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Complexity Leadership and Knowledge Management in Higher Education

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***Abstract*—**Complex environments triggered by globalization have necessitated new paradigms of leadership – Complexity Leadership that encompass multiple roles that leaders need to take upon. Success of Higher Education institutions depends on how well leaders can provide adaptive, administrative and enabling leadership. Complexity Leadership seems all the more relevant for institutions that are knowledge-driven and thrive on Knowledge creation, Knowledge storage and retrieval, Knowledge Sharing and Knowledge applications. Discussed in this paper are the elements of Globalization and the opportunities and challenges that are brought forth by globalization. The Complexity leadership paradigm in a knowledge-based economy and the need for such a paradigm shift for higher education institutions is presented. Further, the paper also discusses the support the leader requires in a knowledge-driven economy through knowledge management initiatives.

***Keywords*—**Globalization, Complexity Leadership, Knowledge Management.

I. Introduction

LEADERSHIP in Higher Education as in all industries assumes greater significance as the environment that institutions deal with get more complex. Traditional leadership models that have been hitherto employed are relevant to the bureaucratic structures of the last century. These models were effective for economies that were more production-based than the current day knowledge-based economies. Globalization and by-products of globalization have added to both the opportunities to innovate, adapt and grow but with the challenges of dealing with complex dynamic environments and systems that interact are interdependent and interact like never before. It is also obvious that these complex environments necessitate businesses to overly depend on knowledge-based strategic decision choices. Higher education institutions headquartered in one corner of the world operate global campuses leveraging opportunities, serving communities that are diverse culturally and offer customized programs that address local and global challenges. The move to offer global education lets higher educational institutions to learn, innovate, and adapt rapidly if they must thrive in an intensely complex and competitive environment. This paper delves into the overarching frame to assess the role of Complexity Leadership Theory, the new paradigm for leadership in a knowledge-based global economy. This conceptual research encompasses and discusses three intertwined elements of Global Environments, Complexity Leadership and the dependence of Leadership success on effective Knowledge Management. Discussed under globalization are complexity in higher education environments and adaptability. The relevance of various leadership roles; adaptive leadership, administrative leadership, and enabling leadership in such complex environments is presented. The dependence on knowledge management elements for leadership to succeed is elaborated.

We are in a knowledge economy, but our managerial and governance systems are stuck in the Industrial Era. It's time for a whole new model [16].

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II. Globalization and Challenges

A. Regulatory Complexity in Higher Education

How does globalization influence higher educational institutions world-wide? It is obvious that virtually every region and perhaps every country has its' own educational system in place. These systems are not static and continue to evolve over a period of time. Incremental improvements, efforts to plug in learning gaps, and to continuously higher standards of education seems to be the universal mantra globally. Further, most countries remain in the crucial phase of setting standards that are globally recognized and accepted as equivalent. This transitional phase allows reformers in higher education the flexibility to draw from various international systems of education and customize these standards to their country or region. As a case to reiterate this point is the UAE Qualifications Framework, referred here on simply as QF. A QF is an instrument for the classification of qualifications according to a set of criteria for specified levels of learning achieved, which aims to integrate and coordinate qualifications subsystems and improve the transparency, access, progression, comparability and quality of qualifications in relation to the labor market and civil society [5]. In 1990, less than 10 countries had National Qualifications Framework. That figure leapfrogged to more than 110 countries in 2012 [6]. It is in the right direction that more and more countries introspect their regulatory framework in higher education and continue to improve and standardize their operations. However, this exercise by each country to create a nomenclature of qualifications and define the strands and their descriptors could in itself pose several challenges for global universities that wish to offer their programs in the country. As a case in point, the nomenclature for a Master's program in the QF is Level 9. Each level is described by three major strands – Knowledge, Skill and Aspects of competence. These strands appear universal in their acceptance, but the descriptors of these strands for different levels add to the complexity caused by these regulatory initiatives. For

Open Science Index, Educational and Pedagogical Sciences Vol:9, No:2, 2015 publications.waset.org/10002574/pdf

example, the level descriptors for the strand SKILL for level 9 would read as advanced skills required in research, analysis, evaluation, and/or innovation of complex ideas, information, concepts and/or activities [12]. Seemingly innocuous and straight forward, the interpretation and implementation of this one level descriptor for the one strand named Skill, could pose challenges for institutions offering Master's level programs, the Program Chair/Academic Dean located at the headquarters, Assistant Deans/local administration and the accreditors too. For an American University offering professional master's program in business management that is practical and application oriented to the point of including localization catering to the needs of the local industry, the level descriptor for skill for Level 9 needs to either be interpreted differently or implemented innovatively. Further if the American University offering such a program bases its curriculum on imbibing amongst its students skills that are practical and based on the Bloom's taxonomy, the curriculum is normally based on several practical assignments, term papers, individual and team projects, presentations including research elements across all course offerings. An accreditor could interpret this Level 9 descriptor of skill on research that is more academic in outlook including the need for having students submit a dissertation thesis for the program. This dichotomy in the program outlook and the regulatory body requirements present challenges for any institution that offers programs through its global campuses.

B. Faculty Diversity

Faculties across Global Campuses are professionally and academically qualified and are products of different Higher Educational Systems. This diversity coupled with cultural diversity accentuates the complexity present in higher educational institutions. Interpreting and implementing syllabus that is designed to impart deliverables to the end-users – students – is in itself a challenge. Faculty must be trained, empowered, enabled and motivated to innovate to sustain the quality of education that is intended to be imparted through global campuses. Faculty must also be motivated to create new pedagogy, use existing methods to innovatively deliver and also comply with level descriptors to ensure accreditation continuity. It is obvious that there must be in place a repository of knowledge faculty create and access to share and apply knowledge. Further, the task of training, motivating and sustaining team work among faculty members then belongs to the leader. Ability to administer the program in compliance with regulatory bodies, enable faculty deliver program courses effectively, and facilitate adaptation to meet the expectations of all stakeholders including accreditors and the Program Chair require Complexity Leadership.

C. Student Diversity

Student Diversity is a challenge brought forth by globalization. Region/Country specific advantages draw a wider diversity of students to the global campuses of any higher educational institution. A stereotyped perspective could presume the quality of input to be the same across all global campuses. Even if we assume that globalization has enabled absolute mobility of all factors of production and also students, cultural factors limit the mobility of students. Global campuses are still dominated by students who are regionally domiciled. Given their knowledge, previous education which is apparently the result of a transitioning education system, presents challenges that are inconceivable to most administrators, academicians, and accreditors alike. Inadequate English language proficiency, lack of exposure to quantitative methods, and difficulties faced by students to work in teams could seriously inhibit the delivery of a global program. How does one address global standards, local QF, and diversity in faculty and students? Would traditional leadership models facilitate the adaptation needed to overcome these challenges? The answers perhaps lie in the paradigm of complexity leadership supported by Knowledge Management initiatives.

D. Complex Adaptive Systems in Higher Education

Complex adaptive systems (referred here on as CAS) are the units that interact, are interdependent and are cohesive units that work for accomplishing a common goal. What could be the units of a Complex Adaptive System (CAS) in higher education? Units of Higher Education CAS are leadership of the parent university/institution, local leadership and admin, students across global campuses, faculty across campuses, and importantly all accrediting bodies –local and global. What is important is the flow of knowledge among these units that will determine the success of any CAS. CAS units facilitate knowledge flow as "temporary constellations of people and units" [11]. These constellations of units are social systems and emerge naturally [9], [10]. These units are capable of solving problems in innovative ways and possess the abilities of learning and adaptation in rapidly changing environments [3], [13]. The degree of interaction and the quality of interaction amongst units of CAS would certainly have a bearing on how effective and innovative the CAS is. Globalization brings with it myriad opportunities, but along with these opportunities are challenges that need to surmounted. Communication barriers – distance, culture, time, perceptions, and language between various units of the Higher Education CAS units compound the challenges faced by Higher Education institutions. Further, the bureaucratic practices that each of these CAS units adheres to could seriously inhibit the CAS's ability to innovate and adapt. Power and status differentials that exist among CAS units stifle communication flows among CAS units. Role perceptions among various stakeholders that we call CAS units could be pivotal in determining the effectiveness of the CAS. If these challenges are to be confronted and overcome, leadership that can cater to administration, adaptation and empowerment is necessarily the need of the hour. A deep understanding of the various influences on CAS units, the differences and areas of common ground areas of CAS units need to be understood by and must decide the leader's decisions.

Open Science Index, Educational and Pedagogical Sciences Vol:9, No:2, 2015 publications.waset.org/10002574/pdf

III. Complexity Leadership in Higher Education

A. Administrative Leadership in Higher Education

Complexity leadership is based on the three notions, the first one being Administrative Leadership. This notion is based on the bureaucratic ideologies of hierarchy, control and strategic alignment. Leaders who will succeed are those that are going to deal with this inherent form of leadership. Compliance to hierarchy, rules and control measures that are embedded in a system must be managed in ways that are not detrimental to achieving the goal of any system. Able administration does not connote to excessive control, long-drawn decision making, several levels of approvals for implementing strategy, and punitive action. Leaders dealing in complex environments must be able to impress on the institution's decision making body the need to decentralize while still conforming to the core values that the institution symbolizes. Policy must be for guiding action and not for discouraging innovative ideas. In the context of CAS units in Higher Education, each unit does not engage other units in ways that empower the flow of information, nor does it encourage creation of knowledge and its sharing. Complexity leadership in a CAS creates the right levels of potent energy among its constituent units in ways that propel the entire system to a better system that is interdependent in meaningful ways. If CAS units continued to have traditional bureaucratic leadership and not the administrative leadership that is discussed, each constituent unit of the CAS operates in isolation without leveraging the benefits of mutual coexistence. Hierarchical divisions, nature of interactions and interdependencies among agents is integral to the context in a Complex Adaptive System and an antecedent, mediator or a moderator variable. CAS and leadership are a result of this context and is the climate that permeates the entire systems dynamic personality [8], [17], [20]. The CAS units and the leaders of the CAS units are responsible for chiseling the context in ways that are empowering and progressive.

The new paradigm of complexity leadership also is based on the assumption that leadership emerges, is dynamic, interactive and therefore productive [18]. Leadership in a nutshell is adaptive, the second element of complexity leadership. Instead of focusing on leaders – individuals, complexity leadership stays focused on the processes involved in leadership. Criticism of traditional models of leadership is grounded on the premise that these traditional models did not give the process element of leadership the importance it deserves [14].

Managerial positions that engage in performing various managerial roles haven't addressed leadership that organizations have or intend to possess. These roles are played by various CAS units, but whether there is the process of leadership or not could still be ascertained. If higher education institutions truly have leadership and not mere 'leaders', then apart from having the formal acts ordained by their current managerial positions, emergent leadership would be able to creatively, innovatively adapt to the complex environment that was discussed earlier.

Given the nature of leadership processes that are being discussed, complexity leadership occurs in situations that bring around adaptive challenges. Complexity leadership ensures that CAS units and all stakeholders build Adaptive Capacities (referred to as AC). Adaptive Challenges present problems that can be tackled with only new learning, innovation, adjustments and new ways of doing things. They are not handled conventionally through authority and instructions.

Higher education systems are governed by clearly defined hierarchies, bureaucratic styles of management thus reducing the possibility of creating the ambience that facilitates the emergence of leadership. These practices also serve to fulfill procedural requirements, compliance and do not create adaptive tensions which are necessary to build adaptive capacities among constituent stakeholders in a system.

B. Adaptive Leadership in Higher Education

Adaptive leadership is pivotal in achieving adaptive outcomes that are possible in any organization. Adaptive leadership facilitates collaboration and changes that are non-linear. It is the product of interaction among stakeholders and also the spaces that are there among agents [4]. It has its origins in the struggles, coalitions of members of a system, ideas that are generated, application of technologies, and in the collaborative efforts. Adaptive leadership does not have its focal points in people but remains as the leadership process that facilitates change in the organization. Adaptive leadership has ample opportunities to emerge as it is only asymmetrical interactions that trigger the adaptive leadership process. Interactions that are related to authority are pivots of administrative leadership, and interactions that are based on preferences and the differences in these preferences pivot adaptive leadership. Viewing higher education as CAS, each of the stockholder's presents a number of preferences that include differences in knowledge, skills, and beliefs. For example, a university offering master's program in business management may prefer an application driven curriculum and focus on practical assignments, projects and concentrate on skills required by the industry. An accreditor in the parent country may prefer the same quality of education, content, and services across its global campuses and also would seek compliance to the deliverables as enunciated in the curriculum. A local accreditor in the UAE would seek conformance to Level 9 descriptors for the three strands defined in the QF Handbook. The local accreditor's perspective of compliance of level 9, skill strand, would present a completely different preference to knowledge in academic research, whereas the parent university and global accreditors view practical skills as being more valuable for industry partners that seek to employ graduate students from the university. Composition of students, their cultures, their varying abilities and preferences are asymmetrical too. Diversity in faculty also presents opportunities for asymmetrical interactions.

What then transpires as the catalytic force is the emergence of adaptive leadership. However, interactions in higher

Open Science Index, Educational and Pedagogical Sciences Vol:9, No:2, 2015 publications.waset.org/10002574/pdf

education stay based on authority asymmetry and are more or less one-sided. It is imperative that all CAS units in higher education realize that the need is to have less one-sided authority asymmetry interactions and be more preference oriented to ensure that the interactions are dynamic and facilitate the emergence of adaptive leadership. Seemingly incompatible ideas, differences in preferences, choice of technologies lead to adaptive changes and in the process lead to new knowledge.

Adaptive leadership is certainly the genesis of knowledge creation and in the process generates and builds adaptive capabilities of members involved in the CAS units.

C. Significance and Impact

Interactions that lead to adaptive leadership may be identified through significance and impact that it creates. First level interactions that create adaptive tensions may result in potentially useful set of new ideas or knowledge. If that is achieved, one can safely vouch that adaptive leadership has been significant. Some of the inflection points of ensuring adaptive changes begin with the change in strategy at the institutional level – beginning with the draw away from traditional bureaucratic structures. Accreditors – global and local may need to engage all stakeholders in dialogue to elicit new ideas, techniques, and knowledge that would deliver quality education and ensure graduates who are ready for global challenges. It is also important to realize that significance of an adaptive moment depends on the expertise of the agents that are involved in interactions. Faculty and student bodies need to engage in interactions to generate adaptive leadership that is significant. Given the cultural differences and differences in levels of knowledge and creative thinking, the probability that adaptive leadership stays significant is diminished. It is also important that individuals or agents with abilities and knowledge may not still contribute if they do break out from their preconceived notions and prejudiced ways of thinking.

Impact is the extent to which other agents outside the generative set are willing to accept and use the ideas/knowledge generated. Unlike significance, impact is determined by the authority of the agents who generate the ideas or new knowledge. This presents various challenges in higher education industry, as certain units enjoy the luxury of vested authority and accompanying reputation. When ideas generated by such units are considered sidelining other units and their contributions, interactions cease to be preference oriented in asymmetry and turn out to be more authority oriented in asymmetry.

To have significance and impact, adaptive leadership must be enmeshed into network of CAS and agents. This effort to enmesh adaptive leadership does tantamount to creating networks. Networks present a fair opportunity to reformulate existing ideas to result in outcomes that are divergent from the original ones. This reformulation mimics the theory of natural selection to create new changes. Conflicting elements in a CAS interact in ways that create adaptive tensions, and use asymmetric information for combination, amplification and transformation of outcomes. Changes thus produced remain distinct and are fundamental in nature. Such systems self-organize without the influence of external source. Units involved in higher education must work in ways that do not necessitate an external influence to usher change. What is then needed is the 'resonance' among units of the CAS. If all the units of the CAS work in the same direction, they are said to resonate.

D. Networks

Networks enable adaptive leadership and facilitate interactions that utilize interdependent networks. Building networks among units of CAS is important in higher education, to ensure creative tensions persist, and in managing patterns of behavior, relationships and feedback among units. There are several outcomes of creating networks that include creation of knowledge emerging from creative tension and the dissipation of the tensions and emerging knowledge among other units of CAS. Dissipation of ideas and knowledge could also result in other ideas that emanate from accreting nodes in the network. Some ideas that emerge may be combined, some could become extinct, and some ideas remain in conflict with other ideas generated. The resultant of these possible outcomes is increased complexity, greater adaptability among units, creativity and generative learning. The churn of ideas and knowledge among CAS units results in greater adaptability and learning [15].

E. .Adaptive Leadership at Various levels in Higher Education

The units that can be considered for adaptive leadership in higher education are accreditors, Parent University, global campuses, faculty, administration, students and the stakeholders. What then is logical is that all the units in this CAS do not belong to the same hierarchical level. Adaptive leadership at the top-level is focused on strategic decision making, acquisition of resources, and long-term planning addressing the demands of the environment [19]. Adaptive leadership for middle-level management includes resource allocation, coordination and implementation. For the lower levels of management, adaptive tensions could focus on the products of the organization. For knowledge-based organizations as the ones in higher education, the focus would be on knowledge creation, creativity and the ability to adapt.

A careful assessment of the hierarchical levels involved in higher education units indicate a disconnect amongst units and a communication/interactional gap between accrediting agencies, strategy/policy makers, global and regional institutions, among faculty and student community and the stakeholders including the industry. Failure to engage all units in a dialogue has ensured that institutions/universities stay entrenched with traditional leadership models and do not facilitate the emergence of adaptive leadership. Adaptive tensions are not created, interactive dynamics stay muted, ideas generated stay immobile, and patterns of behavior do not resonate. Units involved in higher education are still led by

Open Science Index, Educational and Pedagogical Sciences Vol:9, No:2, 2015 publications.waset.org/10002574/pdf

individuals and the process dimension of leadership still remains a distant reality.

F. Enabling Leadership in Higher Education

Enabling leadership acts as a catalyst that creates the necessary conditions that foster the possibilities of emergence. Enabling leadership lets managers harness the resources at their disposal and result in enabling behaviors from units. Leadership that furthers interactions, increases interdependency, and accentuates creative tensions to direct behavior of units towards greater adaptability and creativity is enabling leadership. It must not be confused with administrative leadership that basically encompasses managerial roles that individuals perform. Enabling leadership ushers in greater interaction and therefore more network linkages. However, individuals cannot determine nor ascertain the optimal levels of linking among units as networks are self-regulating and self-organizing. Enabling leadership could employ high performance work teams, virtual teams, and emergent teams, role negotiating technique that could possibly result in greater interaction among units. Interactions need not be confined to the group or team and could extend to other units of the CAS and its environment. This strengthens the possibility of cross-fertilization of ideas, better coordination amongst units and improved aggregation of ideas. Even individuals can redefine ways in which they can contribute to the generation of ideas. They could possibly use their personal networks to add to the sources that networks have at their disposal. For example, faculty members can contribute to the network by keeping themselves informed and by staying knowledgeable on developments and changes occurring in higher education. Further they may have a different perspective of the issues that influence their field of interest and contribute new ways of tackling challenges in their field of interest. Thus, individuals can stay relevant in the adaptive dynamic that is the basis of complexity leadership. This ability to stay abreast with the latest, leverage networks and contribute to interactions closely parallels knowledge management initiatives of socialization, externalization, combination and internalization of knowledge.

G. Collaboration

While interactions ensure the flow of ideas and information among networking units, it may not be a sufficient condition for complexity leadership. The other necessary condition is the urgency and need to collaborate, to stay interdependent. Interdependency generates the necessary pressure to generate and act upon ideas and information. Interdependencies also create adaptive tensions needed to be creative. Emergent networks that involve policy makers, accreditors, universities, global campuses, faculty, corporate, and students may have conflicting constraints but have their well-being connected and dependent on the well-being of other units in the network. If interacting units in higher education realized that they stay interdependent even with conflicting interests would ensure the emergence of enabling leadership – leadership that facilitates the development of conditions necessary for adaptation, creativity and learning. Promoting interdependency could possibly be achieved by allowing greater autonomy for informal behavior [7]. Conventional rules that are bureaucratic may be replaced by rules that make it imperative to interact and be interdependent. Networking units are made to collaborate and stay interdependent by linking their success with the success of their counterparts. Such initiatives could ensure greater innovation, agility, innovation and improved coordination among networking units.

H. Creative Tension

Creative tension is necessary to force units to generate better ideas, innovate and act on strategy. How do you build tension into units? Tension within units can be created through heterogeneity. Heterogeneity does exist among all CAS units in higher education. As discussed earlier heterogeneity exists among policy makers – global and regional, university and its global campuses, among faculty members and also within the student community. Hiring and organization of work should reflect heterogeneity and utilize the diversity that exists in the units. However, tension can be fostered by tolerance to dissent and conflict. Tolerance for different opinions may not exist among units and that stifles tension that is necessary for creative ideas to be generated and dissipated. Apart from internal tension, enabling leadership sows the seeds of external tension and the pressures to achieve results that are stretch results. Injecting such tension could be exploring new usage of resources available, new people introduced to the units, and by allocating resources in ways that support creative utilization of these resources. Even at the individual level, tension can be induced by engaging agents in ways that result in productive discussions and interaction. These interactions as discussed must thrive on preference asymmetry of interactions and not be authority centered. Tensions in teams could be stifled by consensus, group think and conformance pressures. Enabling leadership can introduce new faces to overcome these issues in teams and induce creative tensions in teams. Enabling leadership may also introduce new people who thrive on coordinating with disjointed groups and external units to bring in new ways of approaching a problem. Enabling leadership can also be supported by agents that can communicate quickly across organizational levels.

IV. Challenges for Complexity Leadership

Enabling leadership also must control administrative leaders from curbing the interactive dynamics and support adaptive leadership initiatives that are congruent to organizational goals and strategy. Enabling leaders also need to protect the Complex adaptive systems from dysfunctional external influences and politics. They would also need to influence policy making that is nestled with administrative leaders for implementing measures that support adaptive structures. What would interest the stakeholders involved in higher education is to ascertain measures that support adaptive structures and then ensure a measure of autonomy required for creating adaptive tensions and fostering new ideas and knowledge. Perhaps

Open Science Index, Educational and Pedagogical Sciences Vol:9, No:2, 2015 publications.waset.org/10002574/pdf

excessive planning from administrative leaders itself can stifle creativity and learning. Planning that leaves scope for incremental changes that can incorporate adaptations will ensure flexibility and the necessary ambience to promote adaptive capabilities.

Enabling leaders also support behaviors that establish progress in achieving strategic goals by curbing any perceived threat to adaptive functions.

V. Complexity Leadership and Knowledge Management

Every element of Complexity Leadership has a distinct connection to Knowledge Management (referred to as KM). Beginning with Administrative leadership component of Complexity Leadership, let us explore the connections with KM. Administrative leadership must necessarily have the knowledge on the environments the organization operates in and the influence of the environment on the system. Administrative leadership is essential to create the structures, formal organization and policy to guide managerial action. However, in the context of complexity leadership, administrative leaders must also understand the need for autonomy and the involvement of heterogeneous groups to utilize creative ideas and ways in dealing with every day issues. Adaptive tensions are created to usher in creative thinking and for the generation of ideas. Having encouraged a profusion of ideas is equivalent to knowledge creation. New knowledge is created by involving individuals and organizational units and their ability to interact in meaningful ways. KM initiatives span the wide gamut of activities including communities of practice, discussion boards, brainstorming sessions, meetings, conferences, and team work to generate new ideas, information and knowledge. Research in the recent past has been immense and fruitful in the field of knowledge creation in organizations [21]. Knowledge creation theory (KCT) classifies three major elements as being dynamic i) knowledge assets ii) leadership in knowledge creation and sharing and iii) context in which knowledge is created and shared. The above discussion on complexity leadership has much in common with this dynamic explanatory framework of KCT. Adaptive leadership thrives on knowledge creation and sharing among units of a CAS. Enabling leadership plays a catalytic role in creating the 'context' or ambience that facilitates knowledge creation and sharing. Administrative leadership must also provide support for the development of knowledge assets within the organization. In higher education, insufficient interactions between units do not facilitate knowledge creation and sharing and the probability that adaptive leadership could emerge are diminished. i) Knowledge assets could be organizational, personal, tacit or explicit. Of these, tacit knowledge is that which is difficult to buy, it may have to be built in-house. However, complexity leadership theory indicates the acquisition of resources including human resources that enable an organization in acquiring tacit knowledge. Organizations like General Electric under Jack Welch successfully acquired several businesses and in the process acquired tacit knowledge that is embedded in the team being acquired. Complexity leadership theory therefore addresses this challenge that KCT practitioners confront. Institutions that operate in Higher Education can collaborate and not necessarily takeover other units to acquire tacit knowledge. Policy makers, accreditors, universities, and their global campuses must work in tandem to facilitate interactions that remain asymmetrical based on preferences. Knowledge assets may be classified as i) human capital including experience, abilities and learning capabilities possessed by employees; ii) Social capital as the sum of knowledge that remains within and available for the firm's teams within and also with the firm's network; iii) Organizational Capital which is the knowledge that an institution possess, is explicit in the form of databases, repositories, patents, manuals, handbooks etc. Effectively GE acquired social capital and organizational capital along with human capital through its acquisition strategy. Distributed leadership enunciates that the role of a leader is to create an atmosphere of mutual trust and care, facilitate individual and group interaction, to facilitate knowledge creation and sharing. Complexity leadership theory is based on the paradigm that leadership is not about leaders as individuals but is about the process we call leadership. Recent studies have indicated that leadership plays a vital role in knowledge creation and transfer but is usually treated as a marginal variable [21]. They point out the roles of 'innovator', 'mentor', 'facilitator', and 'leadership styles' that are instrumental in building cohesive, interactive and creative teams. Complexity leadership theory is based on the premise of creating the ambience for interaction, facilitation of interactions, and on greater coordination between all the CAS units. Distributed leadership also emphasizes on collaborative decision-making and actions that legitimize leadership. In that sense, distributed leadership too is not person-centric but process-centric. Knowledge created is then shared in the pursuit of 'common goodness' and in the pursuit of 'ethic of contribution' [2]. Leadership is dynamic instead of being static as knowledge creation demands active commitment of every agent in the CAS. In higher education, that kind of dynamic commitment could be found wanting among various units in the CAS. Lower commitment levels across the system impede adaptation, creativity and the possibilities of new learning. One of the contributions to the field of knowledge creation is the concept of ***Ba*** – the Japanese word for 'place'. *Ba* is the shared space or context in which knowledge is created and shared. This includes the ambience that Complexity Leadership Theory focuses and the 'gaps' that exist between units and agents in the CAS. As complexity leadership is based on 'emergence' of 'networks', the spaces as defined by *Ba* are utilized in ways that traditional forms of leadership cannot leverage. Physical *Ba* would be offices, university premises and conference places to facilitate interactions. Virtual *Ba* emerges from mailing content, virtual meetings, document sharing, and virtual teams that are necessary for global institutions operating in higher education. There is also the mental *Ba* that remains in the form of values and core beliefs in the employees' minds. *Ba* is also classified as i) Originating *Ba* –

Open Science Index, Educational and Pedagogical Sciences Vol:9, No:2, 2015 publications.waset.org/10002574/pdf

the face to face interactions offer a rich communication channel allowing emotions, feelings, and mental models to be deciphered. ii) Dialoguing *Ba* which connotes to face-to-face interactions that permit the sharing and articulation of individual mental models in a group. iii) Systemizing *Ba* in which large group of individuals share over virtual space explicit knowledge in the form of content and documents. iv) Exercising *Ba* that connotes to the space where individuals embody explicit knowledge from virtual sources. Interestingly another concept that is pivotal in knowledge creation and sharing is 'collaborative community'. A collaborative community allows individuals to share and apply their knowledge and expertise in a flexible environment and within a self-managed team [1]. Collaborative communities enable individuals realize the common purpose of organizations creates awareness of what each individual is doing and guides the effort from each individual. The 'ethic of contribution' *ensures* that every individual's contribution is respected and utilized to achieve a common purpose. Another element that assumes importance in KCT literature is development of processes – processes that are based on being interactive and interdependent. These processes ensure effective knowledge creation, dissemination and faster innovation.

An organization is recognized as a social community that specializes in the creation and transfer of knowledge. Higher education institutions are perfect examples of such a social community. Knowledge transfer occurs between individuals who are members of several social relationships. Social capital is the goodwill that individuals and groups possess. The source of that goodwill lies in the structure and content of the actor's social relations. The force derived by the actor stems from information, influence and solidarity it gives the actor [2]. This social capital is akin to the significance component of adaptive leadership. Various agents involved in higher education must harness this social capital to foster interactions, inclusiveness, and collaboration while formulating and implementing strategy/policy changes. Social capital has three elements i) structural configuration of links between people that are impersonal ii) relational – meaning the assets that are leveraged by individuals through relationships that are based on trust, friendship and norms iii) Cognitive – resources that provide shared information, representations and systems of meaning among various units/teams. Organizations that transfer large quantities of knowledge do so through a 'collaborative context'. The context element of adaptive leadership is similar to the one that KCT supports.

VI. Conclusions

This paper presents the influences of Globalization on Higher Education institutions. Discussion on the challenges brought forth by globalization is presented with reference to a case example from the UAE. Complexity leadership is the way to go for organizations that wish to adapt to rapid changes brought about by globalization. Leadership can no longer be centered on a few individuals and has to be a process that creates adaptive tensions and builds adaptive capabilities in organizations. If leadership study must not remain bogged down to the peripheral, complexity leadership is that paradigm that takes it beyond. However many questions remain to be explored even while complexity leadership is proposed as the new approach to improve leadership in higher education. What are the patterns of behavior that facilitate adaptive environments? How can 'spaces' between agents facilitate new idea generation? Also, this paper attempts to discuss the commonalities in Knowledge Management Theory and Complexity Leadership Theory. What remains of interest is how Knowledge Management initiatives can be embedded in realizing the potential of emergent Adaptive Leadership. The methods of creating adaptive tensions can be explored for higher education in particular. How can heterogeneity be used to provide the organization with advantages of diversity? It essentially translates challenges into potential opportunities to strengthen the education system globally. The theory also can bring in researchers belonging to various units of the Higher Education CAS to work in tandem to explore avenues of collaborative research and practice to improve the overall quality of professional education. Also of interest to researchers and leaders are the ways in which tensions can be created internally and from external sources in constructive ways that bring out creative ideas and new knowledge without being intimidating. The paper does not divulge details to maintain anonymity of the institutions and agents that are being referred to in the discussion. Presented are also the opportunities to utilize complexity leadership paradigm to leverage the potential to innovate and creatively deliver high quality professional education in the region. The example discussed could be applied to other regions and can be used to explore other opportunities for ushering in constructive change in education systems globally.

The paper discusses theoretical linkages that the author foresees based on the literature review and empirical research available. What needs to be done is to explore the possibilities of empirical examination of the various questions discussed above and in specific reference to the field of higher education. Such research could go a long way in enabling collaboration among all CAS units involved in higher education and facilitate improvements in strategy formulation and implementation across the system.

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