve as a sensitizing lens. Furthermore, by accentuating reflexivity in the research through the privileging of '*data as text*' over '*data as fact*', multiple perspectives on the data can be considered, allowing the achievement of greater insight. The case study method is best suited to meet these requirements. The empirical data will serve to support argumentation for one particular understanding over others and the development of theoretical propositions.

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