



Munich Personal RePEc Archive

Constraints in Organizational Learning, Cognitive Load and its Effect on Employee Behavior

Sidharta Chatterjee

Andhra University

11. January 2013

Online at <http://mpa.ub.uni-muenchen.de/47707/>

MPRA Paper No. 47707, posted 21. June 2013 03:15 UTC

Constraints in
Organizational
Learning, Cognitive
Load and its
Effect on Employee
Behavior

Sidharta Chatterjee

Copyright © 2013 Sidharta Chatterjee

All rights reserved.

DEDICATION

In Memory of my Father
Late Sri Saradindu Chatterjee

Contents

Executive Summary	v
ACKNOWLEDGMENTS	vi
Section I	8
1 Introduction	8
2 The Concept of Constraint: Complementarities and Bottleneck	12
Section II	15
3 The Model	15
4 Results	20
Section III	21
5 Discussion	21
6 Conclusion	25
References:	26

Executive Summary

Employee motivation is an important factor to generate positive behavior on the part of the agents which encourage better performance. But then often, employees are demotivated, either by the lack of enough support from their team leaders, or due to the unbending nature of complexities associated to their tasks which they often find it difficult to assume. The nature of such complexities could give rise to contingencies which Managers are required to handle. But it is not possible for a manager to do all the things all by herself; tasks are shared among her agents (employees) who are specialists in specific job related tasks. Yet often, agents find it difficult to understand the nature of such tasks, or fails to comprehend and conceptualize what that is required or even if they are able to recognize, they find it difficult to perform what that is given as tasks. Managers, here as guides, help them understand the profile of the job, and things which are required from the employees. In this ever-changing knowledge economy, and for a complex organization who are in the business of generating, marketing and selling knowledge as a product, it is relevant for the agents to be up-to-date with market knowledge and new information related to their task profile. For this, they are required to learn which forms an integrated aspect of organizational learning. But when someone learns, she may often find it difficult to conceptualize the meaning of what she is learning. Or there may be knowledge gap between the agents inducted newly and the knowledge held by the incumbents within an organization. To fill the gap, proper training is provided by the HR department on induction. If the agent fails to understand the nature of the tasks, it is the job of the manager to explain such and guide the agent. But when the job is demanding, agents may need to learn faster and master in efficiency and speed. If the environment is compellingly competitive in which the agents are learning, it should be motivational. Or if there are barriers to learning, or even if everything is well but the agents fails to conceptualize what he or she has learned, it may affect her output (actions) and hence performance(results). The barriers as such mentioned, is what that is modelled as “*Constraints to learning*”, in this paper. If the constraints are binding and not dealt with, stress develop in agents who find it confusing of what to do and how to do the things that are given as tasks. Slowly and eventually, when such constraints keep binding which increase the degree of stress, there develops a load on the cognitive systems and memory, given that human beings have a limited capacity to process and store information. When the load is too much to bear, it presents as a cognitive load where the agent(s) may get totally disoriented and thus performance suffers. Inevitably, this predisposes to the risk of redundancy- that is layoff. But if the managers are keen to find out why the agents are failing, or reasons for their non-performance other than exogenous (external) factors, the endogenous (internal) factors might appear to be pressing. A further investigation might lead to what caused such demotivation, and why performance is falling, or if there are any constraints to learning. If it is found out that agents are not able to learn properly or conceive meaning out of what that is learned, solution should be mandated. Simple, effective strategies can counteract such constraints which help reduce stress and hence decrease the cognitive load. To keep in mind, managers are hired to manage people, process and practice. So, they must be receptive to any such contingencies or constraints related to performance, which results from the nature of agent actions. This paper hence touches on these aspects of learning in an organization, and the constraints associated with such organizational learning processes which introduces the concept of cognitive load in interorganizational learning.

ACKNOWLEDGMENTS

The author extends his gratitude to Prof. K.T. Rao, and Prof. S. Rao, School of Economics, Andhra University, for without their kind help and acquiescence, this research wouldn't have been possible. The author also acknowledges the kind help extended to him by the departmental staff of Dr. V.S. Krishna Central Library, Andhra University, Vishakhapatnam.

Constraints in Organizational Learning, Cognitive Load and its Effect on Employee Behavior[†]

Sidharta Chatterjee*

Abstract

Traditionally, learning organizations face certain constraints related to both exogenous and endogenous factors. In this paper, I model three well established constraints that employees face while being part of their organizations. These are in the tune of constraints on their natural behavior which is explicit, and two implicit constraints on their endeavor to acquire new knowledge and perform new actions. The implicit constraints which are elaborated, is related to their relative performance in acquiring new knowledge and by their consecutive actions based on the new knowledge gained. This paper, so forth, attempts to underline such limitations which the agents face under organizational culture and suggest possible strategic initiatives that would effectively counteract such binding limitations to stimulate positive performances from their end.

Keywords: Organizational learning, constraints, employee behavior, cognitive load, knowledge, organizational adaptation

JEL Classification Code: 031, 032

UNPUBLISHED: Note; Usual Disclaimer Applies

Paper Type: Original Research Article

Date: January 20

[†]Visiting Researcher, Andhra University School of Economics

*Author Email: sidharta123@yahoo.com

Section I

1 Introduction

“...they chatted, they communicated ideas...”

-Voltaire, from *Candide* (1759).

Organizations as hub of all activities are bounded by different categories of constraints. These constraints arise out of the increasing complexity of the dynamic environment in which they operate due to the advances in technology and globalization. The ‘constraint’ factor as proposed by Goldratt (1984) states that organizational performance is often impaired by some form of constraints which evolve as bottlenecks on account of the complementarities of complexity of organizational tasks and routines that are gradually becoming more complex (Tucker et. al., 2003), as well, along with their diversity of culture as varied as they are. In response to such environmental complexities, and to cope with such dynamicity, organizations adopt innovative learning strategies with an aim to adapt (Carley, 2000) and empower their agents (employees) with cutting edge market information which facilitate them to compete with confidence in the global market place. According to K. Prasad (1998), organizations are complex adaptive systems (Bar-Yam, 1997) whose dynamicity reflects similar complexity of other complex systems. Organizations involve human factors as being part of the complex dynamic environment in which they operate. As such, they learn to adapt to these ever-changing dynamicity by learning how to deal with those arising complexities related to open and closed uncertainties, which is an important aspect of an adaptive, evolving agent. It is imperative to consider a firm as an active entity which deals with both deterministic situations and probabilistic circumstances; in other words, organizations are active decision-makers. To make a decision, one should know and be aware of about the contexts. Hence, organizations are active knowledge entities that they learn how and when to deal with complexities. Learning, hence, is now considered to be one of the most

important aspects of organizational culture (Smith, 2001) as much as knowledge, considered as the most valuable asset of a 21st century institution (Drucker, 1999), and the ongoing technological advancement is reshaping it with much vibrancy. Corporate organizations (firms) are in a business of profit where their routines and tasks are getting complex by the day, and they are forced to adapt to this new dynamicity for long term growth and survival. This has no doubt, resulted in fierce competition amongst firms for resources and market information (Porter, (1980), Grant, (1991), Bridoux) and about the sources of such resources as a basis for resource-based view of firms (Amit & Schoemaker (1993)). One of the finest sources of such resources is the human resource itself. Since it is generally the human behavior and actions which affect organizational performance, managing human behavior is indeed a complex task due to the overwhelming complexity of human behavior itself coupled with environmental complementarities. In today's business environment, success is not just hinged on the resources and talents one can access, but also, the way these resources and talents are managed (Cascio, 2006). Managing resources hence, is a business of making decisions, clearing bottlenecks and solving problems. With rising complexities in the business environments and to deal with such uncertainties, organizations are both adopting as well advocating new systems of learning and management which are both innovative and flexible as well, easier to implement (ITeS-enabled learning platforms, open source learning systems and online information management(repositories) systems, to cite few examples). Learning helps organizations to develop their own knowledge-bank which they generally leverage in their routine activities. It is important for any learning organization's long term survival and growth (Senge, 1990). There are numerous channels by which organizations gain knowledge (Bhatt, 2000); primarily, in the form of human capital as new knowledge their employees bring in when they are inducted as a part of that organization. Firms also collect information from the market, from dealing with their clients and from the experience of doing their business. In effect, they are perceptual agents that they learn, and unlearn. Whilst organizations learn as they carry out their routine activities, so do their active agents- the employees, who are agent representatives; the human factors (Nickerson, 1992) of an organization. In this world of knowledge representative economy where

organizations are adapting fast enough and where employees need to stay abreast in acquiring new information- which are, by means of, knowledge attainment, dissipation of the information acquired, managing and sharing of that knowledge (Barth, (2000), Frappaola, (1998)), all forming an integral part of organizational activity. Firms leverage such knowledge gained through numerous channels and apply those information into their business activities which becomes the fundamental aspect that often determine a firm's strategic performance. Hence, the importance of organizational learning (Smith, 2012) cannot be underemphasized, rather, the impact that learning have on organizations help firms to successfully implement new strategies, maintain competitive advantage over other firms as well, to enable them to develop structural insights whose action outcomes help organizations to adapt to an ever shifting economic environment. Constraints to learning as such, could be viewed as a threat to organizational dynamism. The question is not why organizations must learn, but how they should learn and apply the knowledge gained. Learning helps organizations to successfully restructure their problems and guide them strategically which is an outcome of learning-induced organizational adaptation (Chatterjee, 2010). It has become a well-established theory that learning improves future performance of organizations. However, learning organizations as well as their employees (agents), generally, face certain constraints related to both learning and applying new knowledge thus gained. A definite presumption might be, it is these "constraints" related to learning that often evolve as cognitive load, a concept based on Cognitive Load Theory (CLT) first proposed by Miller, (1956), and then, by Sweller, (1988), Ayres, (2006), and Miller, (2006) which states that our working memory is limited with respect to the amount of information which we can process, and which induce stress on both the agents and on the learning (instructional) organizational system. This is what that I attempt to underline in this paper with a simple model of constraint. In such endeavor, this research attempts to integrate Goldratt's (1998) Theory of Constraint with Sweller's (1988) Cognitive Load Theory to comprehend what constraint is and how it might be related to cognitive load, besides, recommending a simple strategic model framework to deal with cognitive load associated with endogenous constraints in learning organizations.

Hence, the present research is organized into following sections; Section I deals with an introductory note containing the aims and objectives of this research and outlines the philosophy of the concept of constraint; Section II describes the 'constraint' model and assumptions based on organizational learning representations which guide behavior of firms and the results interpreting the inferences drawn from the model. Section III presents with a discussion linking above findings to inferences drawn, following a concluding section with future research implications.

2 The Concept of Constraint: Complementarities and Bottleneck

In effect, the philosophy of the concept of “constraint” was introduced in organizational studies by Eli Goldratt (1984) in his book “The Goal”. According to his theory, organizational performance is modulated by several categories of constraints. These constraints appear as bottlenecks which prevent organizations to fully maximize their performances related to their goals. These constraints are in the tune of both exogenous (external) in nature and endogenous (internal) in origin. Endogenous constraints can appear as people, skills, operational, technical (equipment) or a combination of some of the above, whilst, exogenous constraints may appear as information, supplies, macroeconomic factors, government policies or exchange rates. However, there is one particular endogenous constraint related to people and skills which we may call job-related leaning-constraint which may pose as a bottleneck toward maximizing employee performance. It has been observed that constraints in learning are more apparent in bottom-lines of an organization where agents often struggle to acquire new knowledge and skills relevant to their organization’s objectives. Whereas constraints are much less pronounced or detectable at the mid-managerial and managerial level, they are far less apparent at the corporate/executive levels. Since the executives set organization’s goals, they are often better ‘informed’ than bottom-lines. But this is often not so the case since Robinson and Schroeder (2004) consider that managers are often supercilious and they require inputs from their subordinates. They have a view based on empirical evidence that ideas are free and managers should engage their employees toward knowledge and idea generation since they usually deal with aggregate information (Hayek, 1945) while their subordinate employees’ deals better with contextual knowledge. Managers generally pass down corporate goals and objectives from the executives/CEO to their direct subordinates in reverse hierarchy down to the lowest secretarial level, where it can be said that knowledge that benefits organizations at large do benefit their employees to some great extent, and vice-versa. Managers also guide new entrants on how to learn and apply

relevant information to meet corporate objectives. Yet still, in many organizations, it is often the bottom-line where information is not shared or generated uniformly, neither are there enough opportunities to incentivize learning-based application of the knowledge acquired for individual growth and development. They are often left to stagnate in mind and in intellectuality, and this is a major concern with a learning organization which lack vision and proper mentorship. This nature of cognitive stagnation in people and practice is the current topic of this research, wherein, I have attempted to highlight the factors and variables involved which pose as an important endogenous constraint- the constraints of learning and training related to human resource development. Virtually every type of organization whether in the business of research and development, manufacturing, information technology, retailing, biotechnology or marketing research, must learn to sustain their competitive advantage and face competition from new entrants, who evolve with better knowledge since, new entrants often benefit from an information base dissimilar than that of incumbents (Zack, 1999). Learning increases the capacity to absorb further information and turn them into productive knowledge. It enables organizations with effective decision-making; to manage uncertainty, since; an informed organization is better positioned to deal with the complexities of its business environment. Organizations in the business of turning knowledge into assets comprehend the relative importance of learning which empowers its workforce with relevant knowledge required to sustain their competitive advantage. However, since knowledge has become an integral component of business activities, whether that is in retailing or market research, understanding consumer behavior, consumption patterns and customer preferences all require analysis of information gathered by every member of the organization's workforce. Yet often, many organizations ignore the fact that there remains some inequality in knowledge sharing and information dissipation across the organization-wide platform. This inequality stems from the constraints in learning and designing effective organizational learning systems solutions that would benefit its workforce and unleash their covered potentialities. Moreover, the stress related to constraints should be acknowledged and dealt accordingly. Herein, I attempt to model in such objective paradigm the constraints associated with

learning systems and knowledge acquisition processes in organizations and suggest few strategies that would facilitate its (knowledge) organization-wide application. This paper hence aims at modeling such constraints those organizations face and provide a structural framework to deal strategically with such constraints in learning systems whereby, knowledge becomes a strategic asset of the organization.

Section II

3 The Model

The model that is presented herein is based on the assumptions of organizational learning model that propose certain conditions which guide organizational behavior much similar to normative modeling of theoretical assumptions when those conditions are met. This is a simple model of the effect of constraint on learning which however, does not include all the possible variables that determine organizational learning. Modeling is a representation of a real system. Considering an organization as a system in which agents behave and act, learn and do routine tasks, it is beyond the scope of this paper to include all the variables that affect employee learning or all the causal factors of constraints contingent upon the system. Hence, this is a simple model which assumes, with limitations, the general conditions as parameters based on which the real environment is simulated. It is presumed that when information has been gained by the agents it would reflect with actions on the organization's behavior. The designed constraints on learning and agent behavior are based on the following assumptions which propose two theories; the first assumption is how learning will improve future performance given the parameters of performance classified as past, present and future performance of the agents as, P_{t-1} , P_t , and P_{t+1} respectively. The variables are parameterized as given conditions as; where P denotes performance $P_{t-1} > 0$, $P_{t-1} < 0$ and $P_{t-1} = 0$ respectively. Given that k which denote knowledge gained where k can have three conditions; $k=0$, $k>0$, $k=P_i=1,2$ and $a=0$ or $a>0$ and $a=0$ or $a>0$ respectively for agent actions. The first equation that can be derived to represent behavioral changes in agents with respect to learning and knowledge acquired may be written as,

$$\Delta^s P_{t+1} = [(P_{t-1} - P_t) + l(k + a) + B_h]/C_e - C_i \quad \text{eq. (1)}$$

Where, l denote learning, B_h denote agent behavior and a for agent actions. The variable C_n is modeled as constraint of difference between exogenous (external) constraints and endogenous (internal) constraints, where $C_n = C_e - C_i$. C_n can have three values, either $C_n = 1$, or $C_n \cong 0$, or $C_n = 0,1$ wherein if $P_{t-1} = -1,0,1$ and $C_n > 0$, and $P_t = -1,0,1$ while $C_n \cong 0$ or, $C_n = 1$, then we can assume several values that can be assigned to actions ' a ';

$$\begin{aligned}
 a &= 0 \quad \text{when } l \geq 0 \\
 a &> 0 \quad \text{when } l = 0 \\
 a &< 1 \quad \text{when } l = 1 \\
 a &= 1 \\
 a &< 0 \quad \text{and } a < -1.
 \end{aligned}$$

Given the parameters above, it may well be computed when we assign some values to the above variables and find out whether knowledge has been gained, or what knowledge was acquired by the agents that would tend to reflect with actions on employee behavior. Now, by assigning values to the above equation no. 1, we will be able to derive the nature of outcome that would mirror performance, so, I call this equation constraint-based performance measure of employee behavior. Reciprocally, Cascio (2006) in his work mentions about the impact of employee behaviors on the economic, operating and financial performances of firms. Indeed, it is an accepted belief that a motivated workforce is the source better corporate performance. Now, substituting values above, we may derive;

$$\Delta^s P_{t+1} = \int_b^a 1 dx * ((P_{t-1} - P_t) + l(k + a) + B_h) / C_e - C_i \quad \text{eq. (2)}$$

$$\Delta^s P_{t+1} = \int_b^a 1 dx * \frac{((-1 - 1) + 1(1 + 1) + B_h)}{1}$$

$$P_t = -\frac{(-B_h)(a-b)+1}{\Delta^s} \quad \text{eq. (3)}$$

$$P_t = -\frac{-B_h + 1}{\Delta^s}$$

where, it signify that there has been non-positive change (for Δ^S) in behavior and no change in overall performance if the constraint is a positive integer, and wherein, when the employees undertook non-negative actions, the performance did not change. The functional variables as limits a, b denotes the bounded constraint derived as the difference of $(a-b)$ when solved for performance P_t where we derive non-positive change in agent behavior.

Now solving for B_h , we derive;

$$B_h = \Delta^S P_t + 1 \quad \text{eq. (4)}$$

This relation signifies that the real change in agent performance is directly related to the agent behavior that tends to be positive only when the constraints $C_n=(a-b)$ are impassive.

Definition 1 Knowledge gained by the agents will reflect with actions on their behavior where $(k \rightarrow \forall a \in B_h)$ that is, for all agent actions the knowledge of which originate as well reflect from and into agent behavior.

This definition leads us to following two assumptions;

Assumption 1 Learning ' l ' will depend on both (how) knowledge(k) is acquired and actions(a) performed with constraints(C_n) binding to both organizational learning and employee behavior that would overall determine organizational performance.

Given by equation nos. 1, I derive a formal equation of the effect of learning on employee behavior related to performance;

$$l = \frac{l(k+a)+B_h P}{C_n} \quad \text{eq. (5)}$$

$$l = \frac{B_h P}{(-P)(a+k) + C_n}$$

Or,

$$l = \frac{B_h P}{C_n - P(k+a)}$$

$$l = \frac{B_h P}{C_n - P(k - a)}$$

Lemma 1 Performance-based knowledge acquisition and actions wherein learning as a direct explicit outcome of employee behavior modified or affected by constraints placed on both knowledge acquisition, performance and actions which present as cognitive load (l_c) on the system. While for,

$$l_c(C_n - Pk - Pa) = PB_h \quad \text{eq. (6)}$$

$$l_c = \frac{B_h P}{(-a)P - kP + C_n}$$

We derive the same outcome as equation nos.5. One may also find that the constraints are binding though implicitly to knowledge acquisition, agent actions and performance, and induce cognitive load as (l_c) on learning l . Now when we solve for performance 'P', we find it is in direct relation to constraints on learning, whereby, both agent actions and knowledge can affect constraints given by;

$$P = \frac{C_n l}{l(a+k) + B_h} \quad \text{eq. (7)}$$

We can deduce a general definition from the above modeling in that; continued, guided agent intervention and innovative instructional designs can obliterate the cognitive load (Cooper, 1998) on learning l . The path to cognitive enhancement will only be possible when such constraints are taken care of and the resultant cognitive load is minimized (Rouet, 2009) since, learning is based on agent actions and how knowledge is acquired which invariably affect agent behaviors.

Definition 2 Constraints are binding on employee behavior explicitly, but implicitly on the employees' performances in acquiring new knowledge and performing new actions.

This definition according to which, the bounded constraints which constrict

the employees' abilities to acquire new information related to their practice depend explicitly on employee behavior which however, affect tacitly those employee's performances. Since the agents' behavior is guided by organizational objectives, rules and principles, their actions are much streamlined according to the particular organization's goals. While agent actions determine organizational performance, it is also the managers responsibility to manage people, process and practice, efficiently. Managers develop local strategies which are targeted toward minimizing bottlenecks and constraints. It is the employees' degree of engagement to their related task profiles that determine how they should convert knowledge effectively into action, and thus deal with any contingencies, efficiently. However, this concept of efficiency² is now archaic- it is more about organizing people and practice for best performance; so it is something more than just efficiency. It is not essentially what organizations do efficiently- it is how they manage contingencies.

4 Results

The model shows how constraints in learning can develop into cognitive load and how innovation in instructional design programs aimed at interorganizational learning paradigms can minimize such cognitive load in agents. From assumption 1, it can be deduced the way learning depends on how knowledge is acquired and actions are performed based on such knowledge gained. It is to be noted that not everybody learns in an organization, but for those who are required to do so, should be free from encumbrances and where, the organizations can provide good foundations of organizational learning practice. From *lemma 2*, it is evident that when constraints to learning are binding on agents, the outcome of employee behavior can vary; it can affect agent actions and hamper their performances. The model depicts why cognitive load develops, and how it affects both agent performances and actions. *Definition 2* is important; in such sense that though constraints are binding on agent behavior, they are explicit, but the effect of such may be implicit on employee's performances. Which again, denotes that there are agents who perform unfailingly even when such constraints are binding, but which may nevertheless, affect their rate of learning, which nevertheless, may affect newcomers in a substantial way who are supposed to be trained in-house. In such an environment, all that is required is simple strategies to manage constraints and mitigate any such load which might develop on the cognitive aspects of learning and information processing. Though this model is a simple representation of a real scenario, there are limitations thereof limited to the way the model is assumed; this is not a predictive model, but a model of performance. As such, it is beyond the scope of this paper to exactly simulate all agent actions, or all types of constraints which might be targeted in future effort.

Section III

5 Discussion

Most organizations are smart and consists of people who are even smarter. But it is often some specific contingencies which demand the smartest actions; yet, actions can be complex or simple. Smart actions does not mandate that such actions should always be compound. A complex problem might have a simple solution, or say, a simple problem might seemingly posit as complexity. It is here where constraints are often binding on agent actions; that is, how to understand the context of a problem. Firms with good human resources often perform no better than organizations with simple business models. The reasons may not be due to lack of specific skills or poor human resource development strategies, but may be due to the lack of effective, simple communication channels across the organization-where information though generated, is not shared homogenously. Sometimes, the sources of such constraint is from the management itself, often due to arrogant managers who are too demanding, or habitually act as bigheaded and who instill an environment of fear (Pfeffer and Sutton, 2000), where agents panic for their job. This invariably hamper learning, let alone applying such knowledge. In our material economy, information is generated at an incredible pace, and not all the knowledge generated is absorbed. There are cognitive limits toward processing and absorbing all the information generated or derived (Miller, 1956). The human capacity to reason, is limited as much as the capacity to absorb information. To develop better reasoning capacities on the contingent events of the world, communication of ideas is necessary. This idea, the "*communication of ideas*"- is however, an old concept the origin of which could be traced back to the writings of Voltaire (1759). Nevertheless, conversations and talking leads to communication of ideas, and talks should be simpler to understand. Group discussions involve talking, which often clear doubts and ensures exchange of information, ideas, etc. Nevertheless, such ideas should be as simple insofar which could be easily communicated,

and understood. Making complex things easier for to understand entail strategies, and such strategies should be unpretentious and local as well. When we often mention about workload- a concept in human resource management, we say the task was hefty, complex and demanding, while on the contrary, it can be as opposing but monotonous. Agents often work together to conceptualize the nature of such complexities, or even monotonicity, by sharing information, and working as a team. Load can be shared to minimize (cognitive) stress. Innovative instructional designs help mitigate cognitive load. Hence, innovation in learning to organize knowledge in a learning organization is a key factor in organizational learning practices (Sinkula, et. al., 1997). This helps to minimize both workload and cognitive load by innovation in process and practice. But it is the burden of information that constrain our finite cognitive capacity when the rate of absorption exceeds the capacity to process such information; i.e., which becomes more than one can bear, and which is apparent as cognitive load (See Sweller, 1988 and Miller, 2006). Competent managers have a duty to bridge the gap between employees and the human resource development (HRD) department by coordinating with in-house HRD specialists about how effective the design and implementation of instructional tools meant for organizational learning processes should be. Furthermore, absorption of knowledge is phenomenal, and not uniform across individuals. Hence, managers' effort should specifically attempt to bring in orthogonal uniformity in knowledge absorption across enterprise channels. More than that, it is also important how meaning is conceptualized from such knowledge absorbed, only then it can be put in practice efficiently. It is here where efficiency matters. Inefficient, disorganized absorption of information could not only lead to poor performance, but chaos, which often leads to high employee turnover rate or higher rate of redundancy which can affect both firm level performances and agent morale. Flexible, simple, and modest learning metrics enable employees to conceive, by simple means, the meaning about what they perceive as complex information. Information could be anything, say, about the process or practice, or about the competitors and markets, product or consumer, technical or business intelligence or whatever. It is also about the value of information which is generated that is required to manage contingencies which could minimize constraints. The whole process is hence, cyclical; in

such sense that when the obstacles are removed toward formal or informal learning in an organization, agents are able to acquire better knowledge, far more efficiently. The obstacles are constraints to learning. When such binding constraints are minimized, employee behavior is positive which reflect on their actions, and which nevertheless, enable them to build up their concept of the goal- the organization's goals. The above model hence provide a general inference about human effort; that is, human capacity is finite and in order to maximize human effort, there should be efficient resource strategy models to streamline performance and manage constraints. Employees use up physical and mental energy into producing, maintaining or converting economic resources into useful commodities (Sahlins, (1974), Chatterjee, (2010)). The magnitude of effort and the momentum of exertion that they put in impact the outcome of performances under organizational settings. The above model also describes how agents' performances are impaired under constraints and how their behavior is modified or affected by complementarities. *Definition 2* states that constraints are binding on the employees' performances implicitly toward their goal in attaining new knowledge and practice. It shall however be remembered that employees bring in new knowledge when they are inducted as well, they learn from their routine activities, through in-house training programs and from other R&D related activities that create new knowledge for a knowledge-based organization. In other words, they adapt to an ever demanding professional silhouette where their productivity is measured in terms of the ratio of progress to effort (Berry, 1989), or using other professional assessment systems (PAS). Knowledge originates from specific agent actions which reflect in their behavior and actions but there often appear constraints which act as bottlenecks toward knowledge generation and learning. Here, according to lemma 1 above, constraints can be binding on knowledge acquisition (learning), performance and agent actions. When these constraints become large enough, they act as 'cognitive load' and invite stress on the part of the agents. Managing these issues require three strategic modules; (i) minimize constraints, (ii) lessen or reduce the cognitive load, and (iii) reduce stress. When the binding constraints are minimized or removed, cognitive load declines which enables learning and better absorption of knowledge (Tsai, 2001). The decline in cognitive load (Mayer and Moreno, 2003) reduces the "stress" associated with job-related

tasks, and motivate employees which help improve agent performances and brings in neuroeconomic efficiency in organizational practice. In trying circumstances, when work load increases, it mandates that such load be taken care of, by reducing complex tasks into their simpler forms. This is the job of the manager—to oversee that his team is not constrained in the frontiers of learning and adapting to the ever new challenging atmosphere of the corporate world where, speed, efficiency and strategy (SES)are the three pillars of successful and sustained innovation. A motivated workforce is the powerhouse of an organization—which means better corporate performance (Nohria, Groysberg and Lee, 2008).

6 Conclusion

It is now a well acknowledged fact that learning is an important aspect of organizational culture. In a knowledge-based economy, where information acquisition is important, it is equally important that the knowledge gained should be managed as well. Yet, there are certain complementarities associated with learning under organizational culture those which appear as bottlenecks. The real cause of such bottlenecks is some kind of constraints- or barriers toward efficient employee learning, since, agents need to keep themselves ahead of their competitors with state-of-art current information about the market and their job-related tasks. Inefficient learning environment hamper knowledge absorption and hinders growth. Such inefficiencies might result from unplanned human resource development programs aimed to empower the agents with the right kind of information they would require in their job. But the real causes could lie somewhere else, as constraints on learning that hinder knowledge growth, and thus, overall cognitive development of the agents. Constraints can become big enough to present as cognitive load on the agents, thus, compromising with their performances. This paper in part, attempts to model such job-related constraints on learning and proposes three well-established constraints that employees (as agents) face while being part of their organization, and in lieu of this, recommends some simple strategies to overcome such constraints. One important finding of this research is that, the model successfully establishes the relationship between constraints and agent behaviors, and the impact of such on their performance. Further research on this frontier can be as interesting as on the nature of such constraints and remedial measures that would likely follow.

References:

- Amit, Raphael and Paul J. Schoemaker. 1993. "Strategic assets and organisational rent." *Strategic Management Journal* 14 (January): 33-46.
- Ayres, P. (2006). UNSW, 2006. *Cognitive load theory at UNSW*. Sydney, Australia: University of New South Wales (UNSW)
- Barth, S. (2000). The organic approach to the organization. *Knowledge Management*, 3(10), 22-25.
- Bar-Yam, Y. (1997). *Dynamics of Complex Systems*. Reading, MA: Perseus Books.
- Berry. R.J., (1989), *Ecology: Where genes and geography meet*. *Journal of Animal Ecology* 58, 733(759).
- Bhatt, G.D. (2000); *Information Dynamics, Learning and Knowledge Creation in Organizations*. *The Learning Organization*, 7(2) 89-99.
- Brian Tucker, Colin Furness, Jesse Olsen, John McGuirl, Nail Oztas, Will Millhiser (2003); *Complex Social Systems: Rising Complexity in Business Environments*, New England Complex Systems Institute.
- Bridoux, Flore.: *A Resource Based Approach to Performance and Competition: An Overview of the Connections between Resources and Competition*.
- Carley, K.M. (2000). *Adaptive Organizations and Emergent Forms*, working paper.
- Cascio, F. Wayne (2006); *The Economic Impact of Employee Behaviors on Organizational Performance*. *California Management Review*, Vol. 48, No. 4.
- Chatterjee, Sidharta, (2010). "Behavioral Aspects of Organizational Learning and Adaptation," MPRA Paper 27365, University Library of Munich, Germany.
- Cooper, G. (1998). *Research into Cognitive Load Theory and Instructional Design at UNSW*. Sydney, Australia: University of New South Wales (UNSW)
- Drucker, F. Peter, (1999). *Knowledge-Worker Productivity: The Biggest Challenge*, *California Management Review*, Vol. 41 No. 2.
- Frappaolo, C. (1998). "Search and retrieval lay the foundation to knowledge discovery." *K M World*, May 11, 1998.

- Goldratt, Eliyahu M.(1998): *Essays on the Theory of Constraints*. [Great Barrington, MA]: North River Press. ISBN 0-88427-159-5.
- Goldratt, Eliyahu M.; Jeff Cox. (1984)*The Goal: A Process of Ongoing Improvement*. Great Barrington, MA.: North River Press. ISBN 0-88427-061-0.
- Grant, R.M., (1991), *The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation*. *California Management Review*; 33, (3), pp. 114–135.
- Hayek, Friedrich. (1945); “The Use of Knowledge in Society,” *American Economic Review* 35, no.4: 519-30.
- Mayer, R. E. and Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist*, 38(1):43-52.
- Miller, G.A. (1956). "The magic number seven plus or minus two: some limits on our capacity to process information". *Psychological Review* 63 (2): 81–97.
- Miller, M. (2006). *Cognitive Load Theory*. San Diego, California: San Diego State University, Retrieved on November 7, 2006 from the *Encyclopedia of Educational Technology*
- Nohria, Nitin, Groysberg, Boris and Lee, Linda, Eling. (2008). *Employee Motivation: A Powerful New Model*. *Harvard Business Review*.
- Nickerson, R.S. (1992). *Looking Ahead: Human Factors Challenges in a Changing World*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Pfeffer, Jeffery and Sutton, I. Robert (2000).*The Knowing Doing Gap*, Harvard University Press.
- Porter, M.E. (1980) *Competitive Strategy*, Free Press, New York, 1980.
- Porter, Michael. (1991).“Towards a dynamic theory of strategy”, *Strategic Management Journal*, Vol. 12, 95-117.
- Prasad, K. (1998). *Organizations as complex adaptive systems: implications for the design of information systems*. Unpublished doctoral thesis. London: Open University.
- Robinson, G. Alan, Schroeder, M. Dean (2004): *Ideas Are Free: How the Idea Revolution is Liberating People and Transforming Organizations*. Collins Business, Berett-Koehler Publishers Inc., San Francisco.
- Rouet, J.-F. (2009). Managing cognitive load during document-based learning. *Learning and Instruction*, 19(5):445-450.
- Sahlins. (1974). *Stone Age Economics*, London, Tavistock.

- Senge, Peter, (1990), *The Fifth Discipline: The art and practice of the learning organization*
- Sinkula, M. James, Baker, E. William and Noordewier, Thomas (1997). *A Framework for Market-Based Organizational Learning: Linking Values, Knowledge, and Behavior*. *Journal of the Academy of Marketing Science*. Volume 25, No. 4, pages 305-318.
- Smith, A. Elizabeth. (2001); *The role of tacit and explicit knowledge in the workplace*. *Journal of Knowledge Management*, Volume5, Number 4, pp.311-321.
- Sweller, J. (1988). "Cognitive load during problem solving: Effects on learning". *Cognitive Science* 12 (2): 257–285.
- Tsai, Wenpin. (Oct., 2001); *Knowledge Transfer in Intraorganizational Networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance*. *The Academy of Management Journal*, Vol. 44, No. 5. pp. 996-1004.
- Voltaire (1759). *Candide*. Boni and Liveright Inc. Publishers New York.
- Zack, H. Michael (1999). *Developing a Knowledge Strategy*, *California Management Review*, Vol. 41, No. 3, Spring, 1999, pp. 125-145.