The ontological and epistemological dimensions
of complex organisations.

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ABSTRACT

In this paper, the concepts of complex organisations and organisations that are complex shall be explored. Following a review of organisational texts, monographs and papers that included complex in their titles, two significant findings were identified. The first is that within organisational literature, the terms complex and complexity (apart from the area of complexity science) carry no meaning particular to the discipline. The second finding is that for writers and researchers in organisational studies, complex and complexity are constructed as either an ontological or epistemological dimension of organisations. The paper examines how these different constructs are manifest in organisational writing.

INTRODUCTION

In recent times complexity sciences (eg. Stacey, 1996a,b, 2003), complex adaptive systems and adaptive complex enterprises (Desai, 2005) are noted as particular theoretical constructs for organisational description and analysis. Within this body of knowledge, the concepts of complexity are generally defined and understood (see Burnes, 2004). Predicated on the idea that organisations are systems, complexity scientists highlight the non-linear, unpredictable and chaotic nature of organisations and their environment. But complex and complexity are not just developments of modern organisational analysis. Cast a broad sweep across distant organisational texts, and it is apparent that it was an established given that organisations are complex (see Baker, 1973; Galbraith, 1973; Thompson, 1967). So too, in earlier decades, researchers (see Czarniawska-Joerges, 1992; Etzioni, 1961a, b; Hage and Aiken, 1970; Perrow, 1979) noted the development of complex organisations.

Intrigued by the durability of complex and complexity across the decades a simple research question was formulated. What are the differences, if any, between a complex organisation, an organisation that is complex and organisational complexity? To address the question a review of Western organisational literature, excluding the literature of complexity sciences, was conducted. Although there is no suggestion that an exhaustive analysis of all organisational studies literature was
undertaken, nonetheless the writings of authors who included complex in the titles of their chapters, their papers or monographs were included in the review.

Despite the breadth of writers included in this net of complexity major contributors to organisational theory may possibly have been excluded. For instance, there were some early “foundational writers” (Kilduff, 1993) who wrote not of complex organisations, but instead of either formal organisations (eg. Blau and Scott, 1963), or more simply without adjectival embellishment, organisations (eg. March and Simon, 1958). Although it was suggested that formal organisation and complex organisation has been used interchangeably (Brinkerhoff and Kunz, 1973; Silverman, 1970), in the instance of Blau and Scott (1963), the term “complex organisation” is actually eschewed.

For Blau and Scott (1963:7) the use of complex is misleading because organisations vary in size and complexity and to use complex as a variable may lead to odd expressions such as “a very complex complex organisation”. They also argued that because formal human-made organisations can not rival the complexity of the social organisation of modern society (see Boulding, 1956), that organisations do not warrant that title. Despite Blau and Scott’s (1963) disavowal of the use of complex to describe organisation, as will be discussed there have been many of their contemporaries who have selected to use that concept.

Within organisational literature there are other descriptions of organisations that parallel the notion of complexity. The review thus surfaced descriptors such as relevant uncertainty (Emery and Trist, 1965/1969), non-programmed, non-routine and non-uniform (Perrow, 1967), uncertain (March and Simon, 1958), differentiated (Lawrence and Lorsch, 1967), ambiguous (Perrow, 1979) and paradoxical (Lewis, 2000; Morgan, 1997), as indicators of the complexity of organisational experience. Yet, because complex and complexity appeared the terms of choice of most organisational writers over the last fifty years, the review was limited to that body of literature.

THE FINDINGS

The findings of that review were surprising. Despite the ubiquity of the use of complex/complexity and the disparate range of activities these words describe the concept itself appear to have been considered unproblematic not deserving of greater clarification (a notable exception is Tsoukas and Hatch, 2001). That is, in the main, there were no attempts to suggest the concept of complex had
any meaning beyond that generally understood as a layperson. For example, although early organisational writers such as Etzioni (1961) and Perrow (1979) authored books titled *Complex organizations*, neither offered any explanation of the use of *complex* in the title. Both however were very careful to offer their understanding of organisation. This inattention to the significance of complex is further exemplified by the contingency theorists Hage and Aiken (1970). Presumably in pursuit of clarity and precision, these two authors devoted a significant portion of their opening chapter of *Social Change in Complex Organizations*, to define “social”, “change” and “organisation”. No such definition was offered of complex.

Indeed it appears the various phrasing that indicate organisations are complex such as complex organisations and organisational complexity have been used interchangeably by organisational writers; the movement between the use of the terms based more on reasons of grammatical or narrative flow than a need to discriminate between similar phenomena. Interestingly both organisation and complex are used as noun and adjective in relation to each other, that is complex [adj.] organisation [n.] and organisational [adj.] complexity [n.]. Although as will become apparent, complex and complexity have clear and particular meanings, there are many authors who implied that meaning or took the meaning for granted. What is proposed in this paper is to show that the ways in which complex and complexity have been used, and implied by organisational writers, require far greater attention than they currently receive.

Thus, the first finding of the literature review was that organisational writers have relied on a “common sense” understanding of their descriptors complex and complexity. Despite the many factors that were identified as contributing to, or were indicators of organisational complexity, the words were offered without further explanation. While writers’ lack of specificity may be considered of little importance, the second finding does have greater significance. In examining the results from the review, what emerged was a fault-line that runs though almost all references to complex organisations and organisational complexity and has, as a consequence, established a fundamental divide. It appears that in organisational studies, complex and complexity are constructed as either an ontological or epistemological dimension of organisations. Thus, the
distinguishing feature of complex/complexity is not to be found in its “definition”, but in its fundamental philosophical essence.

Tsoukas and Hatch (2001) who cover similar terrain to this paper have used as their points of differentiation, the first and second order of complexity; first order complexity is used to describe “an assumed objective world” and second order complexity, “complex thought processes”. This classification is surprisingly similar to Ford’s (1999) notion of first and second-order realities, in which he differentiates between the empirically verifiable first-order reality and the interpretations of those realities, he calls second-order. What is common to these approaches is the identification of the fundamental elements that differentiate between these two dimensions of organisations.

While the focus of their papers is on the conversational context of change (Ford, 1999), and the development of a narrative approach to complexity theory (Tsoukas and Hatch, 2001), this paper has developed from a larger project on organisational representation. In that context, it is argued that representations are needed to capture both the ontological and epistemological dimensions of organisational complexity. Essentially, complex organisations demand complex representations. To expand on that however requires another paper. What this paper shall address is how the different dimensions of complexity are manifest in organisational writings. Before doing so though, it is first necessary to offer a brief discussion on ontology and epistemology.

ONTOLOGY AND EPISTEMOLOGY

The issue of differing paradigms in organisational analysis based on ontological and epistemological assumptions was popularised by Burrell and Morgan in 1979, although it has been suggested the debate about epistemological questions has a history that dates back to the time of Plato (Johnson and Cassell, 2001). Yet, despite the lengthy history of awareness of the dimensions of the philosophy of social science, some twenty five years later one writer (Gioia, 2003) was to note with exasperation at the blurring of distinction that occurs between the concepts of ontology and epistemology. Simply, ontology has to do with the nature of a phenomenon; epistemology is how we know that phenomenon (Astley, 1985; Blaikie, 1993; Burrell and Morgan, 1979; Gioia, 2003). Ontological and epistemological assumptions can thus be classified according to one’s belief in a
world that has an objective “out there” existence, or that the reality of the phenomenon is derived from a mediated social interpretation (Blaikie, 1993; Burrell and Morgan, 1979).

Objective ontology assumes that social and natural reality “has an independent existence prior to human cognition” (Johnson and Duberley, 2000, p. 180); based on this assumption, objective epistemology looks for causal relationships between variables, and locates reality, derived from sensory experiences, outside the individual. That is, the knowledge of a phenomenon is gained from taste, touch, observation, measurement (Burrell and Morgan, 1979; Johnson and Duberley, 2000; Nord and Connell, 1993). The contrasting subjective approach, known either as constructivist or interpretivist argues, “The reality that people confront is the reality they construe” (Gioia, 2003: 287); and its accompanying epistemology refers to the body of knowledge that constitutes those socially produced phenomena (Astley, 1985). The subjective perspective thus leads to an ontological and epistemological position that argues that reality and knowledge are socially constructed and mediated through the subjectivities and intersubjectivities of social relationships.

Despite what may appear to be quite dichotomous differences between the subjective and objective dimensions of ontology and epistemology, Johnson and Duberley (2000) do suggest that while an objective epistemology presupposes the existence of an objective ontology, a subjective epistemology can be combined with either a subjective or an objective ontology. Even with the potential for the development of a hybrid ontological and epistemological position, most of the theorists for whom organisational complexity is an ontological issue, with the exception perhaps of Czarniawska-Joerges (1992), are firmly embedded within the objectivist ontology and epistemology.

**Ontological dimension**

The first way that organisational complexity can be understood is from an ontological perspective; that is, complexity is indicative of an organisational reality that can be identified, researched and measured. From this perspective, the variables that contribute to the notion of organisational complexity as well as organisations and complexity themselves are assumed to have an existence external to and independent of the researchers. Thus, in this context, complexity is a variable or feature or description of organisational experience. And what were some of those variables that contributed to the understanding of complex organisations?
For early organisational writers such as Etzioni, (1961a, b) and Perrow, (1972) the perceived structural complexities of large scale bureaucracies rendered bureaucracies and complex organisations as synonymous. For these writers, disparate activities that increased with size was held to contribute to complex structures and both size and structure were thus features of and contributors to, complex organisations.

For other writers, complexity was identified as a feature of organisations that emerged from organisational technologies (eg. Miller, 1973; Perrow, 1967; Woodward, 1958). Other writers identified task complexity as a significant organisational variable (eg. Hage and Aiken, 1970; Jaques, 1990). Early organisational writers such as Burns and Stalker (1961), Emery and Trist (1965/1969) and Thompson (1967) were also concerned with designing complex organisational structures to accommodate environmental complexity. Embraced within the works of structural contingency theorists (eg. Burns and Stalker, 1961; Lawrence and Lorsch, 1967) and early systems writers (eg. Baker, 1973; Katz and Kahn, 1978; Schein, 1965) complexity was a condition not just of organisations, but as a characteristic of the environment and the organisation’s relationship with its environment.

It is apparent that one of the most basic postulates of the mentioned organisational writers is that organisations are empirical objects a feature of which is organisational complexity, which like other aspects of organisations can be researched, identified and represented. From this position, it is the organisation, with or without its environment that is complex. With an ontological assertion of complexity, points of differentiation occur around the constitutive features of complexity. The existence “out there” of the organisation is not under challenge, for indeed its complexity is indicative of its ontological unassailability.

Irrespective of the variables that have been isolated in the examples cited thus far, despite the variation in emphases, each of the writers has made an ontological claim, not just about organisations, but also about the existence of complexity. Before completing this section there are two other authors that need mention for their work provides an appropriate segue from the identification of complexity as an ontological question to the introduction of complexity as a matter of epistemology.
The first of these authors, Czarniawska-Joerges (1992) in her book *Exploring complex organization*, argued that complex organisations are large organisations and that large organisations are complex organisations. Czarniawska-Joerges (1992: 36) also argues that “an organisation becomes complex when no one can sensibly and comprehensibly account for all of it.” [author’s emphasis]. In her identification of organisational complexity as that point at which complexity renders it unknowable, Czarniawska-Joerges (1992) presents complex organisations as potentially a simultaneous ontological and epistemological proposition. Even though the content is quite different, her approach that draws together the two dimensions of complexity is not dissimilar to that taken by Boulding (1956). In the development of his hierarchy of complexity, Boulding (1956: 202) constructed an arrangement of “levels of theoretical discourse” within systems of the biological and social world. What is apparent in his hierarchy is that like Czarniawska-Joerges (1992), Boulding (1956) has identified that the greater the complexity of a system, the more complex the knowledge that system requires.

Hatch (1997:37) in her analysis of Boulding’s work writes;

That means, that organizations, our subject of study, are more complex than we ourselves are, and furthermore, that we are embedded in organizations. Most other systems you encounter and attempt to study are at the same or lower levels of complexity, while much of the domain of organization theory is located above your own level of complexity…It is one of the few subjects that you can study from the perspective of a participant (that is a subsystem) and whose complexity supersedes, and often overwhelms, your own.

It is this sense of being overwhelmed by the complexity of what is being researched that perhaps leads organisational commentators to then construct complexity as an epistemological consideration. In the section that follows, the second perspective, the epistemological dimension to understanding organisational complexity will be explored.

**Epistemological dimension**

From this perspective, the claims to the existence (or not) of a constructed or independent truth and reality are not important. For, it is in the attempts to study, know, make sense of and understand organisations that the complexity of organisations is apparent. Consider the following ways in which organisations are regarded. Organisations are complex because the different ways of knowing organisations render organisations un-knowable (Nord and Connell, 1993). It is difficult to make sense
of organisations (Weick, 1995), although some have tried to make sense of management (eg. Alvesson and Willmott, 1996). Organisations are unmanaged because they are unmanageable (Gabriel, 1995). Organisations are complex phenomena that require complex theories (Pentland, 1999). Organisations invoke the philosophical paradox of being seen and in the seeing are not seen (Clegg, 1990; Morgan, 1997; Poggi, 1965).

In attempting to deal with these issues, this section provides commentary on organisations examined not from an ontological perspective but from the perspective of the episteme of complexity. This section is thus predicated on the understanding that the complexity of organisations lies not on the presence of particular ontological variables, but on the vast potentiality of what may be known and more importantly, what may never be known, about organisations. Thus, it can be argued, complexity of organisations is not a matter of ontology, but is clearly an epistemological issue. Because organisations are perceived as complex, what will be quite clear in the following section is the necessity researchers have felt to move beyond the certainty of just one theory or approach, to consider multiple theories, perspectives and paradigms.

This position is a vast distance from expectations of old. For instance, in his complaint many years ago, that the term “organization” was not being used with scientific precision, Urwick (1976) argued “organization” had become “a harlot of management communication” (1976: 89). At the time of his lament, Urwick identified what he believed were the two ways the word was being used\(^1\); and for Urwick, this was one definition too many.

Urwick’s impatience with a surfeit of definitions of organisation is shared by Luthans (1972) who expressed concern at “the theoretical jungle” of management studies. Hailing contingency theory as the one theory that “recognis[ed] the complexity involved in managing modern organisations”. Luthans (1972:45) argued that one single theory could accommodate the complexity of organisational knowledge. This notion of trying to contain all that can be known about organisations within one

\(^1\) The first identified by Urwick (1976) was the description of the overall process of managing into component or sub-processes. Early exponents of this usage according to Urwick were the classic management writers Henri Fayol and Luther Gulick. The second usage is as a synonym for the “corporation or undertaking, the human group regarded as a whole” [his emphasis] (Urwick, 1985, p. 89). For Urwick, these two uses of the same term; as a description of purposeful activity and as a generalized title for a form of a human grouping as a whole are incompatible. Urwick believed the former usage to be appropriate and scientific; the latter to be too “generalized and useless” (Urwick, 1975, p. 91).
readily identifiable theory had resonance with contemporaries such as Lawrence and Lorsch (1969) who argued for a meta-approach to organisational research that would encompass the organisational field in its entirety. To suggest that any analysis could provide totalised knowledge of organisations appears in these early years of this new postmodern millenium, to be either naïve or disingenuous. Their consternation would undoubtedly be enormous today at the multiplicity of theories, meanings, descriptions, typologies and definitions that have been developed to understand organisations (see Gabriel and Schwartz, 1999; Hall, 1996; Silverman, 1970 for different examples).

Any suggestion that an organisation could be known in its idiosyncratic and individual entirety has been shattered by more recent commentators such as Clegg and his co-authors (1996). Referring to what Weick (1999) has called “the proliferation mess” (p. 803) of theories in organisational studies, Clegg et al., (1996) appear to suggest the discipline is so large and I would add, complex, that any knowledge of organisational theory (and organisations) is limited. What is also clear from Clegg et al., (1996), is the awareness that irrespective of one’s position on the ontological dilemma of reality, any totalising claim to complete knowledge and understanding of just one organisation, let alone organisations in general, can be readily challenged. It is the awareness of the impossibility of an agreed complete body of knowledge that has contributed to what I have identified as this second approach to the ascription of complexity to organisational analysis.

Faced with the existential limitation of any single theory or method, practitioners in organisational studies have tended to adopt an assortment of approaches drawn from sympathetic and related disciplines such as sociology, psychology, anthropology, political, physical and biological sciences. Indeed, it is argued that organisational studies is a multidisciplinary study because of its inherent epistemological complexity. Not limited by the constraints of disciplinary boundaries, organisational researchers have also utilised multiple dimensions (eg. Piderit, 2000), multiple methodologies (eg. Wolfram Cox, 1997), multiple paradigms (eg. Hassard, 1991) and/ or multiple perspectives drawing on an array of differing theories (eg. Astley and van de Ven, 1983; Bolman and Deal, 1997; Gabriel, 2002; Hatch, 1997; Morgan, 1997) within their analyses of organisations. Their rationale for the multiplicity, diversity and plurality of each of these approaches is best typified by Hatch (1997) when she notes, “Organization theorists often justify the diversity of organizational
theory and its multiple perspectives by pointing out the complexity of organization” (p. 7). Hatch continues;

… organizational theorists encounter a large and complex phenomenon with perceptual equipment that handicaps them with respect to knowing in a holistic or total way…Only when viewing these numerous perspectives all at once do you get any sense of the magnitude you face when confronting the study of organizations (1997: 7).

For Hatch and the other writers who work with multiplicity and plurality, the focus of complexity is not, for instance, necessarily on the specifics of organisational structures or task; instead, the complexity lies in their attempts to know and understand organisations.

It is clear then that there are among researchers in organisational studies, many for whom organisational complexity is an epistemological assumption. From this perspective, knowledge of organisations is uncertain, contested and unstable. Is it possible for organisations to be known? Tsoukas and Hatch (2001) have argued that for those for whom organisations are complex, their complexity makes any knowledge limited and incomplete.

**CONCLUDING COMMENTS**

The research question that was the genesis of this paper required a study of organisational literature to identify the assumed difference between organisations that are complex, complex organisations and organisational complexity. Apart from the quite specific meaning accorded the more recent field of organisational studies derived from complexity science, the literature review revealed that the concept of complex was used with a degree of surprising fluidity and considerable lack of clarity across the discipline of organisational studies. As has been detailed, complex organisations and organisational complexity are terms that have been used interchangeably across the decades by a range of writers from a divergent and disparate selection of theoretical bases. And, even more significantly is the realisation the concept of complex/ complexity has been used in both an ontological as well as epistemological context. That is, complex has been used to describe an established feature of organisational phenomena, as well as describe multiple knowledge claims of those same organisational phenomena. In summary, it is not just that organisations that are complex but so too is the knowledge of organisations (see Scherer and Steinmann, 1999).
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