The Interplay between Learning and Change

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ABSTRACT

Various types of change, change capacity, and change processes have often been presented as single isolated events with a clear beginning and end. Learning similarly has been described as an end that is desirable within certain contexts, anything from strategic capability, strategic renewal, learning styles and levels, and learning between individuals, groups, and organizations. While scholars have linked both change and learning, it is still unclear how one leads to the other or plays a substantial role in their binary creation. This study addresses this gap. The first section of the paper explores the interplay between learning and change. The second examines how learning modes are influenced by institutional contexts representing an element of learning. We explore the effects of these dual interplays on change success. The third section examines empirically these relationships through a qualitative study of the Australian construction industry.

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Keywords: learning modes, change commitment

To date, strategic renewal has been described as a process that harmonizes continuity and change at the level of the enterprise (Crossan, Lane, and White, 1999), in an effort to make better sense of how organisations learn. The notion of renewal however has equally been applied in technological innovation, strategic advantage, and organizational analysis as a means to exploit the good things organisations have created from the past by turning them into capabilities to explore the future (Benner and Tushman, 2003; Burgelman, 2003; Gupta, Smith and Shalley, 2006). New innovations need to be pursued meaning the negotiation of new learning activities, and past learning will be

embedded in existing organisational systems in the form of an organisation code that reinforces shared languages, beliefs, and practices (March, 1991).

March and a long list of other scholars have pointed to the value of the code to enable fast learning which is quickly turned into best practice (March, 2006; Miller, Zhao, and Calantone, 2006; Crossan and Berdrow, 2003; Gupta et al. 2006). Similarly, exploration has been described in the change literature as a need to break from the past and challenge equilibrium through punctuated bursts of activity (Gersick, 1991), and as a more ambidextrous organisation capable of shifts to different technological trajectories (Benner and Tushman, 2002), and continuous change (Brown and Eisenhardt, 1997). The challenge for managers it appears has been the need to break the fit or alignment between strategy, structure, and the culture of past exploitation (Tushman and O'Reilly, 1996). For change scholars, achieving exploration comes from pursuing both incremental and discontinuous innovation that hosts multiple contradictory structures, processes, and cultures within the same firm (1996: 24). Emanating then from the conception that organisational success is obtained by balancing exploitation with exploration (March, 1991), it is almost impossible to separate learning from this process. Only more recently have scholars pointed to the need to differentiate between exploitation and exploration in terms of the type and amount of learning (Gupta et al. 2006).

In this study, our central thesis is that the type and quality of learning underpins change success. Our focus here is on the connection between different learning modes and the types of change (discussed later) used to determine change success, which is a different emphasis. We now turn to the theoretical union between learning, context, and change, in an attempt to explain the underlying assumptions and relationships.

MODES OF LEARNING

Following Miller (1996), we prefer to simplify learning into a typology of two learning modes: methodical and emergent. Specifically, the modes can be explored in terms of their sub-elements. The methodical mode has three: structural, analytical, and experimental (p. 488). Both learning modes we contend paint a new face on the interplay between learning and change. While exploration is about exploring new possibilities, exploitation is concerned with exploiting old certainties (March, 1991; Crossan et al. 1999). Where the links between exploitation, exploration, and strategic renewal are well known, less is known about the role learning plays in this process.

First, the structural elements of the methodical mode codify prior learning by specifying how to carry out tasks and roles (Miller, 1996, p. 495). While actors channel routines which guide behaviour and perceptions, they also provide habit and redundancy since they constrain the range of experiences (p.

495). Analytical elements by comparison are used to perform market analysis and to develop and monitor strategic plans. At best, they assist managers to think critically about assumptions related to markets, where the right foot follows the left in a mechanically rigid fashion, but are possibly more suited in the implementation of strategy (Mintzberg, Ahlstrand, and Lampel, 1998; Miller, 1996, p. 491). The experimental element (the third type), is useful in exploiting the capacities for learning that already exist. While the routine is useful in adaptation to discover better ways in doing things (Miller, 1996), mostly through small iterations and workplace experiments (Bessant, 2004, Bessant and Caffyn, 1996), it is used less as a routine to explore new opportunities and to overcome long-term efficiency problems (Boal & Shultz, in Press). Since all three types of learning are methodical, they are less likely to account for, or lead to, dynamic workplace change. Methodical learning suits exploitation and adaptive change. Workplace change success in these circumstances will be determined by adaptations of the past at best.

The flip side to a methodical approach is the emergent mode. The emergent mode can be interpreted as the basis of transformational change as illustrated in high velocity markets since it is geared more to exploration than exploitation (Eisenhardt and Martin, 2000; March, 1993; Miller, 1996). Here, organizational members constantly challenge system processes and search for novel and new ideas. The emergent mode has three sub-elements: synthetic, interactive, and institutional. The synthetic element is the creative capacity to detect systems and configurations where others see only a jumble of events (Miller, 1996, p. 492). Where core rigidities are evident such as past capabilities that are a stumbling block to change (Leonard-Barton, 1992), synthetic routines are more likely to enable managers to collect information free of extraneous details and to discover critical resources. Similarly, learning occurs in an implicit way by exchanging information and evaluating transactions. Interactive elements also lead to different ways an organizational event is interpreted (Lee-Kelley & Blackman, 2005). Interactive routines are the product of spontaneous local adjustments to local opportunities that foster realistic collaboration. While synthetic routines examine novel ideas and patterns of relationships, interactive one's are more about bargaining and trading through daily encounters, and accommodating and negotiating local agreements, where knowledge transfer is a critical outcome of face-to-face communication (Orlikowski, 2002).

The discussion thus far leads to the first research question.

Research Question 1: What is the dominant mode of learning in the construction industry and how does this lead to both exploitation and exploration?

The next section examines the relationship between institutional contexts in the interplay between learning and change.

INSTITUTIONAL CONTEXTS

Institutional routines emanate from the emergent mode and are common in assimilating beliefs and values (Schein, 2004; Greenwood and Hinings, 1996; Schneider & Barsoux, 1997). They most likely represent routines of domination (Clegg, 2000) and are influential across a broader context (Gordon, 2002; Greenwood & Hinings, 1996). While in a positive sense they provide direction, articulate strategy, and reinforce desirable behavior (Schein, 2004), they can also be contested, or have a negative effect on emerging workplace change (Miller, 1996; Hinings and Greenwood, 1988a). The assimilation of institutional values by powerful players, whether by institutions themselves or some other means, will most likely clash with the existing organization code. Leader attempts in the medical industry are typical of such conflicts with professional groups (Denis et al., 2000; Gordon, 2002) such as Medical Professors, law and accounting professionals, or semi-professionals who embody a set of structures, processes and systems unique to their institution.

Change attempts will be difficult with a dominant institutional element if change processes are incorrectly matched to the existing organization code. Different change types (discussed next) may result in a poor match with the current learning mode. Commitment to the change itself by actors will most likely be negative since workplace change attempts are anathema to its context. Change processes that result in wholesale upheaval for example are seldom successful when poorly matched to the context in which change is intended (Greenwood and Hinings, 1996; Tushman, Newman, and Romanelli, 1986; Benner and Tushman, 2002). We argue that rapid change suits the emergent modes of learning, typically synthetic and interactive, by promoting open communication and information sharing together with new idea promotion and resource availability (Miller, Zhao, and Calantone, 2006; Kontoghiorghes, Awbrey, and Feurig, 2005). Under such circumstances, we propose a connecting relationship between learning modes and change types, underpinned by the dominance of institutional context. We suggest that with the added imposition of the institutional element, cognition and action however will be severely restricted.

The second research question is now possible:

Research Question 2: What is the effect of the institutional learning element on industry learning generally and on change success?

TYPES OF CHANGE

In turning to different types of change, Nadler and Tushman (1989) indicate four: tuning, adaptation, reorientation, and recreation. Both tuning and adaptation are consistent with the methodical mode of learning while reorientation and recreation are more emergent learning forms. Our central hypothesis is that both the methodical and emergent modes of learning underpin the four change types. First, tuning is an incremental condition made in anticipation of future events by concentrating on efficiency (1989: 196). In learning terms, tuning is a change process that makes small scale iterations similar to lower-level learning where routines are standardized across the organization (Fiol and Lyles, 1985; Murray and Donegan, 2003). Adaptation is also incremental in response to external events (e.g. competitive attacks) but does not involve fundamental change throughout the organisation. We conclude both types consistent with the methodical mode by modifying a firm's response to both its internal and external environment through analytical, structured, and experimental learning probes.

By comparison, reorientation is a strategic change. Reorientation anticipates external events that ultimately require change (Nadler and Tushman, 1989: 196). While such changes may not involve fundamental redirection, they may involve widespread organization change within the context of emphasizing continuity with the past and maintaining current values. Recreation by comparison is necessitated by external events that threaten the very existence of the organization (1989: 196); see also Benner and Tushman, 2002). Here, radical departures are common with a complete break from traditional values by destroying the alignment between strategy, structure, and systems, yet are more risky. We conclude both types consistent with the emergent mode through synthetic, interactive, and institutional probes. Both reorientation and recreation are consistent with exploration as a form of strategic renewal. Figure 1 reflects the relationships thus far.

Figure 1 about here

In order for a firm to embrace wholesale change such as recreation and be committed to it, we would expect to see at face value a more emergent mode of learning. However, the existence of context suggests that a simple connection between the type of change and the mode of learning needs further analysis. Specifying this relationship further, change commitment will be positive when there is a greater match between the type of change and the existing organisation code. The code is strong when there is a strong tie to existing structures and systems whereas the opposite is the case when the tie is weak. We suggest that providing change commitment by actors is positive, it matters little whether the code is strong or weak since actors are receptive to change. The worse case scenario however would occur when the code was strong yet change commitment negative. Here we would expect conflicts to

be accelerated on the basis of a poor match between learning and change. When both change and learning are in alignment, we contend that workplace change efforts will be more successful. Conversely, when not, change commitment will be negative and workplace change efforts less successful. Figure 2 outlines these relationships leading to the third research question.

Research Question 3: How does the type of change influence the current mode of learning and what is the effect on change success?

METHODOLOGY

Background

This study examines the implementation of change in the construction industry. It investigates the responses of managers to recreation as a change type. It does this by observing 1) the existence of the two learning modes and their sub-elements, and 2) by matching these to the type of change. The institutional context is explored also in relation to these two points. Ten firms are examined. The value of the study lies in the empirical observations between change and learning adding to existing scholarly interpretations between both phenomena (Gupta et al. 2006; Miller et al. 2006; Benner and Tushman, 2002).

Figure 2 about here

Research Design

The research is based on the interpretive paradigm (Burrell & Morgan, 1979) and qualitative observations of managers in the workplace. The paradigm focuses on the person and their actual lived experiences, social actions encountered, and the meanings that lie behind the various events and phenomena under question (Weick 2001; Berger & Luckman, 1966; Schwandt, 1994).

The Data

Primary data was obtained from 42 unstructured manager interviews and observations in practice conducted within the ten firms during 2003. All firms had experienced significant change during the previous 5 years of the study. Data was tabulated and arranged using *Nud*ist* according to the two learning modes and the types of change evident. Data was also transported to thematic matrixes in order to recognize the learning elements (in the form of work routines), and to match them to both the mode of learning and the type of change occurring (Table 1). The researchers expected to observe either positive or negative commitment to the change on the basis of the observed work routines. In addition, institutionalized elements were also recognized by work routines imposed and again matched to the type of change. A sample of unstructured questions is illustrated in Table 2.

Table 1 about here

RESULTS

The Institutional Context

As an emergent mode of learning, the institutional element was observed on the basis of the imposed systems and procedures represented by contractual obligations. The most powerful buyer for construction services was the State Government's Department of Public Works and Services. Institutional work routines consisted of pre-designed standard quality frameworks and a desire by the Government to overhaul old workplace practices to increase long-term efficiency. The buyer believed this was mainly due to how projects were designed and constructed.

Table 2 about here

Design/construct was based on traditional beliefs by combining both methodical and emergent learning. Here, clients (e.g. a large contractor or engineering firm as opposed to the Government), handed much of the design work to either architects or engineers who in turn subcontracted other supply chain activities. The old system of design/construct however was inconsistent with the new radical procedure implemented by the Government. Actors lamented the good old days consisting of long-standing traditions handed down from one generation to the next. Mutually beneficial economic relationships, high trust, and high supply chain collaboration was compromised by price as a common denominator by which all new contracts were negotiated. In a highly competitive industry, the new radical form of contracting (which mainly consisted of a lump-sum decided in advance by the buyer) led to short-term tradeoffs between quality and profit and a heightened sense of competitive rivalry. This led to large-scale claims at completion as a result of changing the systems. The Department of Public Works and Services as a powerful buyer strictly enforced the new systems and contractors had little opportunity to participate or voice their ongoing concerns. The new systems and routines governed what was learned and how contracting routines were negotiated and traded. The imposed practices led to large scale rebellion with little understanding of the change effects: 'The right hand doesn't know what the left is doing mate' …'Your men will leave you and go and work elsewhere, you know, you can't afford to lose men you know' (Subcontractor manager).

Change and the Organisation Code

With the new emphasis on lump-sum contracts, the organisation code of traditional beliefs where learning was experimental in the design/construct tendering process mattered little to large buyers. The new change was a form of recreation. While the latter is meant to radically transform and break the alignment between strategy, structure, and systems (Nadler and Tushman, 1989), by radically transforming the organisation/s, this had the effect of installing a whole new system of work structures

effectively dismantling the methodical structures of the past. Moreover, the existing organisation code was based not only on methodical learning but also a network of semi-structured relationships.

These relationships made up for the restrictions in existing systems that exploited the past by exploring through mutual consent and bargaining how projects of the future should be negotiated. In a sense, interdependent contractors recognised the inadequacies of the existing systems by trading, negotiating, and adapting their work systems for the benefit of the whole supply chain. The new systems threatened the organisation code by attacking not only the learning routines in the methodical mode but also those in the emergent comprising synthetic and interactive learning. Consequently, conflict increased between construction agencies, and claims and counterclaims became the order of the day. Most contractors felt 'obliged' or 'bullied' into changing their procedures to reflect the new practices. Consistent with Schein's (2004) emphasis on 'value shaping behaviour', powerful buyers replaced old customs and traditions which led to negative change commitment on behalf of supply chain actors.

Learning Modes

The organisation code that dominated the traditional supply chain with a delicate balance between exploitation and exploration, method versus emergence, was suddenly replaced by new rules and procedures, endless amounts of paperwork, and a learning mode dominated by new analytical and structured work processes. The dramatic increase in structured routines (as distinct from a balance between both methodical and emergent) led to heightened litigation. Professional architects noted that some professionals would be 'driven out of the industry' because of the cost of professional liability. While in the old days, contractor collaboration was largely a matter of discussing problems over 'a few beers at the end of the day,' the new practices were driving the industry towards greater, rather than less, litigation: 'We have enormous professional liability problems, professional ability insurance, enormous, $200,000 for this year; it is an incredible amount of money' (Consulting architect).

With the old system, the client managed the whole process reflecting much evidence of careful design and strong consideration of other viewpoints. Designs reflected an interactive process between all players in the industry and learning was both methodical yet emergent through intuitive and novel relationships where the whole was greater than the sum of its parts (Miller, 1996). New possibilities to existing designs were thus common reflecting a more emergent mode of learning. While price was important in design/construct, more emphasis was placed on the actual design itself. Consequently, fees reflected the degree of planning.

The researchers carefully analysed each thematic matrix however finding no evidence of the three activities. Instead, each matrix revealed the winding back of both the interactive and synthetic learning elements by replacing these with an even more rigid and highly structured set of methodical learning

routines. The previous emergent mode that led industry players to interact in new and improved ways to discover core rigidities in business practices had now disappeared. At best, recreation led to improved efficiency in buyer procedures from the buyer's perspective. At worst, the change process was poorly matched to the organisation code and the existing learning routines with the effect of replacing the existing code with a new form of methodical learning.

DISCUSSION

For RQ1, the dominant form of learning prior to the change was based on both the methodical and emergent mode. The latter was not formally recognised throughout the industry but rather informally acted out in all supply chain activities leading to an unexpected finding. When left to their own devices before the imposition of the institutional element, construction actors had developed a set of work practices and procedures largely based on the social construction of reality (Weick, 2001: Burrell and Morgan, 1979). All actors socially crafted a set of work routines consistent with the emergent mode of learning. Interpretations of complex systems and structures such as engineering and architectural designs were based on a mix of experimental and interactive learning by changing and incrementally adjusting plans in the light of new information. Hundreds of minute details were often scrutinised by actors using the synthetic elements to search for new connections and assumptions in such a way that key patterns and hidden meanings surfaced (Miller, 1996). This occurred not only in relation to building and infrastructure designs but also in the intricate network of relationships that were needed to action large construction projects. Notably, these routines were crafted free of intervention and management manifestos. The integrated relationship between both learning and change was thus critical (Figure 1). They became part of the informal established systems and structures adhered to in the organisation code yet not formally recognised by dominant institutional actors, or as part of a formal system. This appears to confirm what Gupta, Smith, and Shalley (2006) suggest that reliability-enhancing learning that results from human and organizational attempts to replicate past routines is often overlooked. It also confirms previous research that both exploitation and exploration are needed in the pursuit of new learning (March, 2006). Indeed, the emergent mode is consistent with higher-level learning routines common in dynamic interactions and behaviours (Murray and Donegan, 2003; Miller, Zhao, and Calantone, 2006).

While structured learning in the methodical mode is perhaps the best way to describe the dominant learning routines used, recreation led to more layers of structure based on highly patterned and rigid procedures. The dismantling of the emergent mode to accommodate an even stronger methodical form was an interesting observation. What this suggests is that while recreation is at the vanguard of change, a poor understanding of the code led to more exploitation by ramping up the methodical learning routines. At no time did recreation lead to change success from the buyer's perspective. All actors

interviewed expressed great disenchantment with the new system and negative change commitment. What this suggests is that both modes have to be tied to change processes and that it is both necessary and important to determine the current level of learning (Fiol and Lyles, 1986; Murray and Donegan, 2003), expressed in behaviour and capability. That is, the current mode of learning should be assessed to determine whether actors: 1) have the skills and capabilities to make the change, 2) have a level of knowledge consistent with the type of change required, and 3) understand the importance of the change so that existing ties to the organisation code can be relaxed, and change successfully implemented.

In moving to RQ2, institutional hegemony led to large-scale disruptions in the supply chain. All actors appeared to be affected. The previous institutional context was one that tolerated the status quo where actors interacted and socially constructed an environment where the whole was greater than the sum of its parts. The intersection of actor inputs with the new system of change however was severely disrupted and changed by the dominant power broker represented by the Government as buyer. The old institutional logic was completely overhauled. While the new institutional change was designed to increase efficiency and productivity, the opposite occurred with large cost overruns, claims and counterclaims, and increased litigation and risk. This confirms Hinings and Greenwoods (1988a) findings of placing the change outcomes on a different track from the one originally intended. It also indicates that institutional dominance couched in the form of emergent learning needs to be carefully matched to the existing organisation code.

For RQ3, the existing organisation code coupled with the dominant learning mode did not match recreation as a change type. The latter was designed to break the current alignment between strategy, structure, and systems by installing a completely new contracting process. As already noted, the old system was deeply grounded in the current organisation code underpinned by a more emergent mode of learning. Commitment to the change by all actors was negative. Since the code was strong and reactions to the change negative (see Figure 2), any further attempts by the buyer to enforce change was confronted by an even stronger resolve to resist on the part of actors. Change success was less likely under such circumstances.

For the most part, it is difficult to conceive of change success in the current study when there is little if any balance between exploiting and exploring. Perhaps the answer lies in the need to create a more ambidextrous organisation (Tushman and O'Reilly, 1996; Benner and Tushman, 2002), in such a way that organisational architecture manages both the multiple and conflicting demands between exploiting and exploring. As Meyer and Stensaker (2006) suggest however, 'managers consistently neglect or underestimate the adverse effects of implementing change' (2006, 219), and that a possible cause is the failure of management generally to recognise the balance between resources deployed in

change processes as well as daily operations. In highlighting the point about change processes, we do not see change as an isolated event and agree with the views of other scholars that change does not have a clear beginning and end (Crossan et al. 1999; Meyer and Stensaker, 2006). Our contribution in this study has been to elevate the role that learning modes should play in change implementation and more specifically in matching change processes with learning.

Conclusion

Previously, organisational learning as a community of knowledge appears to form separate yet connected studies related to individual learning processes (Argyris, 1993), knowledge management (Orlikowski, 2002), and organisational learning (Huber, 1991; Crossan and Berdrow, 2003; Easterby-Smith and Araujo, 1999), among others. Similarly, change has often been studied as a process with a clear beginning and end (Nadler and Tushman, 1989; Meyer and Stensaker, 2006). Scholars of strategic renewal have attempted to link the two concepts through exploitation and exploration by concentrating on building an ambidextrous organisational architecture (Bennis and Tushman, 2003; Crossan and Berdrow, 2003; Gupta et al.2006), and learning and change has been clearly linked to performance (Arthur and Huntley, 2005). What is important in all studies is the need to improve how an organisation learns and increases its knowledge to do things better or different by exploiting the past and exploring the future. However, the link between learning and change has not been clear. Strong connections exist between all research questions in this study to suggest that both the quantity and quality of learning is important for successful change and that the type of change should be matched to learning. Indeed, it is difficult to conceive of a situation in which change success is not influenced by its institutional context, the dominant learning mode, and the actual change process itself. We started out by pointing to the value of developing a framework which might move us closer to theory building. Figure 1 illustrates this framework and the discussion links the variables. In particular, the integration of learning and change in this study is designed to address a research gap. Figure 1 highlights the fact that change, or learning for that matter, are not ends in themselves. Rather, particular predisposition to one or more learning modes underpins change and the integration of both is required for change success.

Directions for Future Research

While the findings of the study might be used to explore similar learning activities across the industry, future research might explore a broader group of managers at different levels within the same industry. The research design for this paper may be replicable to other industries. Other scholars might explore the findings of this research using the same or similar constructs. It is expected that other industries may be less dependant on supplier firms and that learning modes will be implemented differently. Positive change commitment is indeed expected in other industries where the dual realities of learning and change are more evident. The computer and electronics industries are a case in point

where continuous reorientation and transformation is necessary (Brown and Eisenhardt, 1997). The interplay between learning and change when change commitment is positive and the organisation code strong would be useful in building on the ideas of the current study.

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Table 1: Thematic Conceptual Matrix

Learning Modes / Change Types / Learning Elements	Tuning	Adapting	Reorientation	Recreation
Methodical				
Structured		↑	↑	
Analytical				
Experimental				
Emergent				
Synthetic		↓	↓	
Interactive				
Institutional				

The relationship between learning and change determined by observing the current work routines of actors

Table 2: Sample of Unstructured Questions

Broad Theme	Questions
Organisation code	• In relation to contracting, tell me about how you have done things in the past? • In what ways do these beliefs influence your current work environment? • Can you explain the recent changes to tendering and contracting? • Do you prefer the new or old system? Why? • To what extent do the old practices still exist?

Figure 1: A Framework of Learning and Change

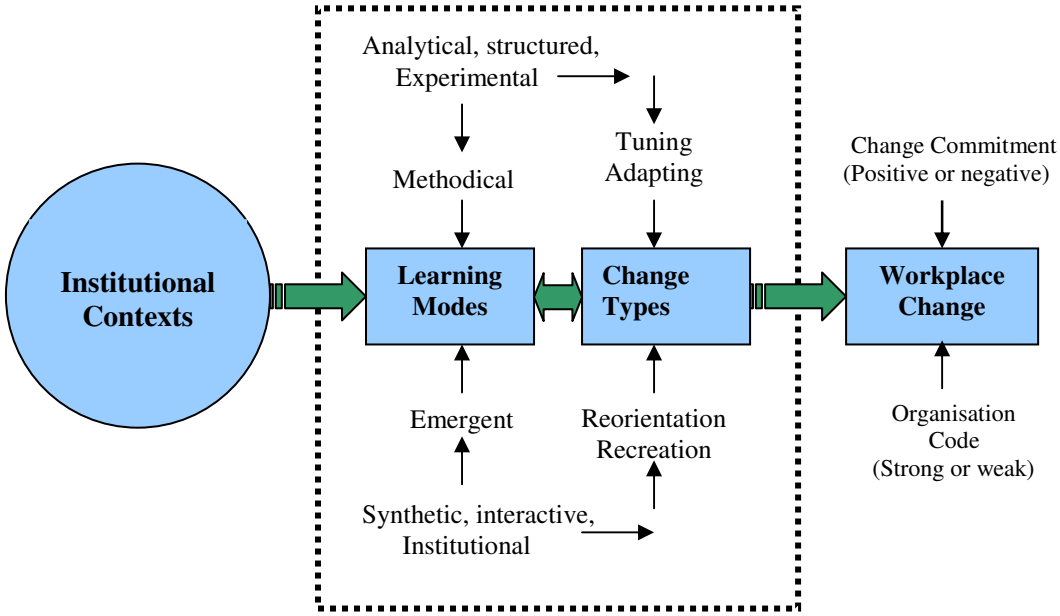


Figure 2: Change Relationships and the Organisation Code

