SAVING OUR PLANET THROUGH SUSTAINABILITY-LITERATE ACADEMIC RESEARCH IN BUSINESS

Dr. Kanika Chatterjee,
Professor of Business Ethics, Department of Commerce and
Director, Internal Quality Assurance Cell (IQAC),
University of Calcutta, Kolkata, West Bengal, India
e-mail:konikac27@gmail.com

Abstract: Primary purpose: To delineate academic research in business as a means to provide answers/solutions to the global challenges of attaining sustainable development for planetary well-being.

Design/methodology/approach: Critical discursive research based on a wide range of published works to identify the gap between contemporary business research that is dissociated from the biosphere, and the imperative of promoting sustainability-centred business research in higher educational institutions (HEIs).

Findings: The ensuing discourse supports the claim that business research in HEIs across the world ought to, and can be undertaken by sustainability-literate and sustainability focused academia through trans-disciplinary, enactive research.

Research limitations and implications: The focus of the paper and the literature survey is narrowly scoped to include only business research conducted by academics.

Practical implications: The study helps build a strong case for mainstreaming sustainability-literate business research in academic institutions for addressing the global challenge to preserve natural and social systems through creative business practice.

Originality/value: This paper represents a unique attempt to redirect business practice in a meaningful manner towards sustainability through the pathway of academic learning of business researchers.

Paper type: Conceptual and critical

INTRODUCTION

"The world we have created today as a result of our thinking thus far   has problems which cannot be solved by thinking the way we thought when we created them."…Albert Einstein

Business management is, inherently, an integrative academic discipline that ought to be based upon a world-view of business entities and communities nested within a wide-ranging socio-ecological context. Historically, the reductionist world-view of business as a self-contained, self-regulating and separable stand-alone entity has prevailed, indicative of a serious "nature-deficit disorder" (Louv, 2005) in the mind-set of researchers, educators, consultants, leaders, and practitioners in the business community. Progressively, with the dawning realization about planetary stewardship and preservation, alternative conceptions of the relationship among business, society and nature (B-S-N) are emerging. Currently, three discrete perspectives are discernible in management literature (Marcus et al., 2010: 402), namely, (i) the traditional atomistic *disparate* perspective, (ii) the systemic *intertwined* perspective, and (iii) the holarchical *embedded* perspective (Table 1). The adoption of a specific perspective can lead to very different strategic aspirations and choices regarding value creation in business for coping with contemporary global environmental, social and economic challenges.

Table 1: Three alternative perspectives of the business, society and nature (B-S-N) interface

Perspective / B-S-N Relationships	Disparate (Atomistic)	Intertwined (Systemic)	Embedded (Holarchical)
1. **Business (B)**	Separable; self-contained and self-regulating	Partially separable; has relatively equal status to society and nature	Inseparable; a sub-system that contribute to social welfare within the biosphere
2. **Society (S)**	Is an aggregation of individual interests; exogenous to business	Interfaces with business through networks of stakeholder	Includes all human systems and activities across various levels of analysis
3. **Nature (N)**	Unrelated and exogenous to business	Interfaces with business to enhance business value and natural capital	Finite; manifests as all-embracing life-support system
4. **Relevant value domains**	Economic value only	Multi-form, but unordered—usually ranked in order of priority as economic, social and environmental	Multi-form and ordered—nature, society and business exist in a holistic hierarchy, i.e., a "*holarchy*"
5. **Relationship of B to S and N**	Independence	Interdependence	Dependence

Source: Marcus et al. (2010) (adapted)

The atomistic *disparate* perspective governing mainstream business management thought and practice, provokes a conception of the central role of a business system as the maximization of financial wealth while satisfying human needs (Friedman, 1971; Jensen, 2002). Accordingly, the adverse impacts of business on nature and society are externalized in market transactions (Crouch, 2006). Acceptance of the less popular systemic *intertwined* perspective yields mixed results—on the one hand, we witness support for unprecedented economic growth in many parts of the world (e.g., the BRICS economies) and ruinous mega-corporate scandals, devastating ecosystem impacts, social inequity and conflict; on the other, we also observe a parallel trend in the business community's wider acceptance of sustainable development as a global ethic, fostering more environmentally benign business practices. It is worth noting that the intertwined perspective is ill-equipped to resolve the critical dilemmas subsumed in the multiple dimensions of the global sustainability challenge. What is imperative today is a "more robust understanding of the B-S-N interface" in terms of the embedded perspective (Marcus et al., 2010: 419), which advocates a redefining-reorganizing *"holarchical"* (holistically hierarchical) perspective of the B-S-N interface (Marcus et al., 2010: 402). B-S-N are seen as nested systems (Porritt, 2006; Victor, 2008), so that business, like all other systems (e.g., religious, moral and legal) of human creation, is seen as a component embedded within the larger societal system, and society is considered completely nested within the natural environment. The eco-centric *embedded* view is alien to, and generally lacks support from business researchers, although it appears to be the most appropriate in addressing today's planetary-scale, global socio-ecological challenges. The *embedded* perspective of business affords a logical ordering of the three meta-systems (i.e., macro-systems made up of smaller sub-systems), and underscores the critical dependency of society and economy on nature.

SCOPE, BACKGROUND, OBJECTIVES, AND DESIGN OF THE STUDY

The ideas proposed in this paper stand on the central premise that institutionalization of the embedded view of the B-S-N interface is indispensable, and that this is achievable only if higher educational institutions (HEIs) committed to business research shape up increasingly as "learning organizations" (Senge, 1990, 1996) to embrace a spiritual perspective of organizational life and purpose, and to enjoin the sacredness of organizational work performed by creative individuals who pursue self-mastery through their self-directed visions within this intrinsic spiritual foundation (Stead et al., 2004).

Business research is a term connoting a systematized, data (primary or secondary) intensive process of scientific inquiry (critical, interpretive or objective) dwelling upon specific business-related questions, issues, and/or problems. The purpose of such research is to propose/ find answers/ solutions that can guide informed business (strategic or operational) problem-solving. Business research can help create a rich action-oriented interface among researchers, educators, entrepreneurs, business leaders, managers and consultants for supporting

innovation, collaborative value networks, identification of new bases of competitive advantage, improvement in decision-making tools, increase in investment quality and cost effectiveness, risk reduction, and reputation management.

It is possible to identify two types of business research, namely, (i) fundamental and (ii) applied research. Fundamental/basic/pure business research is driven by the researcher's curiosity or interest to comprehend and answer scientific research questions with the intention to contribute to knowledge expansion in some aspect of business, rather than to create or invent a product/service/ process/system having direct commercial business value. Its societal value emanating through publications, pure knowledge-creation and reputation-building is more qualitative in nature. No matter what the academic worth of the research outcomes, the market value of fundamental business research is perceived to be either non-existent or not directly traceable to improving the human condition through need fulfilment. Fundamental business research is usually the forte of academic researchers in HEIs, and could be mono-disciplinary, multi-disciplinary or inter-disciplinary. It can be undertaken by individual researchers working in "ivory tower" university settings or through researchers working in cross-disciplinary teams on collaborative research projects. On the contrary, applied business research addresses practical problems arising in the business world, often within given work settings, and seeks solutions with some notion to improve the human condition (improved lifestyles, comfortable living, health, product quality, product development, service delivery, process safety, etc.). To acquire knowledge as an end in itself is not the primary motivation. Applied business research takes the form of industry-academia collaborative research in addition to corporate research and development (R&D), corporate training and development (T&D), and consultancy-based research. The value of corporate-funded collaborative, project team-based business research in academic institutions could be transaction based, relation-based, cost-based, market-based, or income-based. Thus, both fundamental and applied business research typify academic research in business (i.e., business research undertaken by the academia within HEIs).

By way of this paper, the author's major contention is articulated from an explicit ethically positive stand-point, as a basis for developing a social critique of the current state of business research pursued in institutions of learning dedicated to higher education. The primary endeavour constitutes a reflection on the constraints and distortions created by the business academe in the way of promoting sustainability-literacy among researchers, and a challenge of the status quo in terms of extant social, psychological and economic conditions deterring the achievement of enlightenment, excellence, equity, and environmental improvement by the business community to expedite humankind's journey towards a sustainable future. The explicit ethical basis, characteristic of critical research (Myers, 2009), which buttresses the thesis of the paper, opens up opportunities to suggest substantial improvements for mainstreaming sustainability-literate business research in academia.

To this end, the key objective of this paper is to underscore the role of planetary stewardship of higher education institutions (HEIs) facilitating business research, and to explore why and how scholarly academic research in business could be relevant to preserving and protecting Planet Earth. Accordingly, there are two important ontological assumptions that require clarification. Firstly, we perceive sustainability as neither the antithesis of crude competition under free market capitalism, nor as a euphemism for charity and socialism. Instead, sustainability is a basic ingredient of sustainable value creation (Friedman, 2009: 54) crucial for corporate survival in the future. Sustainability is construed both as an *end* (i.e., an outcome of individual, organizational, corporate and governance activities) and as a *means to the end* (practices founded upon the principles of sustainable natural systems). Secondly, we posit that an alignment of evocative business research outcomes of academic researchers culminating from pure theorization, with the global imperative of holistic (i.e., environmental, social and economic) sustainability of business practices is the fountain-head for strategic thinking about planetary well-being because for (i) the discovery of *creative business opportunities*, (ii) their embodiment in *dynamic organisational capabilities*, and (iii) the generation of *radical and disruptive sustainable innovations* for customer satisfaction, societal progress, environmental preservation, and long-term business profitability (Chatterjee, 2009: 2).

NEW PATHWAYS OF SUSTAINABILITY FOR ACADEMIC RESEARCH IN BUSINESS

It is worth noting that *sustainability* serves as a core value for making actionable the embedded view of the B-S-N interface, because it enables us to "transcend the divergent dilemma facing humankind today" (Stead et al., 2004: 133) of balancing economic activity with the thresholds of social system and ecosystem viability. Sustainability needs to be implemented through human decision and action by means of eight instrumental

values (Stead et al., 2004: 133-9) , namely, (i) *wholeness* (denoting interconnectedness, relatedness, mutual causality and balance), (ii) *posterity* (signifying future generations of human beings and other species as key stakeholders in present-day human decision-making), (iii) *community* (fostering the notion of individuals and organizations for collective good in place of radical individualism), (iv) *appropriate scale* (focusing human organizational efforts on resource and materials reduction, energy efficiency, recyclability and reusability that is attuned to our planet's source and sink 'carrying capacity'), (v) *diversity* (highlighting the need for supporting life through social and cultural survival in global relationships, for maintaining ecosystems), (vi) *quality* (valuing collaborative networks over hegemony, future over the present, and better over more in order to integrate wholeness, posterity, scale, and community), (vii) *stakeholder engagement via dialogue* (creating interactive patterns to reveal, question and assess implicit assumptions, perceptions and values regarding various stakeholders) and (viii) spiritual well-being (contributing to quality of life in the larger community through peacefulness, love, joy, happiness, enlightenment, satisfaction, accomplishment, and creative expression). The adoption of such sustainability-centred value systems helps organizations reveal their assumption-based cognitive frameworks that "stand for sustainability" (Stead et al., 2004: 140), frame strategic decisions, and measure effectiveness in ecological, social and economic terms.

The holistic, spiritual dimension of a learning HEI, dedicated to academic research in business, can be instrumental in unleashing the potential of business research in several interdisciplinary areas, positioned at the confluence of strategic management, sustainability science and sustainability ethics that could vary somewhat in nomenclature, but would be quite similar in scope (Chatterjee, 2009: 8). For instance, the business academia could contemplate new research avenues in the fields of "strategic sustainability management", "strategic sustainable development", "strategic management for sustainability", "sustainable strategic management", "corporate sustainability management", "sustainable value creation with bio-mimicry", "sustainopreneurship", and "corporate sustainability reporting", to name a few. These fertile research areas would be germane sub-disciplines of both sustainability science and strategic management, committed to caring for the Earth as the ultimate corporate stakeholder. Hence, their acceptance and adoption could effectively reorient classical strategic management from profit-maximizing business behaviour in free-market economies towards the critical requirement of obeying planetary "carrying capacity" constraints, and reducing humanity's ecological footprint through meaningful planetary stewardship under natural capitalism (Lovins et. al., 1999).

Figure 1: Emerging Sustainability-centred Business Research Possibilities
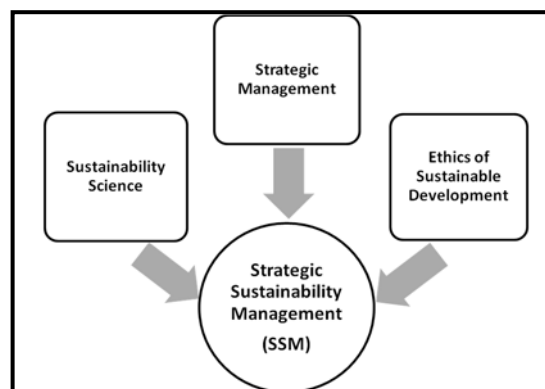
Whatever, the nomenclature, the common ground for such upcoming research is the necessary focus on five major directions of concern (Parnell, 2008): (i) integration of near-term, long-term, and very long-term perspectives (e.g. climate change, climate justice and climate ethics) on the business strategy-performance relationship; (ii) examination of linkages among contemporary perspectives of business ethics, corporate responsibility, corporate governance, and moral leadership; (iii) development of robust models that can facilitate effective planetary resource management from ecological and societal perspectives while upholding the concept of capitalism; (iv) adaptation and integration of current strategic management models to a sustainability management perspective; and (v) redefinition of organizational crises and risks to improve built-in resistance to the effects of crisis from natural disasters, disruptive technological innovations, and global terrorism.

THE CASE FOR "SUSTAINABLE" ACADEMIC RESEARCH IN BUSINESS

Like most academic disciplines with a pragmatic basis, contemporary academic business research is "unsustainable", given the cognitive and psychological barriers that prevent researchers from adopting an eco-centric "systems view" of life. 'The 21ˢᵗ century finds academia moving steadily from a position characterized by continual crisis towards one of epochal catastrophe. In a world in which global industrial systems have clearly emerged as major powers, thereby generating unprecedented historical outcomes of planetary genocide, ecocide, zoöcide—and likewise, epistemicide (see McLaren, 2012)—the idea of "sustainability" must thus strive to take rigorously oppositional and tactically concrete forms both on and off campus, if it is to transcend greenwashing by the public relations industry as purchased by the "power complex" (Best et al., 2011) of said systems. Sustainability cannot simply be handed over to STEM (science, technology, engineering and mathematics) programs to coordinate as a field of endeavour without being falsified'(Fassbinder et al., 2012: xvi). To serve the needs of an overly financialized industrial society, higher education systems around the world are servile to reductionism as the dominant scientific paradigm; consequently, researchers are reduced to inert cogs of a dysfunctional techno-economic machine, thoroughly oblivious of the broader socio-ecological implications of their well-funded research outcomes, on the fragile web of life (Capra, 2003: 180). Reductionism is anthropocentric; so, it assumes that humankind has an inherent right to disrespect life, to over-exploit other life forms, and to display arrogance in capricious deployment of planetary resources. As a knower, the researcher is a "cognitively privileged being" (Barfield, 1987) who can take possession of the world that is known. Barfield (1987: 71-72) maintains: 'The real world, the whole world, does not consist only of the things of which we are conscious; it consists also of the consciousness and sub-consciousness that are correlative to them. They are the immaterial component of the world. But today the only immaterial element our mental habit acknowledges is our own little spark of self-consciousness. That is why we feel detached, isolated, cut off not only from the world as it really is, but also from those other little sparks of detached self-consciousness we acknowledge in our fellow human beings'. Agreed, that researchers have a strong sense of belongingness to their respective intellectual communities, but, this should not incite them to abandon critical thinking, and cower from knowing the truth. Ivan Illich (1991) laments: 'The university… has become a service for sale, ever more ready to hire itself out to governments or multinationals. It makes itself important through communal navel-gazing. Pedagogues and astronomers, gene researchers and sociologists, all work to process data and present them for verification to a management committee of peers, that is, likeminded data producers. What goes on in the lab has lost all but a tenuous tie to sense and meaning, let alone truth. Why is it…that so few of those who share our conviction are willing to come out and confess this?

Academic business researchers must realise sooner rather than later that they are wrong in their belief that what is not known does not harm; in fact, what is not known and eludes our visibility harms us, others, and the planet at large. Therefore, research skills must include the "ecological intelligence" (Goleman, 2009: 30), which is typified by conscious experiential learning of the principles of ecology (networks, cycles, solar energy, partnership, diversity, and dynamic balance), cultivation of non-human sensibilities such as rights of unborn generations (Singer, 1975), animal rights, and plant rights for engaging both human and non-human stakeholders, systemic understanding of the interactions between human and ecological systems, and rendering such cognition into a set of principles of business organization for the attainment of planetary well-being, i.e., sustenance of all living systems, both human and non-human communities, through a process of dynamic co-evolution (Capra, 2003: 201).

 "Well-being" as a goal suggests a complex construct focused on positive functioning (Ryan and Deci, 2001: 14; Seligman, 2011), and demonstrates three essential attributes (Dewe and Cooper, 2012: 67): (i) a qualitative notion capturing the twin eudaimonic ideas of happiness and harmony, (ii) a subjective notion, allowing individuals to judge the parameters and priorities in the interplay of happiness and harmony (i.e., whether at the material, psychological, psycho-social, social or ecological level), and (iii) a positive notion (not merely the absence of the negative) of the psychological human condition (Diener, 1984; Seligman and Csikzentmihalyi, 2000: 5-14; Diener et al., 2003; Alexandrova, 2005; Kesebir and Diener, 2008) conveyed through positive life-experiences (Simonton and Baumeister, 2005), positive human traits and capacities (Luthans, 2002), positive health (Seligman, 2008), positive responses such as "eustress" (Nelson and Simmons, 2003), positive deviance (Parkin, 2010), positive organizational behaviour (Nelson and Cooper, 2007: 3-4; Luthans and Avolio, 2009), positive organizational scholarship (Cameron et al., 2003; Roberts, 2006), authentic transformational leadership (Price, 2003), positive appraisals (Aldwin, 2009), positive psychological capital as competitive advantage

(Luthans and Youssef, 2004) and positive corporate citizenship (Waddock, 2005). Positivity is essentially linked with a notion of balance, a state of harmony in the parts of a whole, about a sustainability of equilibrium, and is associated with issues concerning a "good and healthy work agenda" (Coats and Lekhi, 2008). The ideas of balance, health, and good work encompass emotional, social, ecological, spiritual and ethical dimensions, rather than merely the body-mind split (Quick and Macik-Frey, 2007).

In this paper, we draw upon four major sources of inspiration to lead us to establish a case for "sustainability-literate" academic business research. Firstly, Capra (2003: 200-1) avers that ecological sustainability is a core value essential for reshaping globalization; therefore, educational institutions and centres of learning in the new global civil society have to choose 'sustainability as their explicit focus'. He asserts that the creation of 'sustainable communities is the great challenge of our time'. However, in order to make ecological sustainability operational, it is not necessary to invent sustainable human communities from scratch but to realize that they can be modelled after nature's ecosystems where sustainable communities are inhabited by plants, animals and micro-organisms. Hence, the first step towards building sustainable (learning) communities is to become sustainability-literate and develop a comprehensive system of education for sustainable living, based on sustainability literacy at all levels—from primary and secondary schools to colleges, universities, and the continuing education and training of professionals. This entails pedagogy that places biophilia, i.e., an understanding and respect for life, at the core, and emphasizes experiential learning in the real world (e.g., restoring wetlands, organic farming, exploring a watershed) to closely understand living systems and overcomes our nature-deficit disorder.

Secondly, *Goal 8* enshrined in the United Nations Millennium Development Goals, 2005, calls for developing a global partnership, including government, business and the social sector, for catalysing progress towards sustainable development (United Nations, 2011). Given the complex structure of global dilemmas humankind faces, both in terms of gravity and scale, finding business solutions that "stand for sustainability" to address poverty, environmental protection and sustainable consumption hinges largely upon the creation of networks of partnerships among business enterprises themselves, governments as regulators, and HEIs as representative of civil society interests to develop new skills and competences by which sustainable development can be the key to business thinking for coping with the urgency of social and environmental challenges (WBCSD, 2005: 5-6 www.wbcsd.org/web/sustainableworldandyou).

Thirdly, the UN Global Compact Principles for Responsible Management Education (PRME) documented in 2007, aimed at promoting responsible management education, research and thought leadership globally, provides a set of six guiding principles as 'an engagement structure for academic institutions to advance social responsibility through incorporating universal values into curricula and research' (www.unprme.org, 2007). Since research is a core mission of universities and many business schools, Principle #4 states: 'We will engage in conceptual and empirical research that advances our understanding about the role, dynamics, and impact of corporations in the creation of sustainable social, environmental and economic value' (www.unprme.org, 2007). The collective and global nature of research implies that it is instrumental in shaping the thought process of professors, advancing the public body of knowledge through pedagogy, and influence the academic content of curricula within HEIs. Furthermore, Ghoshal (2005) and researchers at the Aspen Institute (2002) have affirmed that research deeply impacts the managerial values. The current business curriculum is not value neutral. Today's dominant theories and frameworks (e.g., shareholder value maximization and agency theory) have contributed to creating, reinforcing and perpetuating harmful values among business faculty, deans, and graduate students. A transformation towards socially and environmentally responsible management education depends heavily upon robust, respected and influential research paradigms that address the global sustainability challenge as an aspect of management that has been neglected and not been adequately addressed. Responsible academic business research can also ensure that the inaccuracy of one-size-fits-all theories and tools is reduced by studies conducted in diverse cultural, institutional and political settings.

Fourthly, Goleman et al., (2013) identify eco-literacy or sustainability literacy as a new integration of emotional, social and ecological intelligence directed towards the understanding of natural systems that students, researchers and educators should learn to take a long-term view when making decisions about how to live. Development of eco- literacy through educational systems helps cultivate the knowledge, empathy and action necessary for practising sustainable living and creating positive relationships with the natural world.

"SUSTAINABILITY LITERATE" ACADEMIC BUSINESS RESEARCH PARADIGM

It may be generalized that all manifestation of unsustainable human activity eventuates from the mechanistic reductionist world-view of the universe endorsing man's domination of nature and an over-emphasis on rational, analytic thinking. 'The understanding of ecosystems is hindered by the very nature of the rational mind' Capra (1982: 24-34). Rational thinking is linear, whereas ecological thinking is systemic and cyclical. The mechanistic-reductionist paradigm is unable to capture the subtlety of nature's interconnectedness, and hence, is cognitively inadequate to address problems posed by nature. The holistic, ecological paradigm, by contrast, involves an integration of intuition and rationality as complementary modes of an elevated human consciousness that can transform reason into ordered intuition (Sri Aurobindo, 1920: 3). In this context, the academic business researcher must be imbued with an expansive "4-E vision", combining scenarios of the ethicist, the ecologist, the economist, and the entrepreneur, because the identifiable characteristics of a "sustainability-literate" research paradigm differ immensely from the voguish reductionist research paradigm. This is evident from Table 2 below.

Table 2: Characteristics of unsustainable versus sustainable business research paradigms

Descriptors/ Characteristics	"Unsustainable" Mechanistic Reductionist Paradigm	"Sustainable" Holistic Ecological Paradigm
Basic quality	Mechanistic and reductionist	Organic and holistic
Focus	Anthropocentric and technocentric	Ecocentric and biophilic
Characteristics of knowledge	Divisible, value-free, empirical, controlling	Indivisible, value-driven, empirical, empathic
Process of knowledge creation	Understanding through rational analysis	Rational and intuitive synthesis
Concern with measurement	Emphasis on the quantitative	Emphasis on the qualitative
Recognition of constraints	Few or no technical and ecological limits	Ecological limits determine technical limits
Perception of reality	Emphasis on material reality	Concern with physical and metaphysical reality
Recognition of values	Only instrumental values are recognized	Intrinsic values are integrated with the instrumental through systemic values
Conception of Nature	Nature is made up of discrete parts; the whole is not more than the sum of the parts	Nature consists of interrelated wholes, which are greater than the sum of their parts
Time and causation	Linear concepts of time and causation	Cyclical concepts of time and causation
Fact and value linkage	Fact and value are unrelated	Fact and value are closely related
Integration of ethics	Ethics and ordinary life are separated	Ethics is integrated into ordinary life
Subject and object linkage	Subject and object are separate	Subject and object are interactive
Conception of well-being	The power of a unit—money, resources, influence	The quality of interrelationships between systems equated with well-being
Locus of organizational control	Centralization of power	Decentralization of power; participation
Work organization	Individualized and Specialized	Multi-dimensional and collaborative
Relationship of participants	Competitive	Cooperative
Human system design	Homogeneity and disintegration	Diversity and integration
Goal of economic system	Undifferentiated, short-term quantitative growth in a financialized economy	Qualitative long-term sustainable development in an economic biosphere
Corporate goal	Profit maximization	Value creation
Human values	Individualism; self-interest; independence	Communitarianism; community interest; interdependence
Corporate values	Profit, growth, control	Trust, learning, value creation through service
Corporate outlook	Self-preservation	Cooperative alliances
Organizational structure and human relationships	Authoritarian hierarchies	Interactive networks
Attitudes towards nature	Nature is inanimate, external, exploitable, and commoditized	Nature is a living system, and symbiotic with human communities
Relation of Nature and humans	People and nature are separate; humans dominate nature	The relationship of humans and nature is systemic and synergic; humans preserve nature
Work environment	Fear, stress, anxiety, resistance to change	Trust, openness, inclusiveness
Attitude to problem-solving	Focus on cure as solution	Focus on prevention as solution
Notion of accountability	To shareholders	To stakeholders
Key managerial role	Decision-maker	Facilitator, servant, advocate
Notion of cost	Measurable internal costs	Total life-cycle costs (internal and external)
Environmental preservation	A problem	A Challenge
Environmental opportunity	None found	Potential recognised
Competitive challenge	Competing for market share	Competing for opportunity share
Nature of competition	Competing as a single entity within existing industry structure	Competing as a coalition to shape future industry structure
Role of corporate strategy	Strategy as positioning	Strategy as foresight
Mobilizing for the future	Strategy as fit	Strategy as stretch
Strategic leadership	Transactional	Transformational and transcendent

By embracing the sustainability-literate research paradigm, a business researcher in academe can inject many latent competences into the research process when delineating the various elements, namely, research opportunities, the research problem, the research philosophy (articulation of ontology, epistemology and axiology), the research strategy, and the research design, and the research methodology of a study. These new researcher competences are as under:

- Recognizing the centrality of ethical behaviour to the effectiveness of a post-corporate market economy;
- Respecting life and using life as the measure for evaluating economic choices and performance;
- Encouraging stakeholder identification, engagement and management by rendering inclusive research outcomes that encompass need fulfilment of economic stakeholders, direct and indirect social stakeholders, silent stakeholders, and Earth as the ultimate business stakeholder;
- Promoting humanistic (i.e., whole-being), dignified, and intrinsically satisfying production processes;
- Assuming pro-active responsibility for business impacts on the natural world and human society;
- Advocating identification and management of the full costs of decisions to guide decision-makers in making socially and environmentally responsible choices;
- Recognition and maintenance of five capitals—critical and renewable natural capital, social capital, human capital, manufactured capital, and lastly financial capital;
- Engendering the development of low-carbon, multi-functional and durable product-service systems characterized with low material-intensity, low energy-intensity, and bio-degradability;
- Facilitating the notion of shared ownership collaborative consumption, having durability and long-term utility, the use or disposition of which will not jeopardize the health of future generations;
- Transforming consumerist customers to ecologically conscious customers by educating them about their unarticulated intrinsic needs that business must serve;
- Redirecting the focus of members of the business community towards sustainable value creation across the ecological value chain; and
- Explore the dynamics of human-scale firms and nature-inspired innovations so that participants can maintain living relationships founded upon trust and caring.

"Sustainability-literate" academic business research, which partakes the nature of "use-inspired basic research" (Stokes, 1997), would, thus, evolve into a novel "enactive" approach, characterized as a theoretical and methodological foundation of focusing on a core set of ideas, including autonomy, sense-making, emergence, embodiment, and experience (Varela et al., 1991, Torrance, 2005, 2007; Di Paolo et al., 2011). The enactive approach can combine and confront some of the most difficult questions in philosophy and science, such as: What is meaning and what is its source? What defines cognition? What is the relationship between life and mind? What defines agency? What is special about social forms of interaction? What is the role of culture for human consciousness? This research framework is inherently trans-disciplinary. The trans-disciplinary epistemological perspective seeks to provide 'a platform of knowledge' (Komiyama and Takeuchi, 2006: 4) that can integrate disparate fields of inquiry (geology, climatology, life sciences, ecology, geography, engineering, technology, political science, psychology, sociology, ethics, economics, management, and finance). Trans-disciplinary research examines issues between, across and beyond all disciplines to develop an understanding of the complexities of contemporary global problems, instead of only focusing on a part of it (Nicolescu, 2001). Hence, enactive research is fertile ground for generating a discourse that can integrate diverse and wide-ranging phenomena from the single cell organism to human society (Thompson, 2007), which are otherwise separated by mono-disciplinary discontinuities. This trans-disciplinary integration has to forge a delicate balance between eliminative reductionism and abstruse dualism, so that observations draw from distinct levels of phenomena retain a relative independence with respect to each other, while revealing interdependencies.

Sustainability-literate business research can open up numerous corporate social opportunities (Grayson and Hodges, 2004) in the uncharted "blue oceans" (Kim and Mauborgne, 2005) of sustainability innovations in business. Particularly, the following benefits are discernible:

1. A system-oriented, network approach leading to a new value system where the natural environment cannot be construed as an asset or resource that can be used free of charge;

2. An evolved system of higher level organisational structure and objectives to match environmental complexities and interdependencies;

3. Integration of environmental protection into organisational objectives through a system of learning and unlearning, since this area creates the greatest value discrepancy between the general public and the world of business;

4. Design of information systems capable of recording non-monetary variables (that reveal value changes due to environmental impacts) and communicating the environmental advantages of products;

5. Efficient organisational performance with respect to horizontal tasks requiring flat hierarchies, cross-functional teams, decentralised decision-making and open communication; and

6. Innovation management for the successful introduction of integrated environmental technologies aimed at pollution prevention [P2], as the most strategic variable that can optimise ecology, globalisation, technology, complexity, values and information.

QUALITIES OF SUSTAINABILITY-LITERATE ACADEMIC BUSINESS RESEARCH

Sustainability-literate business research in academia symbolizes an evolutionary process occurring within the business community in terms of increasing levels of eco-literacy across 5 stages (P1 through to P5 in Figure 2). The ultimate goal is to reach the apex, i.e., "P5: Sustainability vision and alignment with core values" as a living reality. Then, business research by academics comes to be (i) a life-long, participatory, experiential learning process, plus (ii) a pro-actively responsible way of living, (iii) an approach to holistic education, trans-disciplinary in its application, (iv) encouraging the development of an environmental ethic alongside sensitivity, awareness, understanding, critical thinking, and problem solving, (v) construing the environment in totality (including spiritual, aesthetic, moral, social, political, economic and technological aspects) to reveal the connectedness between human and natural systems, (vi) integrating local to global space as well as past, present and future temporal dimensions .

Figure 2: Evolutionary path of eco-literacy within the business community
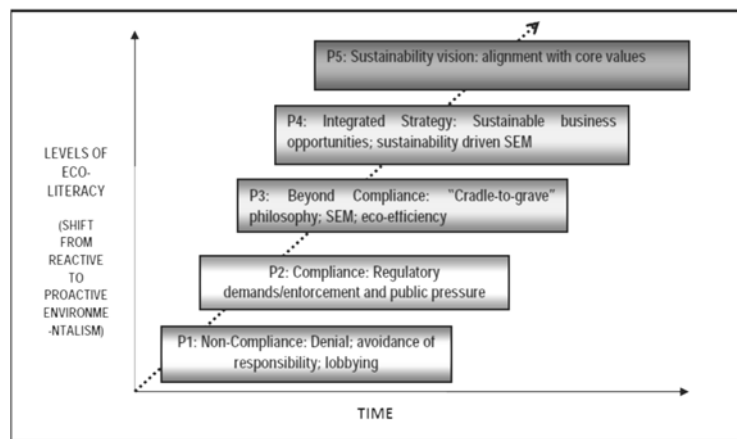
MAJOR FINDINGS

The major findings emanating from the discourse generated in the paper are:

- The *embedded* holarchical perspective of the B-S-N interface appears to be the most appropriate in addressing today's planetary-scale, global socio-ecological challenges.
- *Sustainability* serves as a core value (along with eight instrumental values) for making actionable the embedded view of the B-S-N interface, because it enables us to "transcend the divergent dilemma facing humankind today".

- The holistic, spiritual dimension of a learning HEI, dedicated to academic research in business, can be instrumental in unleashing the potential of business research in several interdisciplinary areas, positioned at the confluence of strategic management, sustainability science and sustainability ethics .

- Contemporary academic business research is "unsustainable", given the cognitive and psychological barriers that prevent researchers from adopting an eco-centric "systems view" of life.

- Academic business research skills must include "ecological intelligence" and seek attainment of planetary well-being.

- A strong case for "sustainability-literate" academic business research stands on four arguments: (1) Ecological sustainability is a core value essential for reshaping globalization; therefore, educational institutions and centres of learning in the new global civil society have to choose 'sustainability as their explicit focus'; (2) *Goal 8* of the Millennium Development Goals calls for developing a global partnership, including government, business and the social sector, for catalysing progress towards sustainable development; (3) Principle #4 of the UN PRME, 2007 espouses engagement in conceptual and empirical research that advances understanding about the role, dynamics, and impact of corporations in the creation of sustainable social, environmental and economic value; and (4) Eco-literacy or sustainability literacy as a new integration of emotional, social and ecological intelligence directed towards the understanding of natural systems that students, researchers and educators should learn to take a long-term view when making decisions about how to live.

- Identifiable characteristics of a "sustainability-literate" research paradigm differ immensely from the voguish reductionist research paradigm

- By embracing the sustainability-literate research paradigm, a business researcher in academe can inject many latent competences into the research process when delineating the various elements, namely, research opportunities, the research problem, the research philosophy (articulation of ontology, epistemology and axiology), the research strategy, and the research design, and the research methodology of a study.

- Sustainability-literate academic business research, is "use-inspired basic research" and can evolve meaningfully into a novel "enactive" trans-disciplinary approach.

- Sustainability-literate business research can open up numerous corporate social opportunities (Grayson and Hodges, 2004) in the uncharted "blue oceans" (Kim and Mauborgne, 2005) of sustainability innovations in business.

CONCLUSION

In conclusion, we acknowledge that all research is ultimately rooted in philosophy because it offers the most profound ideas of inquiring into the nature of knowledge. Given this, sustainability-literate business research in academic circles will come to represent an endeavour in "experimental philosophy" (Appiah, 2008) dwelling on the three classical philosophical virtues—*true, beautiful and good* by making an entry into the sub-fields of philosophy—epistemology for truth, aesthetics for beauty, and ethics for goodness (Gardner, 2011: 203). For a sustainable future, Ending on a note of optimism, this paper was a humble way to open the window of opportunity for the rapid emergence of a truly global phenomenon—a responsible and sustainable academic business research community possessing all the five minds of the future (Gardner, 2008)—the disciplined mind contributing to expertise, the synthesizing mind integrating information from diverse and disparate sources, the creating mind engaging in out-of-the-box ideation, the respectful mind accepting and embracing biological and cultural diversity, and the ethical mind transcending the narrowness of self-interest and self-preservation in favour of intra-generational and inter-generational equity.

REFERENCES

Aldwin, C.M. (2009). *Stress, coping, and development: an integrative perspective*. New York: The Guilford Press.

Alexandrova, A. (2005). Subjective well-being and Kuhneman's "objective happiness" *Journal of Happiness Studies*. 6, 301-24.

Appiah, A. (2008). *Experiments in ethics*. Cambridge, MA: Harvard University Press.

Aurobindo,Sri. (1920). *Thoughts and glimpses*. Pondicherry: Sri Aurobindo Ashram.

Barfield, O. (1987). *History, guilt, and habit*. Middletown: Wesleyan University.

Best, S., Kahn, R., Nocella II, A. J., and McLaren, P. (2011). *The global industrial complex: systems of domination*. Lanham, MD: Lexington Books.

Cameron, K. S., Dutton, J.E. and Quinn, R.E. (2003). *Positive organizational scholarship: foundations of a new discipline*. San Francisco: Berrett Koehler.

Capra, F. (1982). *The turning point: science, society and the rising culture*. London: Wildwood House

_____(2003). *The hidden connections*. New Delhi: Harper Collins.

Chatterjee, K. (2009). 'The primacy of "righteousness" and "relevance" over "rigour" in strategic sustainability management research', *Business Studies* 30 (1): 1-31.

Coats, D. and Lekhi, R. (2008). *"Good Work": job quality in a changing economy*. London: The Work Foundation.

Crouch, C. (2006). Modelling the firm in its market and organizational environment: methodologies for studying corporate social responsibility. *Organizational Studies, 22*: 1533-51.

Dewe, P. and Cooper, C. (2012). *Well-being and work: Towards a balanced agenda*. New York: Palgrave Macmillan.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95: 542-75.

Diener, E., Oishi, S., and Lucas, R.E. (2003). Personality, culture, and subjective well-being: emotional and cognitive evaluations of life. *Annual Review of Psychology*, 54: 403-25.

Di Paolo, E.A., Rohde, M., and De Jaegher, H. (2011). Horizons for the enactive mind: Values, social interaction, and play. In J. Stewart, O. Gapenne, and E.A. Di Paolo (eds), *Enaction: toward a new paradigm for cognitive science*. (pp. 33–87) Cambridge, MA: The MIT Press.

Friedman, M. (1971). Capitalism and freedom. Chicago: University of Chicago Press.

Gardner, H. (2008). *5 minds for the future*. Boston, MA: Harvard Business School Publishing.

_____ (2011). *Truth, beauty and goodness reframed: educating for the virtues in the twenty first century*. New York: Basic Books.

Ghoshal, S. (2005). Bad management theories are destroying good management practices. *Academy of Management Learning and Education*, 4(1): 75-91.

Goleman, D. (2009). *Ecological intelligence: knowing the hidden impacts of what we buy*. London: Penguin.

Goleman, D. Bennett, L. and Barlow, Z. (2013). *Ecoliterate: how educators are cultivating emotional, social, and ecological intelligence*. New York: Jossey Bass.

Grayson, D. and Hodges, A. (2004). *Corporate social opportunity: 7 steps to make CSR work for your business*. Sheffield, UK: Greenleaf.

Illich, I. (1991). *Text and university: on the idea and history of a unique institution*. A translation by Lee Hoinacki of the keynote address delivered at the Bremen Rathaus, September 23, 1991. Retrieved from http://www.davidtinapple.com/illich/1991_text_and_university.PDF.

Jensen, M.C. (2002). Value maximization, stakeholder theory, and the corporate objective function. *Business Ethics Quarterly*, *12*: 235-256.

Fassbinder, S. D., A. J. Nocella II and Kahn, R. (2012) *Greening the academy: ecopedagogy through the liberal arts*. Rotterdam: Sense Publishers.

Kesebir, P. and Diener, E. (2008). In pursuit of happiness: empirical answers to philosophical questions. *Perspectives on Psychological Science*, 3: 117-25.

Kim, W.C. and Mauborgne, R. (2005). *Blue Ocean Strategy: Creating Uncontested Marketspace*. Boston, MA: Harvard Business School Press.

Komiyama, H. and Takeuchi, K. (2006). Sustainability science: Building a new discipline, *Sustainability Science*, *1*: 1-6.

Louv, R. (2005). *Last child in the woods: saving our children from nature-deficit disorder*. New York: Algonquin Books.

Lovins, A., Lovins, H. and Hawken, P. (1999). *Natural capitalism*. New York: Little Brown.

Luthans, F. (2002). The need for and meaning of positive organizational behaviour. *Journal of Organizational Behavior*, 23: 695-706.

Luthans, F. and Avolio, B.J.(2009). The "point" of positive organizational behaviour. Journal of Organizational Behaviour, 30: 291-307.

Luthans, F. and Youssef, C.M. (2004). Investing in people for competitive advantage. *Organizational Dynamics*, 33: 143-60.

Marcus, J., Kurucz, E.C. and Colbert, B.A. (2010). Conceptions of the business-society-nature interface: Implications for management scholarship. *Business and Society*; *49(3)*: 402-38.

McLaren, P. (2012). Objection Sustained: Revolutionary Pedagogical Praxis as an Occupying Force. *Policy Futures in Education, 10*(4), pp. 487–494.

Myers, M.D. (2009). *Qualitative research in business and management*. London: Sage.

Nelson, D. and Cooper, C.L. (2007). Positive organizational behaviour: an exclusive view. In D. Nelson and C.L. Cooper (eds.), *Positive organizational behaviour*. (pp3-8). London: Sage.

Nelson, D.L. and Simmons, B. L. (2003). Health psychology and work stress: a more positive approach. In J.C Quick and L.E. Tetrick (eds.), *Handbook of occupational psychology*. (pp. 97-119). Washington D.C.: American Psychological Society.

Nicolescu, B. (2001). *Manifesto of Transdisciplinarity* (Translated from French by Karen-Claire Voss). State of New York Press: New York.

Parkin, S. (2010). *The positive deviant: sustainability leadership in a perverse world*. London: Earthscan.

Parnell, J.A. (2008). Sustainable strategic management: construct, parameters, research directions. *Journal of Sustainable Strategic Management*, 1(1): 35-45.

Porritt, J. (2006). *Capitalism: as if the world matters*. London: Earthscan.

Price, T.L. (2003). The ethics of authentic transformational leadership. *The Leadership Quarterly*, 14: 67-81.

Quick, J.C. and Macik-Frey, M. (2007). Four perspectives on conservation of resources theory: a commentary. Applied Psychology: An International Review, 50: 392-400.

Roberts, L.M. (2006). Shifting the lens on organizational life: the added value of positive scholarship. *Academy of Management Review*. 31: 292-305.

Ryan, R.M. and Deci, E.L. (2001). On happiness and human potentials: a review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*. 52: 141-166.

Senge, P. (1990). *The Fifth Discipline: the art and practice of the learning organization*. New York: Doubleday.

_____ (1996). Leading learning organizations. *Training and Development*, 50(12): 36-40.

Seligman, M.E.P. and Csikzentmihalyi, M. (2000). 'Positive psychology: an introduction'. *American Psychologist* 55(1): 5-14.

Seligman, M.E.P. (2008). Positive health. *Applied Psychology: An International Review*. 57:3-18.

_____ (2011). *Flourish: a new understanding of happiness and well-being and how to achieve them.* London: Nicholas Brealey.

Simonton, D. and Baumeister, R. (2005). Positive psychology at the summit. *Review of General Psychology*, 9:99-102.

Stead, W.E., Stead, J.G. & Starik, M. (2004). *Sustainable strategic management*. New Delhi: Prentice Hall of India.

Stokes, D. (1997). *Pasteur's quadrant: Basic science and technological innovation*. Washington DC: Brookings Press.

Thompson, E. (2007). *Mind in Life: Biology, Phenomenology, and the Sciences of Mind*. Cambridge, MA: Harvard University Press.

Torrance, S. (2005). In search of the enactive: Introduction to special issue on enactive experience. *Phenomenology and the Cognitive Sciences* 4(4): 357–368.

_____ (2007). Introduction to the second special issue on enactive experience. *Phenomenology and the Cognitive Sciences* 6(4): 425.

United Nations (2011). *The Millennium development goals report, 2011*.

Varela, F.J, Thompson, E., and Rosch, E. (1991). *The embodied mind: cognitive science and human experience*. Cambridge, MA: The MIT Press.

Victor, P.A. (2008). *Managing without growth: slower by design, not disaster*. Northampton, MA: Edward Elgar.

Waddock, S. (2005). Positive psychology of leading corporate citizenship. In R.A. Giacalone, C.L. Jurkiewicz, and C, Dunn (eds.), *Positive psychology in business ethics and corporate responsibility* (pp. 24-45). Charlotte, N.C.: Information Age.

World Business Council for Sustainable Development [WBCSD] (2005). *Moving sustainable development into the mainstream*. Geneva Switzerland. www.wbcsd.org.