

# **Global Environmental Change and Millennial's Entrepreneurial Orientation - A Cross Country Qualitative Analysis of Entrepreneurs working for Climate Change Mitigation in Emerging Markets**

## **Abstract**

This research paper aims to explore the dynamics of human response to global climate change by delving deeper into the link between human capital and psychological empowerment, and entrepreneurial orientation by uncovering the unexplored and implicit dynamics of human capital and contextual constructs that form an intrinsic part of emergence of novel climate change mitigation ventures. The phenomena of climate change and climate change mitigation are not new but the emergence of millennial entrepreneurs who work towards climate change mitigation has made the field of inquiry captivating and worth pursuing. The research paper intends to explore the entrepreneurial orientation of these entrepreneurs working towards climate change mitigation. This was made possible by rigorously exploring the phenomenon using support from extant research as well empirical evidence from entrepreneurs from seventeen countries belonging to emerging markets. The research attempts to further the understanding of issues related to climate change mitigation and millennial entrepreneurs and the way entrepreneurial orientation advances sustainable development.

## **Keywords**

Entrepreneurial Orientation, Millennial, Emerging Markets, Cross Country, Climate Change

## **1. Introduction**

### *1.1 Background*

Nature is mysterious to some, complex to many and understandable to some. The phenomenon of climate change mitigation derives its potency and mysticism from nature itself (Bostrom, Morgan, Fischhoff, and Read, 1994). Climate change mitigation, similar to nature, demands an ability to see, think, analyze and observe beyond what is obvious. Yet, what makes climate change and climate change mitigation a critical phenomenon is the fact that contemporary anthropological activities have significantly impacted the global climate patterns. These changes are now tormenting the humankind with its havoc in the form of a Boomerang. Hurricane Katrina slammed into the U.S. Gulf Coast on August 29, 2005, destroying beachfront towns in Mississippi and Louisiana, displacing a million people, and killing almost 1,800. Cyclone Phailin hit India's eastern coastal towns at speeds of more than 125 miles per hour in October, 2013 causing massive destruction. Catastrophic incidences such as these call for efforts that could help in offsetting the damage done by humankind by disturbing the balance of nature.

Young entrepreneurs of today are trying to combat climate change by combining their interdisciplinary expertise and collective passion to create a pattern of sustainable, equitable and inclusive development (Silva, 2007). Boekeloo (2008), states –

*“There's something new in the air--and it's more than just those rising carbon emissions. Across the country, high school and college students are banding together to combat the threat of global warming. Beyond the protests and petitions that have marked movements of the past, students are embracing creative initiatives to raise awareness and have a practical impact on their campuses”.*

### *1.2 Phenomenon under consideration*

Global attempts at integrating climate change mitigation and environmental sustainability into economic planning have been piecemeal and hesitant (Tol, 2002; Filho, 2009). Little has been done to stem the rapid slide into ecological livelihood, cultural, and economic disruption. Resource intensity of global production and consumption has gone far beyond sustainable levels (Wiedmann, 2009). Contexts like these elude both practitioners and academicians with the same gravity because now it is a well accepted fact that climate change is not only an environmental issue but a developmental issue (Houghton, 1996). Moreover, mitigation of climate change is directly linked with sustainable economic development.

Dealing with climate change is a herculean task not only because of the inherent uncertainties (Dessai and Hulme, 2007) but also because of presence of irreversible changes. Majority of the studies have dealt with climate change and allied issues by looking at the sustainability perspective (Ikeme, 2003; Mirfenderesk and Corkill, 2009; Smit and Pilifosova, 2003), environmental perspective (Raleigh, and Urdal, 2007) and macroeconomic perspective (Weitzman, 2009). The individual and human centric strain in literature of the quasi-static and unpredictable phenomenon of climate change remains relatively unexplored. There have been studies on sustainability in related context. Jacksow and Seo (2010) and Bhatnagar et al. (2011) have used the hearts and mind lens of engagement and have linked to volunteerism for the green engagement. Also, yet another dimension remains relatively unexplored in contemporary climate change mitigation studies (Adams, Hurd, Lenhart and Leary, 1998) - the critical role played by contemporary entrepreneurial and human capital in advancing the requisite intellectual competence needed for combating climate change.

This paper is organized as follows – after the introduction and the need for the study, section two encompasses the structured literature review and development of an analytical framework which is theoretically grounded. This is followed by an overview of methodology in Section three. Section four describes the data analyses phase followed by Section five which encompasses the results that emerge from the qualitative analysis of cross-case data. Section 6 puts forth the discussions and conclusions.

## **2. Literature Review and Theoretical Framework**

Although there has been a substantial amount of research effort directed towards studying entrepreneurship and climate change phenomena, it seems to lack a coherent and individual centric focus. When reviewing the academic literature on entrepreneurial orientation of climate change mitigation entrepreneurs, it is apparent that, while there are numerous and diverse studies directed towards investigating climate change mitigation and entrepreneurship separately, there are few if any comprehensive models that organize and integrate the climate change mitigation based entrepreneurship literature. This systematic literature review was undertaken to yield a theoretical template that forms the grounding for the empirical phase of this research paper (Greenhalgh, Robert, MacFarlane, Bate and Kyriakidou, 2004:582).

### *2.1 Emergence of theoretical framework for empirical analysis*

Knowledge is an important component of emergence of new ventures (Oviatt and McDougall, 1994). Based upon the initial reading of the literature, it was clear that there was a close analogy between the phenomenon of climate change mitigation by millennial entrepreneurs and the construct of absorptive capacity. Cohen and Levinthal (1990); Zahra and George (2002) have conceptualized absorptive capacity in the form of stage models encompassing dynamic capabilities. This enables us to draw an analogy between the entrepreneurial orientation of climate change mitigation entrepreneurs and absorptive capacity as concepts encompassing - ability to recognize the value of new information, assimilate it, and apply it to commercial ends. Cohen and Levinthal's model (1990) is a generic model, not specific to entrepreneurial orientation, and so it had to be adapted. From an initial analysis of the literature review via database and manual scan of top business Journals, we developed a framework that paralleled the absorptive capacity process that an individual supposedly goes through when leveraging human capital and psychological empowerment for deriving entrepreneurial orientation. This framework served as a starting point for the empirical analysis (Figure 1).

[Insert Figure 1 about Here]

### *2.2 Explanation of Constituent Terms of the Analytical Framework*

#### *2.2.1 Human Capital*

Human capital is defined as the knowledge, skills, and abilities residing with and utilized by individuals (Schultz, 1961). Previous research has focused on the link between human capital and opportunity recognition and pursuit (Bhagavatula et al. 2010; Ucbasaran et al. 2008), yet, the link with other firm practices such as information search intensity and absorptive capacity (measured outside of the typical RandD domain) remains largely uninvestigated (Camisón and Forés 2011; Ucbasaran et al. 2008). The relationship between psychological empowerment and human capital, and entrepreneurship is an important link. This is because the evolutionary path of new ventures is intertwined with entrepreneur's vision, conviction, and knowledge (West and Noel 2009; Wiklund and Shepherd 2003)

#### *2.2.2 Psychological Empowerment*

Various studies have examined the construct of psychological empowerment from a diverse research perspective but most of these have mostly used a variation of Spreitzer's (1992) work (Bhatnagar, 2012). Thomas and Velthouse's (1990) model depicted empowerment as based in four cognitions, or "task assessments", that affected a person's intrinsic motivation for the job at hand. These four psychological dimensions of empowerment were impact, competence, meaningfulness, and choice. According to Thomas and Velthouse (1990), impact was "the degree to which behavior is seen as 'making a difference' in terms of accomplishing the purpose of the task"; competence was "the degree to which a person can perform task activities skillfully when he or she tries"; meaningfulness "involves the individual's intrinsic caring about a given task" (p. 672); and choice "involves causal responsibility for a person's actions" (p.673). Spreitzer (1995) built upon Thomas and Velthouse's (1990) model and validated a measure of empowerment and the variables that emerged were: Meaning, Competence, Impact, and Self Determination.

### 2.2.3 Context

Context refers to factors descriptive of an individual's current environment and operations that are stable or enduring in the short run. Contingency theorists have established the general importance of considering an individual's environmental context in conjunction with strategy, structure, or performance (e.g., Lawrence and Lorsch, 1967). They proposed a context dependent dynamic competencies model rooted in the knowledge resource-based literature stream. The dynamism comes from rapidly changing environments, specifically when "time-to-market and timing are critical, the rate of technological change is rapid, and the nature of future competition and markets (is) difficult to determine" (p. 515, Lawrence and Lorsch, 1967).

The construct of context is critical to startup and small business environments (Korunka, Frank, Lueger, and Mugler, 2003), and has been of utmost importance to emerging entrepreneurs. This is because context forms an intrinsic part of the mental model (Senge, 1991) of the entrepreneur through which the interpretation and reflection of ontologies takes place. The context thus defines the systems through which knowledge is processed, interpreted and given meaning i.e. transmutes into schema and forms novel ontologies.

### 2.2.4 Resilience

Resilient individuals tend to bounce back from setback and difficult situations while maintaining high efficiency (Tugade and Fredrickson, 2004). Resilient Individuals are energetic towards life, curious and open to new experiences (Block and Kremen, 1996; Klohen, 1996).

### 2.3.5 Ontologies

In philosophy, ontology is the study of the kinds of things that exist. It is often said that ontologies "carve the world at its joints" (Chandrasekaran, Josephson, and Benjamins, 1999). In knowledge management literature, the term ontology means something related but different. Ontology refers to a body of knowledge describing a specific schema, typically a knowledge domain, using a representation vocabulary (Noy and Klein, 2004). These ontologies help an entrepreneur in recognizing opportunities and leveraging them (Styhre, 2008).

### 2.2.6 Entrepreneurial Networks

In recent years, the entrepreneurship literature has highlighted the significance of networks in the creation and sustaining of new ventures (Carsrud and Johnson 1989, Huggins 2000). Increasingly the entrepreneur is recognized to be a social animal, operating socially, engaging with and in the social, to be both part and process of the social milieu. There is even a perception that entrepreneurs are a product of their social environment and how they perceive opportunities is influenced by social interaction and an individual's social background (Anderson and Miller 2003). Entrepreneurial Networks are recognized to contribute to entrepreneurial capacity by extending the individual's asset base of human, social, market, financial and technical capacity. Even the decision to found and the likelihood of start-up, the identification, organization and acquisition of resources, especially those not owned by the individual, are also typically a function of networking (Johannisson and Peterson 1984; Aldrich and Zimmer 1986; Johannisson 1986; Johannisson and Nilsson 1989).

### 2.2.7 Agility

Sambamurthy et al. (2003) have drawn upon literature in strategy, entrepreneurship and management and have used a multi-theoretical lens to propose a seminal sense and respond perspective to further the understanding of effective management in the uncertain times and domains. Two specific capabilities have been proposed by Sambamurthy et al. (2003) to describe entrepreneurial alertness, namely, strategic foresight and systemic insight. Foresight includes an integrated exploration of business opportunities in the conceptualization of competitive actions. Foresight is critical to entrepreneurial action because it reflects the ability to anticipate and visualize the market imperfections and opportunities for competitive actions.

To anticipate means to be prepared: knowing what new threats and opportunities may arise in a fast changing environment. But it is just as important to have the ability to take adequate steps, pro-actively as well as reactively, in response to these changes. However, agility has been referred to as sensing and responding to unanticipated happenings faster than your competitors. Thus we are defining entrepreneurial agility as combination of entrepreneurial alertness and agility (Gupta and Bharadwaj, 2013). There is no assumption that entrepreneurial agility enables the individual or the organization to predict the future. The only thing it does is development of capabilities to tackle unseen future, to look at potential contingencies and to be less surprised by external events.

### 2.2.8 Entrepreneurial Orientation

The essential act of entrepreneurship is new entry. New entry can be accomplished by entering new or established markets with new or existing goods or services. An entrepreneurial orientation refers to the processes, practices, and decision-making activities that lead to new entry. It emerges from a strategic-choice perspective (Child, 1972), which asserts that new-entry opportunities can be successfully undertaken by "purposeful enactment" (Van de Ven and Poole, 1995). Thus, it involves the intentions and actions of key players functioning in a dynamic generative process aimed at new-venture creation. The key dimensions that characterize an entrepreneurial orientation include a propensity to act autonomously, a willingness to innovate and take risks, and a tendency to be aggressive toward competitors and proactive relative to marketplace opportunities. All of these factors - autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness - together combine to yield the final dependent variable called entrepreneurial orientation.

## 2.3 *The Nomological Model*

Once the individual constituents and the underlying grounding of the research perspective have been done, what comes next is the extension of the individual constituents into nomological linkages. This is done by using extant research to provide theoretical support for the nomological linkages between various constituents of the theoretical model. Figure 2 represents this in further detail.

[Insert Figure 2 about Here]

Human capital embraces knowledge, skills, and abilities residing with and utilized by individuals (Schultz, 1961) and it is these constituents of human capital which lead to formation of knowledge schemas – better known as ontologies

(Zúñiga, 2001). Psychological empowerment also has a similar role to play in the elevation and causality of knowledge schemas (Labianca, Gray and Brass, 2000) and further entrepreneurial orientation. An individual's resilience (Lyles and Schwenk, 1992) and the context in which the individual operates (Ram and Park, 2004) – both influence the creation of new ontologies and updating of existing ones. These novel ontologies pave path for an augmented ability of entrepreneurs to deal with uncertainties (Lee, Kim, and Park, 1999) which further enables an entrepreneur's ability to create and nurture new ventures (Lee and Peterson, 2001). The relation between the knowledge schemas and the ability to act in uncertainties is moderated by an entrepreneur's social networks (Picard, 2009) and the resources bestowed because of these networks.

### **3. Research Design**

#### **3.1 Research Methodology – Qualitative Research**

We decided to investigate the phenomenon of entrepreneurship undertaken by climate change mitigation from an interpretive/constructivist paradigm and hence qualitative methodology of research guided our choice of research methods. Qualitative methods are multi-pronged in focus, involving an interpretive, naturalist approach to its subject matter. This means that qualitative researchers study phenomena in their natural settings, attempting to make sense of, or interpret, phenomenon in terms of the meanings people bring to them. Qualitative research bestows on a researcher the necessary contextual tools and inductive logic that can help in the exploration of complex phenomenon (Corley, 2011).

[Insert Figure 3 about here]

#### **3.2 Research Method – Case Study**

The phenomenon of entrepreneurship, particularly in the domain of climate change mitigation, is not a typical case but instead can be found to be representative across a plethora of geographies and time zones therefore multiple case study design is the optimum choice (Yin, 2009). This research method allows the researcher to explore the phenomena under study through the use of a replication strategy which increases the possibility of generalizing the findings. Cross case analysis helps in confirmation of themes that emerge from the case study data and helps in increasing the validity of the findings.

#### **3.3 Data Collection**

##### **3.3.1 Criteria for case selection**

Case selection is an important step in the course of case study research. For consistency and ease of comparison, it is important that all the cases selected for investigation must share certain common characteristics. It is these characteristics that will be used to select them as appropriate for being included in this research study. One overarching criterion that needs to be common in all the individual entrepreneurs was the fact that they must be working in the area of climate change mitigation and their venture should include an element of novelty since entrepreneurial orientation encompasses processes, practices, and decision-making activities that lead to new entry

(Certo, Moss and Short, 2009). Besides this overarching criterion, two important criteria were that the entrepreneur ought to be a millennial – that is born after 1980 (Coomes and DeBard, 2004) and that these entrepreneurs should belong to emerging economies. These criteria are in tandem with the underlying motivation of this research – to explore the entrepreneurial orientation of millennial entrepreneurs that work in the domain of climate change mitigation.

### 3.3.2 Collection of Data

Purposive sampling steered our data collection process. A multi-level perspective (micro-level to meso-level to macro-level) was used for viewing and collecting the data. Interviews and archival records were used for the collection of the data. Table 1 encompasses Details about the Individual Entrepreneurs who were included in this research study.

[Insert Table 1 about here]

## 4. Data Analysis

Qualitative analysis of the archival and interview data involved the following steps:

- i) Data reduction, data display, and drawing conclusions; with constant iteration between the analytical stages. Data reduction involved selecting, focusing, simplifying, abstracting, and transforming the data in the field notes or transcripts into summaries, coding and testing themes on the basis of analytical framework that emerged out of literature review and the operational definitions of the constructs encompassed in the analytical model (Table 2). This helped us in sorting, filtering, and organizing the data so that conclusions can be drawn and validity of the findings could be augmented.

[Insert Table 2 about Here]

- ii) Content Analysis - Content analysis (Holsti, 1969) is a research method for making replicable and valid inferences from data to their context, with the purpose of providing knowledge, new insights, a representation of facts and a practical guide to action (Krippendorff, 1980). The aim during the course of this research was to attain a condensed and broad description of the entrepreneurial orientation and its antecedents. The analysis enabled the empirical verification of concepts (and categories) describing this phenomenon.
- iii) To conduct the content analysis on the collected data, the text was coded and broken down into manageable categories then examined using both conceptual as well as relational analysis and with a priori coding as the coding design scheme. The detailed cross case content analysis along with the comments of the case protagonists have been summarized in Appendix A. Table 3 describes the qualitative cross case analysis matrix, linking the constructs to the empirical data<sup>1</sup>.

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<sup>1</sup> NOTE: For classifying the relevant excerpts from empirical data into the sub-categories of relevant constructs – we used the operational definitions given in Table 2. Psychological construct was multi-faceted and even if one sub-component of the construct was found in the empirical data, it was classified and appropriately positioned in the cross case analysis tables (Table 3 and Table 4) under the category of Psychological

[Insert Table 3 about Here]

## 5. Results

Table 3 sums up the findings from the data analysis phase and gives us a holistic look at the logic operating underneath the phenomenon of entrepreneurship – in the domain of green entrepreneurship (Greenpreneurship) and climate change mitigation<sup>2</sup>. New knowledge would have to be created and ‘this’ is exactly what we have found as a result of our research. The qualitative analysis of the seventeen entrepreneurs helped us in not only empirically validating the theoretically derived analytical template but also gave us an opportunity to immerse ourselves in the phenomenon of climate change mitigation from the perspective of the change makers – the millennial entrepreneurs. Final empirically tested model is illustrated in figure 4.

[Insert Figure 4 about here]

## 6. Discussion and Conclusions

This research paper has documented and analyzed climate change from the perspective of entrepreneurs who are working towards propelling and creating low carbon future. Human capital and psychological empowerment of young entrepreneurs enables them to form new connections among their existing knowledge and skills which further enables them to sense and respond the uncertainties as well as opportunities, those which are meaningful to them, have an impact and are in alignment with respect to their determination and competence in the area of sustainable development and allied streams. The entrepreneur’s social networks enable efficient utilization of the existing and newly created knowledge schemas thereby furthering the entrepreneur’s agility. This ability of sensing and responding augments the entrepreneurial orientation. This finding has an important implication for contemporary organizations, particularly which are knowledge driven (Wiklund and Shepherd, 2003). These organizations, by virtue of this study, could realize the factors that are critical in augmenting the value creation ability of an organization and promote intrapreneurship particularly by the formation of appropriate links between existing human capital, work context, employee’s resilience and their mental models (Abraham, 1997). Findings in the domains of human capital and psychological empowerment, moderated by the context and resilience of the entrepreneurs have an important implication on the competency framework literature for entrepreneurs (Man et al., 2002).

Global weather and climate related disaster losses reported over the last few decades have caused monetized damages to assets, and heightened the unequal distribution of resources across geographies and economies. The findings of this paper have critical contributions and insights for both academicians as well as practitioners. Uncovering of the path between human capital and psychological empowerment, and entrepreneurial orientation as has been done in this paper which will help in focusing at the individual aspect of new venture creation. It will enable the future reseachers

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Empowerment. The relevant sub-components of psychological empowerment which emerged during the analysis have been mentioned in brackets in column 3 of Table 3 for better understanding of the rationale behind the analysis.

<sup>2</sup> In Table 3, “+” represents the presence of qualitative theme for the respective construct and “-“ indicates the absence of the same in the respective entrepreneur working for climate change mitigation.

in uncovering the psycho-material characteristics that are unique to entrepreneurs and have an impact on their green engagement (Bhatnagar et al 2011).

Future research studies can leverage the findings of current research as a benchmark for deriving the logic that enables further understanding of the phenomenon of business model innovation and entrepreneurship. For practitioners, this research study not only suggests a way of improving boot camps and spin off like initiatives, it also gives a hands-on insight for potential entrepreneurs who can utilize findings of this study to focus and nurture their abilities and psycho-material assets (Davidsson and Honig, 2003). This research also provides an indication of a possible solution to the question raised by Bhatnagar et al. (2011) - *“What managers need is a basis from which they can prioritize environmental investments”*. This paper can help in managers in identifying the areas in which firms can focus their environmental efforts in the pursuit of competitive advantage (Orsato, 2006). The empirically validated analytical framework presented in this research paper can help entrepreneurs and managers in defining and prioritizing areas of organizational action, optimizing the overall economic returns on environmental investments, and transforming these investments into sources of competitive advantage (Stefan and Paul, 2008).

For future research studies in the domain of sustainable development and climate change mitigation, the current research study serves as an anchor for understanding the human resource perspective of climate change mitigation. The results of this research demonstrate how human capital can trigger genesis of new knowledge resources related to climate change mitigation which can further lead to triggering of agility in an entrepreneur and furthering her or his orientation towards new venture creation. This new schemes of knowledge and augmented entrepreneurial orientation would have the strength to foster interventions that would mitigate climate change and lay a greener future for the coming generation. Future studies that include triangulation in data, method and analysis of the model presented in this research study would help us in deciphering the phenomenon further.

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