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A SPATIOTEMPORAL PERSPECTIVE ON EMPOWERMENT IN PROJECTS

ENOCK SACKEY
Department of Civil and Building Engineering,
Loughborough University,
Loughborough,
Leicestershire,
LE11 3TU, UK.
E.Sackey@lboro.ac.uk

MARTIN MORGAN TUULI
Department of Civil and Building Engineering,
Loughborough University,
Loughborough,
Leicestershire,
LE11 3TU, UK.
m.m.tuuli@lboro.ac.uk

ANDY DAINTY
Department of Civil and Building Engineering,
Loughborough University,
Loughborough,
Leicestershire,
LE11 3TU, UK.
A.R.J.Dainty@lboro.ac.uk

ABSTRACT
The complex and dynamic nature of project environments presents both opportunities and challenges for the empowerment of individuals and teams. Yet, empowerment is a complex concept in its own right, taking on multiple forms across people, is contextually embedded and shifts over time. As research on empowerment in projects continues to grow, pertinent questions are emerging aimed at promoting the growth of empowerment theory and its applicability in practice. For example, how do organizations empower employees at different levels and still be able to achieve goal congruence across the organization?; how does empowerment manifest itself across project phases?; and how does empowerment manifest across co-located or geographically/physically spaced individuals on the same or different projects/teams across the same organization? The multiplicity and dynamism of empowerment in projects across three aspects - space, time and levels, and their intersections are examined within the context of the complex, dynamic and uncertain operational realities of projects. It is argued that such a spatiotemporal agenda is better understood through the lens of chaos and complexity theory, a perspective that reveals the way in which empowerment is intertwined with other managerial interventions and business strategies for the successful delivery of projects.

Keywords: chaos theory; complexity theory; empowerment; spatiotemporal

INTRODUCTION

The nature of work is changing rapidly and the impact is evident across all levels of business organisations (Conger 1988, Gray 2003). The change is altering the tempo of the environment within which construction organisations operate, compounded by emerging project delivery arrangements, increasing complexity of projects and client requirements and the temporary multi-organisational context of projects. Construction professionals are facing constantly changing organisational procedures, processes and requirements associated with increasingly demanding and ambiguous objectives of projects (Kűsel et al., 2001). This complex and dynamic situation has been described by Rowlinson and Mcdermott (1999) as one that makes the "control and command paradigm of project management inefficient" and requires resolving the emergent ambiguity through the construction of shared consensus of the project objectives. Complex and dynamic work settings such as in construction project environments have long been viewed as appropriately suited for the empowerment of individuals and teams (c.f. Kanter, 1977, Greasley *et al.*, 2005, Langfred, 2000, Loosemore *et al.*, 2003).

Empowerment has emerged as a popular concept in managerial rhetoric and the focus of numerous scholarly studies. Many of these suggest that empowerment practices are likely to offer substantial impact in many organisational contexts, including enhanced organisational agility and greater employee satisfaction (Chebat & Collias 2000). Nevertheless, despite its popularity, empowerment is still a term that confuses as much as it inspires (Simon, 1990). A review of the literature reveals little shared understanding of the term. Lincoln et al. (2002) describe it as a floating concept which means different things in different organisations, and to different organisational actors. Both management and employees interpret empowerment from their own perspective to suit their own needs and accordingly, have differing expectations.

This seemingly confusing view is compounded by the bolting of empowerment onto other managerial interventions such as total quality management (TQM), reengineering, lean concepts and just-in-time (JIT) aimed at improving the delivery of construction projects for example (Dainty, Bryman & Price, 2002). The pervasive process fragmentation and the mutual interdependence of interfunctional teams within the project delivery process, however, make it difficult to understand how empowerment intertwines with these organisational strategies. The complex and dynamic nature of the project environment therefore presents both opportunities and challenges for the empowerment of individuals and teams. Not least, its own complex nature, taking on multiple forms across people, levels, is contextually embedded and shifts over time (Tuuli and Rowlinson 2010; Foster-Fishman et al, 1998). This paper presents this spatiotemporal perspective on empowerment within the context of the complex, dynamic and uncertain operational realities of projects. It argues that the spatiotemporal nature of empowerment can be better understood through the lens of chaos and complexity theory, a perspective that better illuminates the way in which empowerment is intertwined with other managerial interventions and business strategies for the successful delivery of projects.

THE EMPOWERMENT CONCEPT

The empowerment concept is elastic and so it is not always clear what it means in different organisations (Dainty et al., 2002). It is also a contested concept whose meaning shifts

according to the interests and goals of those who use it. The concern however, is that, much of the literature on empowerment is both generalised and unitarised in orientation without cognisance to its multiplicity and dynamism (Foster-Fishman et al., 1998). McIntyre (1986) notes that, the way in which empowerment is conceptualised will influence the way in which strategies are developed for structural changes. This is because, different understandings of empowerment will shape the way in which we construct models of empowerment. Thus, actions considered empowering by an employee, may be experienced by management as stifling and vice versa (Pease, 2002). Solas (1996) has argued that some of the key assumptions, goals and practices of empowerment can actually perpetuate hierarchical power relation between employees and senior management. Those on top of the hierarchy are viewed as the ones who have the power to be given to employees below the organisational ladder.

Whether an empowerment strategy is successful or not is dependent on the organisational context and the mode of its implementation (Conger and Kanungo, 1988). Most of the management literature refers to empowerment from two distinct perspectives; the psychological perspective and the structural phenomenon (Spreitzer 1995; Thomas & Velthouse 1990). The former focuses on a psychological state encompassing the individual job incumbent' perception of a) meaningfulness, b) competence, c) self-determination, and d) impact (Conger & Kanongo, 1988; Spreitzer 1995). The structural perspective refers to empowerment as managerial initiated phenomenon. This perspective focuses on a set of organisational policies and practices initiated by management with a goal of addressing conditions that foster powerlessness and cascading decision-making authority down the organisational hierarchy (Conger & Kanongo, 1988; Eylon & Bamberger 2000).

An incomplete picture of the empowerment journey is presented when psychological and structural perspectives are considered as separate constructs, a perspective that ignores their complementarity as a case for integration (Tuuli and Rowlinson 2007). The empowerment process is therefore better conceived as an interactional process in which the perception of empowerment (psychological empowerment) is shaped through interaction with environmental factors (structural perspective), producing behavioural outcomes. Thus changes within the work environment perceived as empowering should influence and reinforce the cognitive state of employees and eventually affect outcomes and provide justification for continual reinforcement of organisational practices (Tuuli and Rowlinson 2007). However, there is a paradox that lies beneath the implementation processes. The very existence of circumstances that place the organisation or more precisely senior management in a position to provide another group with discretion to do their jobs well, through structural/managerial interventions implies that empowerment is a finite commodity controlled by a sub-set within the organisation (e.g., Eylon, 1998)

Examining empowerment from the psychological and structural perspectives alone, however, belies the complex and multiple forms empowerment manifests across people, levels, its contextual embeddedness and its shifting forms over time (Tuuli and Rowlinson 2010; Foster-Fishman et al, 1998). In the sections that follow we examine this spatiotemporal nature of empowerment with reference to the project context and allude to the paradoxical tendencies in empowerment implementation.

SPACIOTEMPORAL NATURE OF EMPOWERMENT IN PROJECTS

An important feature of projects is that each exhibits a unique lifecycle that defines its complexity and dynamic characteristics. These could relate to its site-specific nature, design and custom-built to unique specification, constant refinement of project outcome to meet emerging clients' needs. This dynamism is compounded by the use of specialised teams (Cherns & Bryant, 1984) that are usually geographically distant and functionally disparate (Murray, et al., 1999, Eccles, 1981) who convene as a temporary multi-organisation to complete the project (Cherns & Bryant, 1984). As each project organisation is temporary, there is no innate drive to build long-term relationships. Winch (2000) posits that the multi-organisation nature of projects creates an organisational dynamism, which can easily generate conflict rather than cooperation within the project coalition. The transient nature of construction projects and the temporary requirement of the project team make it difficult to develop the trust and the cohesiveness required for effective teamwork. Such dynamism significantly impacts employee's empowerment experiences. In project context therefore, the preeminent question that arises is: How does empowerment manifests across co-located or geographically/physically spaced individuals on the same or different projects/teams across the same organisation and throughout the project phases?

Contextual Dynamics of Empowerment

As a contextually determined construct, empowerment is particularly prone to fluctuations over time within the project environment (Foster-Fishman, 1998). Individuals' perception of their changing environment and shifting organisational demands highlight the elements of the contextual dynamism that are most salient to their empowerment experience. Koberg *et al.* (1999) posit that perceived empowerment is a process that expands an individual's power as opposed to merely a state of being and as such, it takes place in varying degrees throughout an organisation, with individuals experiencing different feelings of empowerment at different times. Hence, feelings of empowerment are not fixed. Depending on the organization and leadership's continued support, trust and value systems, empowerment levels will change. This dynamism may diminish significantly the efficacy of an intervention created from an understanding of the context and its members that is based on one point in time (Moos, 1996). Thus intervention plans should include ongoing measurement of the context, in order to assure a continuing alignment between contextual influences, participant needs, and intervention goals (Foster-Fishman et a., 1998). Understanding the dynamism of empowerment in project settings demands a theoretical position which illuminates the complex and interwoven set of perspectives and decisions which characterise the project environment.

Within a given project team, empowerment will take on multiple forms dependent on individual's sociocultural and political context and the internal climate of the project environment (Foster-Fishman et al., 1998). Empowerment has different meanings and different factors influence the employee empowerment experiences. Within a given project team, individual members will have unique personal histories, assume different roles and often come from different social background (Martin, 1992). It has been argued that these social and historical characteristics shape individual desire for empowerment (Zimmerman, 1995). Collins (1986) also emphasised that individuals with different racial, gender, ethnic, class, and social backgrounds will desire different forms of empowerment. Culture also

influences one's desire for empowerment. Every culture has a consistent core set of rules that influences people to act similarly in ways that help them understand each other. Family emphasis, individual preferences and other factors influence how deeply embedded one is in one's culture (King, 1994). If the internal climate of the project team is not in alignment with the individual's cultural influence and belief system, his behaviour and attitude towards his work will be impacted. Factors emanating from the individual, team, organisation and project contexts have therefore been found to exert significant influences on the empowerment experiences of individuals and teams (Tuuli, 2009). Without a supportive structure and an enabling context, any attempt to reinforce empowerment will be blocked, either by structural reasons or lack of support at both inter and intra personal levels. Thus, to overcome the empowerment paradox, that is, to achieve genuine empowerment, the organisation must constantly seek and be adaptive to contextual influences different levels.

Empowerment at Different Levels

Empowerment is relevant at the individual, team, and strategic levels. The capacity to organise and mobilise ideas to solve problems is a critical team level capability. The norms and network that enable collective action drives the project forward. There is a reciprocal relationship between individual capabilities and the capability to act collectively as a team (PREM World Bank, 2002). In a strategic context, organisational policies and culture shape the actions of all other actors within the organisation. There has been interest in the development of a conceptual framework, which explores the relationships among different levels of empowerment; how participation in organisations or communities concern can enhance individual empowerment and vice versa (Gutierrez, 1988). Different conceptualisations of empowerment have ranged from empowerment at the individual level as an increased sense of control, power, or personal life events (Schulz, et al 1993), to individual and teamwork performance behaviours (Tuuli & Rowlinson 2009), or multiple levels of interactions as individuals, organisations and communities act to create social change (Wallerstein, 1992). Examination of the empowerment process, which incorporates individuals, project, and strategic levels of analysis, will represent a more holistic picture of how empowerment manifests.

Perceived control at the individual level has been explored in research on self-efficacy (Bandura, 1982), and the ability to take action or improve interaction skills (Pinderhughes, 1985). Bandura's (1982) conception of self-efficacy involves beliefs about one's ability to produce and regulate events in life. Perceptions of influence or efficacy are explicitly linked with participation in organisational or team change efforts and the concurrent development of analytical and practical skills (Zimmerman, 1990). At the team level, empowerment involves the shared experience, analysis and influence of group on their own effort (Presby, et al 1990). Linkages between empowerment at the individual level and at team and strategic levels are made by linking development of personal power and ability to act to opportunities for support and development of interpersonal and required skills (Kieffer, 1984). At the strategic level, empowerment revolves around the utilisation of resources and strategies to enhance organisational control (Labonte, 1989).

Empowerment manifests at the strategic level when organisations provide opportunities for individual growth and access to decision-making process (Schulz, et al 1993). However, a levels perspective of empowerment raises the question of how organisations can empower employees at different levels and still be able to achieve goal congruence across the organisation. Empowering organisations are cooperatively controlled by their members and

work toward goals defined by those members within the parameters of external opportunities and constraints (Crowfoot, 1981). Individuals may develop skills and a sense of personal effectiveness through participation and leadership opportunities within the organisation (Schulz, et al 1993). The conception of strategic empowerment helps to link the individual and the project levels of empowerment. Individuals work within cooperatively managed organisations and become empowered through the development of skills and the opportunities to participate in process of decision making and goal setting with other team members. In turn, the individuals empower the organisation to effectively work toward the project goals within the context of the strategic organisational environment and external influences. Thus, perceived influence at the strategic and team levels both shapes and is shaped by perceptions of individual control.

THE EMPOWERMENT PARADOX

At the core of the empowerment paradox however, is the belief that there is some clear demarcation between management and employees - between those who have and those who do not have power (Eylon, 1998). The contention here is that, whatever the good intentions of those who seek to empower others through the levels as discussed previously, those intentions will be translated into concrete practical initiatives which set limits and boundaries within which the empowered operates (Potter, 1994). This notion was emphasised by Simons (1995) when he contended that 'management must exercise levers of control in a climate of empowerment to harness employees' creativity. Empowerment thus becomes senior management controlled initiatives. Yet, the use of such barriers restricts the supposed freedom which empowerment is meant to offer employees. This is consistence to Argris (1998) assertion that empowerment process only appears to give employees greater control, but in reality, it remains dominated and restricted by management. He therefore views empowerment as still mostly an illusion. It is the practical objective limits set by management that raises tensions between the perceptions and needs of management and are likely to be set against the perceptions and needs of the empowered (Conger & Kanungo, 1988). This is consistent with circumstances where empowerment represents a "moral hazard dilemma" for managers, as the success or failure of empowerment then depends on the ability of managers to reconcile the inherent loss of control that empowerment brings with the fundamental organisational need for goal congruence (Mills and Ungson, 2003).

In addition to the need of resolving this paradox, as long as some organisational members do not have full access to information, autonomy, or the trust to plan and carry out improvement, then the need for empowerment will perpetuate the organisational process. Empowerment requires the belief that all have the right to be active and interactive participants of the organisation. It is only when all view each other equally that true empowerment will occur. Only under these circumstances can individuals truly unveil their unique experiences and abilities to the organisation (Eylon, 1998). Not subscribing to this notion will result in limiting the sphere within which empowerment is pursued, thus creating a condition which defeats the empowerment process. The paradox surrounding empowerment contributes in making the construct more complex than often realised. As Conger & Kanungo (1988) and subsequently, Lincoln et al (2002) note, 'the management literature on empowerment often lacks clarity, is overly simplistic and is riddled with ambiguity' as the concept is difficult to grapple with in practice. The spatiotemporal perspective on empowerment coupled with the paradox surrounding its implementation emphasis it's complex and dynamic characteristics

and in particular how its manifestations shift over time, across space and levels in projects. Such a perspective is better understood through a theoretical lens that affords explicit consideration of the multiplicity, complex and dynamic characteristics of empowerment. In the section that follow, the principles of chaos and complexity theory are introduced and portrayed as representing such a theoretical lens. The key elements of chaos and complexity theory are seen as providing an interpretive framework for understanding the nature of empowerment in projects as it enables us to explore the context that governs project dealings and interactions among project participants, and enables us to address those aspects of the complex nature of projects that cannot be captured by project management processes for planning, prediction and control.

CHAOS AND COMPLEXITY THEORY

Chaos and complexity theory first rose to prominence through Lorenz's work on weather patterns and spread to other physical systems (Gleick, 1987). Complexity theory on the other hand, advanced through its application in biology where the search for an explanation to the apparently escalating evolutionary complexity of living organisms has been sought (Smith, 2004). Another stimulus to the advancement of complexity theory has been through work on systems theory in organisation science. General systems theory proposes that the universe should be recognised as a vast, interconnected, and interdependent whole (Kielhofner, 1995), where a system refers to "any complex of elements which interact and together constitute a logical whole with a purpose or function" (Kielhofner, 1995, p. 9). Open systems allow the dynamic, self-organisation that is exhibited during interaction with the environment (Allport, 1968). An extension of this, dynamical systems theory, assumes that when sufficient energy is channeled into systems of complexity, new states of organisation can emerge spontaneously, arising from chaotic states (Haken, 1987). The common thread in chaos and complexity thinking revolves around the idea of interaction of elements in a system.

Chaos theory deals with simple, deterministic, nonlinear, dynamic systems, that are sensitive to initial conditions resulting in an unpredictable chaotic response to any minute initial differences or perturbation, whereas complexity theory focuses on complex, nonlinear systems. Complex systems respond to perturbation by self-organising into emergent forms that cannot be predicted from an understanding of its parts (Reitsma, 2001). The focus of chaos theory is on the manner in which simple systems give rise to very complicated unpredictable behaviour, while complexity theory focuses on how systems consisting of many elements can lead to well-organised and predictable behaviour (Bloom, 2000). Smith (2004) argues that chaos and complexity need to be considered in unison from an organisational perspective. They are perhaps best viewed as complementary notions, at least from a managerial perspective, because they both encourage thinking differently about the way systems and organisations operate (Smith 2004). The two terms represent the ends of the same conceptual continuum. From complex systems comes simple behaviours and from simple systems comes chaotic behaviours. The appeal of such a theoretical lens for understanding organisation concepts emerges from the ability to illuminate how order, structure, pattern, and novelty arise from extremely sophisticated, apparently chaotic systems and conversely, how complex behaviour and structure emerges from simple underlying rules (Cook-Davies et al., 2007).

Although the conceptual basis of complexity theory arose from work undertaken in physical systems science, and subsequently from systems theories that have developed from organisation science, it is typically assumed that its popularity amongst managers has improved as a consequence of uncertainty in the future of organisations (Smith 2004). Similarly, Tetenbaum (1998) contend that complexity theory is gaining momentum as management practice as the new world is full of unintended consequences and counterintuitive outcomes where the map to the future cannot be drawn in advance as we cannot know enough to set forth a meaningful vision or to plan productivity. Complexity theory provides a way to understand the unknowns and uncertainties associated with complex systems. The management of projects transpire in a complex environment (Bertelsen, 2004) thus the application of complexity theory to the understanding of empowerment in projects may enable the systematic considerations of the conditions that give rise to such complexity (Antoniadis et al., 2009). Understanding the nature of empowerment in projects will enable management to respond with a design of more efficient project delivery systems to improve the setting up, management style and decision making processes for the delivery of projects.

Generally, project management practice understands the project as an ordered, linear and therefore predictable phenomenon which can be organised, planned, and managed top down. The project is therefore often divided into constituent parts such as contracts, activities, work packages, etc and assembled more or less interdependently to achieve the whole without considering the dynamics of the surrounding (Wood and Ashton, 2009). The frequent failures to complete projects on time, on budget and on quality (Bertelsen, 2004) give rise to the thinking that the process may not be as predictable as it may look. Complexity theory advocates perceive projects in a different light to that of the mainstream views. Through the perspective of chaos and complexity theory, a project is a nonlinear, complex and dynamic process which has within itself the capacity to interact with its environment resulting in a whole that cannot be understood by analysing it constituent parts (Cook-Davies et al., 2007). This perspective therefore requires that project team members should not be encased in a machine-like working mode which emphasises control, order and predictability but rather be more engaged with the environment and processes to encourage learning, creativity and flexibility.

Complexity theory advocates challenge two main assumptions of mainstream project management researchers and practitioners. First, they question the image of a project, and its human practitioners, as a predictable system or machine, that is predictable by understanding its functioning parts. Secondly, they resist the notion that the project manager is an objective, or impartial, agent of understanding and control (Sage, Dainty & Brookes, 2011); Masterpasqua & Perna, 1997). Sage et al (2011) have outlined manifold reasons for challenging machanistic views. They point out that it encourages hopeful long-term planning over continuous reflection and group communication, it does not address and value the dynamic and unpredictable emergence of social interactions through which project decisions are made, this influences project outcomes, goals, ethics and politics, it assumes stability and predictability is the ideal state for organisation, which prevents project organisations from understanding and bringing about the required change. It also reduces people to predictable parts in a machine hence it impedes learning and flexibility (Sage et al 2011; Cook-Davies et al., 2007). We contend here that these bottlenecks similarly inhibit a better understanding of the multiple, dynamic and complex manifestation of empowerment in projects and that a chaos and complexity perspective provides a more profound alternative view.

UNDERSTANDING THE SPATIOTEMPORAL NATURE OF EMPOWERMENT THROUGH CHAOS AND COMPLEXITY THEORY

Scholars of organisational studies have often used metaphors and models to help describe and explain the complex social phenomena observed in organisations (Lamberg & Parvinen, 2003). The metaphors applied to understanding behaviours and organisational change have included those derived from complex sciences, including chaos complexity theory (Olson & Eoyongi, 2001). Given that the impact of empowerment affects behaviour in ways that may not be entirely predictable (Wilkinson, 1998), it is reasonable to suggest that metaphors and models applied to organizations may transfer to the study of empowerment in projects. Complexity theory is negotiated and open to varied interpretation, which presents a wide range of possibilities in exploring its implications on social phenomena such as the project environment. Empowerment is seen here as a complex and iterative process, which can change, grow or diminish based on unfolding events; individuals and projects historical/social contexts, and organisational processes. It is not controlled or predictable in its outcomes. Eylon (1998) posits that empowerment is an ongoing development and will have lasting repercussion for organisational structure. Her argument suggests that organisational structure will need to evolve as empowerment initiatives are implemented. Organisational interventions are by their nature complex, dynamic and comprehensive. Interventions, which comprise simultaneously many target populations at various levels (individual, team and strategic), are complex to evaluate and comprehend. Chaos and complexity theory may provide a lens for understanding the complex and dynamic nature of empowerment in projects.

Empowerment in projects is dynamic as a consequence of the dynamic nature of project environments; a shift in internal and external factors impact on organisational processes and outcomes. People's perception of their work environment changes inline with the dynamic state of the organisation and external influences. Chaos and complexity theory recognises this dynamism and can help explain why empowerment feelings can be on a constant shift based on unfolding events as opposed to a state of being. Such a view is also consistent with the post-modern self perspective, whose basis can be found in chaos and complexity theory (Bloom 2000). In contrast to the modern man who could objectively discover the machine-like workings of the universe, the post-modern self is an open system, dependent on context, always in a state of becoming, actively integrating new information and exchanging that information with a changing environment (Masterpasqua & Perna, 1997). According to Smith (2004) the need for non-reductionist ways of approaching management problems has set the scene for complexity theory to be considered as management tool. The mechanistic approach of reducing all systems to their constituent parts is inadequate to allow managers to deal with the changing environment (Keene 2000). To keep with the flow, workers are required to adapt to environmental changes. Thus, empowerment interventions become processes for aligning individual needs with current environmental and organisational conditions. The output of empowerment initiatives can therefore not be controlled or predicted. In chaos, this can be likened to "sensitive dependence on initial condition", expressing an understanding that even minute differences in input can quickly manifest as an overwhelming difference in output (Bloom, 2000). The implication for project organisation is that providing teams with necessary skills and training or the adoption of seemingly minor technology or software that could enhance job performance can have a substantial impact on project outcomes. Murphy (1996) suggests that this principle defines the very nature of nonlinearity in that, minute change in some system's initial conditions may actually amplify exponentially as their effects unfold so the end result bears little resemblance to the beginning.

There is a reciprocal relationship between empowerment at different levels (individual level, team level and strategic level). Chaos theorists hold the view that the proper role for organisations is to be a safe container for the chaos of individuals' experience, alternating between provoking enough anxiety to propel the person or team into the vortex of change while soothing anxiety that is threatening to overwhelm the system forcing it into regressive solutions (Bloom 2000). An organisation that encourages such type of empowering process is referred to in chaos theory as fractal organisation, one that trusts in natural organisational phenomena to order itself. McClure (1998), postulates that there is a process of chaotic transformation that can occur in a team if there is effective group leadership that does not seek to control and limit the group transit through the period of conflict and chaos. He sees groups that become regressive and even disruptive as those that have been unable to evolve and develop, to self organise out of the chaotic transition in a healthy way. Change is encouraged when organisational design is there only to gently direct informal behaviour toward goals. From a chaos and complexity perspective therefore, the development or implementation of empowerment accounts for the dynamic interaction and influence of empowerment at the individual, team and strategic levels.

At the strategic level, empowerment revolves around the provision of organisational resources and opportunities for individual and team support and growth. At the team level, empowerment manifests when those supports enable the teams to achieve the assigned projects goals within the context of organisational and external influences. By allowing members of the team within the organisation autonomy, this encourages the team to organise itself into emergent state, enacting multiple iterations of its own functioning until the various pieces of the team members can work together most effectively. Emergence is a characteristic of a complex system arising through the innovation and learning that occurs as the internal structures of systems evolves and changes (Mason, 2001). Under the right circumstances these emergent behaviours can lead to unpredictable innovations (Stacey, 2003). The emergent order represents a 'bottom up' process arising when the collective behaviour of interactive individuals results in a system or part of a system adapting and creating new ordered state (Stacey, 2003). The implication is that the key strategic empowerment level will shift from maintaining control to supporting the emergence of new order where emergent innovations can react to market changes.

Individual perception of empowerment experience could take multiple forms dependent on demographic characteristics and social opportunities. Cultural values may highlight the fluctuation in the meaning of empowerment dimensions across peoples. Empowerment strategies that work well in the western world may not be valid in other cultures. Project teams could be bound by common objectives but difficult to capture the wholeness of the external influences that play on an individual's cognitive motive. Chaos theory holds the view that, systems operate in highly complex and instable manner, but a 'strange attractor' which is an element of a complex system creates an order within chaos; it bounds the behaviour of the system (Thietart and Forgues, 1995). Strategic planning can thus be focused on a limited number of scenarios defined by the system's attractors (Levy, 1994). This encourages organisations to concentrate on the significant issues within the project team, which need to be handled in the short-term, and ensure that the debate about their long-term consequences is lively and engaged. Thietart & Forgues (1995) describe strange attractors within organisations as 'organisational configurations which demonstrate regularities in their macro-characteristics even though they may reveal large differences in their internal process. Strange attractors are not steady state, but temporary patterns of behaviour that may be changed at any time (McBride, 2005). This therefore informs us that empowerment

interventions may be defined to acknowledge the contexts that impinge upon the short-term projects goals but not to focus on the entirety of the environmental influences. This will ensure more pragmatic balance between present concerns and future potentialities (Stacey, 1996). Empowerment decisions and factors both internally and externally may shift the project team focus out of stability and move the behaviour to a new strange attractor within a new outcome basin, the state to which a complex system is attracted after interactive process has taken place amongst the actors in the system (c.f. Young, 1997). Interpretive use of chaos theory as metaphor for exploring the multiple dimension of empowerment in project will involve recognising general patterns and looking for shifts between semi-stable attractors and exploring reasons for those shifts. Strange attractors enshrine 'temporary stabilities in a sea of change' (Chia, 1998). The focus here is on this sea of change and the shifts that occur between strange attractors and its impact on the project.

The transition of complexity theory from the natural world to the world of management is still comparatively nascent and, although comparatively slow to gain widespread acceptance as a valid management perspective, it has increasingly attracted a number of followers despite remaining clouded in misunderstanding (Stacey, 1996). For converts, it is lauded as the next radical management paradigm for business developments (Lynch & Kordis, 1988). For others however, the popularity of complexity theory as an organisational tool is guarded at best (Merry, 1995). They argue that few examples exist of organisations, which have directly benefited from a practical form of the theory. This ongoing discourse seeks to take a more critical perspective toward chaos and complexity theory. An attempt has been made here to explain the philosophy, unveil the common metaphors employed by chaos and complexity writers, assess its unique application or new contribution to the understanding of project environment and ultimately enable a more critical assessment of the spaciotemporal manifestation of empowerment in projects. It will seem from the review of the literature that, chaos and complexity theory does offer the potential to better understanding the intertwine nature of empowerment in relation to managerial strategies. Mobilising such a perspective may help advance the study of the complex and dynamic manifestation of empowerment in projects.

CONCLUSION

Empowerment is an elastic concept that takes on multiple forms across people, levels, is contextually embedded and shifts over time. The construction process is also more complex than project management often envisage as the perceived ordered, linear view of project behaviour, reflected in the underlying project planning, management and delivery processes can be misleading. From the examination of the behaviour of complex systems, this is not the way the world operates. For example, even small uncertainties in the prerequisites add up to a significant uncertainty on the project's workflow as a whole. Yet, as Olsson (2006) found, rather paradoxically, while flexibility is frequently needed in projects it is rarely prepared for.

Empowerment with its own complexity and dynamism however provides an opportunity to introduce flexibility and adaptive functionality that can enable individuals, teams and organisations to be more responsive to the complex and dynamic project environment. However, too often empowerment initiatives are smothered by organisational practices which discouraged collective participation. The tendency to think in terms of dichotomies, such as leaders and followers, superiors and subordinates or a rigid preoccupation with hierarchy

rather than function inhibit the recognition, development and utilisation of full human potential within the project organisation. When boundaries to involvement are defined by management, empowerment then appears merely as rhetoric and the centralisation of power and control as the reality (Sewell & Wilkinson, 1992). Thus, the removal of structural impediments to the full participation of the employees is at the core of resolving the empowerment paradox. Organisations which stop short of inviting full and equal interaction are not truly empowering.

As Eylon (1998) notes, 'if an empowerment programme is executed without all those affected being included in its development, there is little chance that it will be successful'. Understanding the nature of the interaction among empowered project actors in the context of chaos and complexity theory is illuminating as it affords sense making of how different actors respond to, and cope with, the complex nature and dynamic character of project settings. This opens up several avenues for new ideas on how to improve project management. For example, based on the way projects are organised, planned, managed and delivered, the discussion here will suggest that the understanding of the dynamics of project settings is still incomplete. Future research may therefore benefit from a much more critical perspective from the viewpoint of chaos and complexity theory of organisational interventions such as empowerment as a way of getting a deeper insight into the world of project organisations.

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