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# A critical review on paradigms of sustainable development in higher education: An international perspective

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**Abstract**
**Purpose:** The paper aims to study various paradigms of sustainable development which are playing an immense role as a driving forces for creating sustainable development in higher education. The need for sustainable development entails for existing and coming cohorts to be better understood so as to contribute to make the transition to 'sustainable concords'. The purpose of this paper is to study an international perspective of various paradigms of sustainable development for higher education.
**Research Methodology:** This study identified the range of worldviews expressed on declarations, charters, and conglomerates established for Higher Education Institutes. The analysis was done considering the four major paradigms. 1) Curriculum development 2) competency development 3) Multi-stakeholders' perspective & 4) Quality assurance in higher education. The authors conducted an extensive review on literature on international perspective for higher education over the last 30 years, based on the combination of the keyword higher education for sustainable development with international perspective.
**Findings:** The findings suggested the role of multi stakeholders was a leading factor for implementing sustainable development. It is strongly influencing a process of change in mindsets, practices and curricula to unified sustainability in academics. Several authors have identified the need for a Quality assurance, enhancement of teaching and learning pedagogy for higher education to develop criteria of potency, advocacy and interdisciplinary collaboration of individual. Studies suggested that there is a high requirement of development of strategic leadership for higher education programs.
**Originality/value:** The paper underlines the crucial role of higher education for sustainable development. It is duty of all Universities, professionals and students need to take greater responsibility.

**Keywords:** Competency development, Curriculum Development, Higher education, Quality Assurance, Multi-Stakeholders, Sustainable development

## Introduction

Humanity stands at a defining moment in history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, hunger, ill health and illiteracy, and a continuing deterioration of environment and development concerns and greater attention to them will lead to the fulfillment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future. No nation can achieve this on its own; but together we can- in a global partnership for sustainable development.

**- (UNCED, "PREAMBLE", Agenda 21, Regency press, London, 1992)**
Albert Arnold "Al" Gore, Jr. – Nobel prize winner (2007), enunciated at the City Hall in Oslo about "*inconvenient truth*", "*The world has a fever,*" *and except we take necessary actions., the fever will become worse, and the planet will be disparagingly ill*". The sustainability is vanishing. In this context, universities have a specific role: to rationalize their efforts and resources to antithesis those terrifying predispositions. For centuries, Academicians are doing research on sustainable development in Higher Education Institutions. Sustainability has been center of attraction for society.

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(Mcmillin J, Dybal R, 2009) [31] Educational institutions can elevate their role as agents of change for a sustainable future. One of the survery conducted by KPMG, reported 35% of those companies in 1999 to 93% in 2013. Other types of public or private organizations, governmental organizations, and HEIs) have also been engaging in unambiguously recording their SD efforts to their stakeholders. (O'Dwyer B, Ball A) [47].
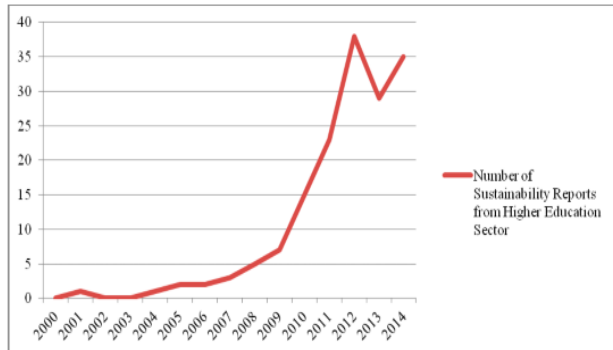


Source:https://www.globalreporting.org/services/Analysis/Reports_List/Pages/default.aspx (accessed on 12 April 2015)

**Fig 1:** Number of sustainability reports published by Higher Education Institutions (per year) in the GRI Disclosure Database

In the 21st Century the profuseness of voluntarily multi-stakeholders' partnerships are anticipated to be strenuous on generating a global knowledge framework that imprimaturs for connecting local sustainability efforts with multi-stakeholders' collaboration functioning towards sustainable development in higher education. Due to outmoded, reductionist and mechanist paradigms (Lozano *et al.* (2006) [29], the educational institutions are lagging behind implementing sustainable development in academic system. To develop sustainability in higher education, many declarations, charters, and partnerships developed for supporting HEIs (figure 1).

**Development of the declarations, charters, and partnerships for supporting sustainability in HEIs**
The accumulative reputation of declarations, charters and partnerships, for development of sustainability in HEIs which has recorded tremendous response at global level. The first ever chronicled "the Stockholm Conference" in 1972 education was officially acknowledged on an international level in nurturing environmental protection. Subsequently the Talloires Declaration, the Kyoto Declaration, and the Copernicus University Charter had suggested strategies for encouraging educational institute for having sustainable development. Rogers, 1995 [50]; van de Ven *et al.*, 1999 [58] suggested the importance of enriching role of sustainability in entire system and how to develop whole system rule with few strategies of new innovation in education. Sherry (2003) [20], who acmes that an innovation customarily has 3 phases: (1) in diffusion, (2) implementation, and (3) institutionalization. Lozano, 2006a quantified in his inscription how sustainable development is important as an integral part of universities' and their structures it needs to be put into practice long enough then lead to the conception of new more sustainable paradigms, especially if groups, organizations, and society accept SD. Table 1 depicted the compilation of declarations, charters, and partnerships for supporting sustainability in HEIs.

**Table 1:** Compilation of declarations, charters, and partnerships for supporting sustainability in HEIs

| S. No. | Year | Development of the declarations, charters, and partnerships for supporting sustainability in HEIs |
|---|---|---|
| 1 | 1972 | Stockholm Declaration on the Human Environment, United Nations Conference on the Human Environment, Sweden Society |
| 2 | 1975 | The Belgrade Charter, Belgrade Conference on Environmental Education, Yugoslavia Education |
| 3 | 1977 | Tbilisi Declaration, Intergovernmental Conference on Environmental Education, Georgia Education |
| 4 | 1987 | "Our Common Future", The Brundtland Report Society |
| 5 | 1990 | Talloires Declaration, Presidents Conference, France Higher education |
| 6 | 1991 | Halifax Declaration, Conference on University Action for Sustainable Development, Canada Higher education |
| 7 | 1992 | Report of the United Nations Conference on Environment and Development (Rio Conference); Agenda 21, Chapter 36: Promoting Education, Public Awareness and Training and Chapter 35:Science for Sustainable Development |
| 8 | 1992 | Association of University Leaders for a Sustainable Future founded, USA Higher education |
| 9 | 1993 | Kyoto Declaration, International Association of Universities Ninth Round Table, Japan Higher education |
| 10 | 1993 | Swansea Declaration, Association of Commonwealth Universities' Fifteenth Quinquennial Conference, Wales Higher education+C25 |
| 11 | 1993 | COPERNICUS University Charter, Conference of European Rectors (CRE) Higher education |
| 12 | 1996 | Ball State University Greening of the Campus conferences were in 1997, 1999, 2001, 2003, 2005, 2007, and 2009 Higher education |
| 13 | 1997 | Thessaloniki Declaration, International Conference on Environment and Society: Education and Public Awareness for Sustainability, Greece |
| 14 | 1998 | World Declaration on Higher Education for the Twenty- first Century and Framework for Priority Action for Change and Development in Higher Education |
| 15 | 1999 | Handvest Duurzaam HBO |
| 16 | 1999 | Environmental Management for Sustainable Universities (EMSU) conference first held in Sweden. Following conferences in 2002 (South Africa), 2004 (Mexico), 2006 (U.S.A.), 2008 (Spain), and in 2010 in The Netherlands |
| 17 | 1999 | The bologna declaration |
| 18 | 2000 | Millennium Development Goals Society |
| 19 | 2000 | The Earth Charter Society |
| 20 | 2000 | Global Higher Education for Sustainability Partnership (GHESP) Higher education |
| 21 | 2000 | Beijing Declaration |
| 22 | 2001 | Lüneburg Declaration on Higher Education for Sustainable Development, Germany Higher education |
| 23 | 2001 | Joint Declaration on Higher Education and the General Agreement on Trade in Services |
| 24 | 2002 | World Summit on Sustainable Development in Johannesburg, South Africa (Type 1 outcome: Decade of Education for Sustainable Development; Civil Society outcome: the Ubuntu Declaration)Society |

| 25 | 2002 | Ubuntu Declaration |
|---|---|---|
| 26 | 2004 | Declaration of Barcelona Higher education |
| 27 | 2005 | Bergen Communiqué |
| 28 | 2005 | Start of the UN Decade of Education for Sustainable Development (DESD) Education |
| 29 | 2005 | Graz Declaration on Committing Universities to Sustainable Development, Austria Higher Education |
| 30 | 2006 | Declaration on the Responsibility of Higher Education for a Democratic Culture - Citizenship, Human Rights and Sustainability |
| 31 | 2007 | Lucerne Declaration on Geographical Education for Sustainable Development |
| 32 | 2008 | Charter for an Alliance of French Universities in Fostering Sustainable Development |
| 33 | 2008 | G8 University Summit Sapporo Sustainability Declaration |
| 34 | 2008 | Promotion of Sustainability in Postgraduate Education and Research Network (ProSPER.Net) Charter |
| 35 | 2008 | Declaration of the Regional Conference on Higher Education in Latin America and the Caribbean (CRES) |
| 36 | 2009 | World Conference on Higher Education |
| 37 | 2009 | Abuja Declaration on Sustainable Development in Africa: The role of higher education in SD, Nigeria Higher Education |
| 38 | 2009 | Living Sustainably: the Australian Government's National Action Plan for Education for Sustainability |
| 39 | 2009 | Torino (Turin) Declaration on Education and Research for Sustainable and Responsible Development, Italy Higher Education |
| 40 | 2010 | Learning for Change: Scotland's Action Plan for the Second Half of the UN Decade of Education for Sustainable Development |
| 41 | 2010 | Declaration "Universities for Sustainable Development" |
| 42 | 2010 | UNICA Green Academic Footprint Pledge |
| 43 | 2011 | Declaración de las Américas "Por la sustentabilidad de y desde la universidad" |
| 44 | 2012 | Science for Sustainability: The Need for a Successful Breakthrough |
| 45 | 2012 | Rio+20 Higher Education Sustainability Initiative, Brazil |
| 46 | 2014 | Bonn declarations |
| 47 | 2014 | The Nagoya Declaration on Higher Education for Sustainable Development |

**Source:** Adapted and updated from Calder and Clugston (2003) [9] and Wright (2004). Society Education Higher education;
**Source:** Adapted from Lozano *et al*. (2013) [29].

During the last thirty years, many initiatives were being completed to inspire Sustainable Development in HEIs It is clear that holistic approach is crucial for being effective in catalyzing the desirable modifications. Many authors have derived positive responses to achieve progress for HEIs leaders, faculty, students and all multi-level stakeholders. The literature review is constructed on data from peer-reviewed journal articles, books, government reports, worldwide views, government reports, university websites, and curricula periodicals. The literature review was conducted in by using online search on EBSCO, Emerald Journals & Google Scholar using the following keywords; ''Sustainability'', ''Sustainable Development'', ''Higher Education,'' & "Criteria for sustainable development" by doing customized search of last 30 years. This paper covers four major paradigms which play a significant role in development of sustainability in higher education.



**Fig 1:** Four Paradigms of Sustainable development in higher education

**Curriculum Level**
Curriculum is an ultimate phase for the creating value in higher education". No matter how you describe curriculum, it is one of the most significant matters in higher education (Hyun, 2006) [23]; an extensive search in higher education curriculum literature, it is unfortunate to voice that diminutive consideration has been given to the curriculum in the academic institutions. The concept of current curriculum is unduly narrow and being neglected more on intractable dimensions like enriching human qualities. There is a mismatch between managerial and academic agendas (Prahalad 1992). Curriculum is, or should be one of the major part in higher education.

*Austin and Baldwin (1991)* [5] *reported teaching collaboration which addressing team teaching, cluster teaching and buddy programs that pair novice teachers with more experienced mentors.* Jacobs, 1997 [25], developed Barnett, Parry, and Coate (2001) recommended a model of curriculum that encompasses three purviews: knowledge, action, and self. Jan Parker (2003) [44] debates on "transformational curriculum." Parker articulates that students should enterprise their own interrelating characteristics of knowledge, action, and self. Such a curriculum will inspire students for more knowledge and even motivate faculty members to develop paradigms which can create values in leaners. According to Cohen, Fetters, and Fleischmann (2005, p. 324) [15], radical curriculum reform is challenging because it requires time and widespread participation, which are fundamental challenges in the higher education institutional culture.

Dochy, 2005 [13] designed competency based curriculum. In their findings, he proposed four categories for competency based curriculum. A) Purposeful education, new objectives and new teaching and learning approaches, b) Integration via cases, c) Learning and development courses & 4) Demand driven, aimed at development of competencies. Slattery's (2006) articulated in his work for curriculum should be collaborated

with religion, spirituality, and culture to the field of higher education. He acknowledged three main rudiments of postmodern curriculum: (a) an emphasis on community collaboration moderately than corporate antagonism, (b) a holistic progression reasonably than other distinct portions, and (c) a multidimensional, interdisciplinary curriculum.

Several chapters of creamer and Lattuca's (2007) [26] edited volume debate on conditions that foster inter disciplinary curricular collaborations, they focus almost entirely on barriers to faculty collaborations that cross disciplinary and departmental boundaries, and they provide little insight concerning the questions of collaborations among faculty colleagues within departments who already share responsibility for existing curriculum. Fink (2007) [14] proposed designing significant learning experiences in college courses using a process called integrated course design (ICD) like knowledge, application, integration, human dimension, caring, and learning how to learn.

Barnett 2002; Van Wyk and Tedrow 2004, Curriculum alignment with global universities ensures that international best practices and a global curriculum is created and applied. c, involvement of Assessors and moderators who can provide inputs and feedback that could be used for quality improvement of curriculum development and assessment practices. Unisa 2007 [65], Past learners- Alumni have attempted to apply what they have learnt and should thus know what works and what does not. Barnett 1992; Msila 2006, local universities benchmarking and co-operating with other universities and sharing lessons and research projects. Resources may enrich the curriculum. Wolfson 2007 [62], Consultants or specialists - Internal and external subject matter experts may provide specialist knowledge that could enrich curriculum. Herman and Mandell 2006; Mohono-Mahlatsi and Van Tonder 2006, Mentors and coaches- Academic, workplace or external mentors and coaches could share their knowledge and wisdom and thus contribute to curriculum development.

Stark and Lattuca 1997 [28]; Stensaker and Harvey 2006; Oliver *et al*. 2008; documented his writing about alignment of various courses with learning, teaching and assessment strategies should be tuned to the educational philosophy. Stark and Lattuca 1997 [28]; Stensaker and Harvey 2006; Diamond 2008 [12]; engrossed on Institutional resources include facilities for teaching, organizational infrastructure and technology, quality and quantity of teaching staff, their experience and expertise, staff/student ratio and financial resources. Diamond's (2008) [12] portrayed from the arranging curriculum contents which incorporates the level of Undergraduate, Bachelor, Master, or other courses' orientation which results into holistic education. Stark and Lattuca, 1997 [28] focused largely on campus-wide innovation and renewal and on course planning [practices of individual faculty members. Stark & Briggs, 1998 has developed a conceptual framework to guide research on curriculum leadership in academic department. Briggs, stark & Rowland-Poplawski, 2003 [6] defined curriculum planning in four various criteria. A) Continuous and frequent curricular planning processes; b) awareness and responsiveness; C) participation and teamwork & 4) use of evaluation for adaptive change.

## Quality assurance in higher education

Quality is an elusive and indistinct construct (Parasuraman, Zeithaml and Berry, 1985) [42]. Quality is a complex and difficult construct to measure in service sectors. The ISO (1986) definition" The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs". The words 'characteristics' and 'satisfy needs' in the definition imply two important points, which are also in line with TQM principles: (a) quality is what satisfies customer's needs (b) quality is a set of characteristics that can be measured qualitatively or quantitatively.

Quality has been defined in business as- conformance to specifications (Scrabec, 2000) [51]. Garvin (1984) has given attributes of quality in product/service models (TQM) in business, they are, performance, features, reliability, conformance, durability, serviceability and perceived quality. Spanbauer (1995) [53] defines TQM in education, as "TQM is a management philosophy which puts systems and processes in place to meet and exceed the expectations of customers. It is a relentless quest for continuous improvement through documentation and the use of tools in a problem-solving atmosphere that features team action and good leadership practices" In application to higher education, both market-orientation and measurement pose arguments. While some authors believe that, because of the complex, dynamic and intangible outcomes of education, an objective measurement of quality is very difficult or impossible (Tofte, 1993) [57], many view it as essential if quality improvement is to be monitored (Seymour, 1992) [52]. The terms 'customer' and 'market' have also met with resistance from some educationalists, who argue that they are applicable only to commercial environments (Sallis, 1993; Corts, 1992) [14].

## Critique of Adopting TQM in Academics

Spanbauer (1995) [53] raises a very pertinent question, to whom the education is intended to benefit? Students are primary customers but the customer relationship is somewhat different from a customer in a restaurant or bank.

In both the industrial and general service sectors, the customers are well defined whereas in a university, as Madu and Kuei (1993) [30] suggest, the definition of customers is quite broad. While students are accepted as the primary customers by many authors (Sallis, 1993; Corts, 1992; Hittman, 1993) [14], other potential customers like parents, employers, government and society, should also be considered.

Another complexity arises from the dynamic and interactive nature of higher education is; "While students are prime customers of colleges and universities, they are also their raw material, suppliers, co-processors, and products" (Harris, 1992) [17]. For this, a clarification is necessary for specifying customers and prioritizing or reconciling their different requirements based on a university mission (Taylor & Hill, 1993; Sallis, 1993).

Koch and Fisher (1998) state that TOM has little to contribute to the solution of fundamental questions of value, direction and resource allocation. TOM can be of assistance in improving administrative service areas (registration, mail service, maintenance, billing, etc.), and that it has been used to enhance certain quasi-academic areas such as library services.

Widrick, Mergen and Grant (2002) [60] have measured three quality dimensions (quality of design, quality of conformance and quality of performance) in higher education. They have developed a set of measurement parameters used in evaluating the quality of research and curriculum development and the tools/techniques necessary for evaluating them. Scrabec (2000) [51] has proposed attributes for performance measures of quality education, they are, standardized national tests, certification of educational institutions, student satisfaction measures, industry feedback, international text and quantitative measures, national indices such as patents, government of independent audits to set standards and student evaluations. Vazzana, Elfrink and

Bachmann (2001) [59] have suggested the following framework of TOM use in educational institutions-TOM in the curriculum, TOM in nonacademic functions, such as administration, human resources management, support functions, maintenance etc. TOM in academic administration and TOM in the core learning process, treating classes as micro organizations proposed by Gilbert *et al*. (1993) [16], core competencies such as interpersonal skills, communication skills, decision making skills and the criteria used to measure them are identified (Mullin and Wilson, 1995) [36]

**Various Models are developed to enhance the quality in higher education.**

**Table 2:** Quality Management Models Applied to HE.

| Types of Modle | Authors | Criteria for development |
|---|---|---|
| HE Specific Models Developed | | |
| Model for Quality Management in Higher Education | Srikanthan & Dalrymple (2004, 2003, 2002), Australia | • Approach is based on evidence from educational literature<br>• 4 methodologies; transformative; engagement theory of programme quality; methods to develop a university of learning; strategies for achieving a responsive university<br>• In teaching and research students are participants and the focus is on their learning<br>• Implementation of 2002 model focusing on philosophies and approaches to student learning and methods of engendering a dynamic collaboration around student learning<br>• Recommends a move from the ritual of teaching to focus on student learning, academic productivity and organisation performance<br>• Radical change using student learning as the central criterion |
| Excellence Model | Pires da Rosa, *et al*., (2001, 2003), Portugal | • Based on empirical research, 9 criteria supporting self-analysis and acting as a source for quality improvement and leading strategic development<br>• Quality management associated with evaluation activities covering teaching and research and regarded by participants as positive |
| Academic Award Model | Badri & Abdulla,(2004), UAE | • Concerned with teaching, research and services to develop a more explicit approach to faculty rewards/awards<br>• Model includes criteria for diversification, course development, material production, student evaluation, course files, teaching portfolio and contributions to conferences and workshops |
| Model to Assess Quality of Student Experience and Learning Outcomes | Tam (2006, 2002), Hong Kong | • Assessment of quality in HE should be measured in terms of student growth, this calls for attention on student outcomes, including cognitive and non cognitive aspects of learning, skills and satisfaction with university environment<br>• Investigates relationship between university experience and student outcomes as a means of determining a university's success in meeting its educational goals and proposes approach oriented to this<br>• Instrument designed to help understand the student experience |
| Multi – models of Quality in Education | Cheng & Tam (1997), Hong Kong | • Identifies 7 models of quality in education and emphasises the complexity of pursuing educational quality<br>• Effectiveness and quality are concepts used to understand performance, so approach needs to be comprehensive and take account of longer term goals<br>• Cross cultural issues require further investigation |
| Performance Measures for Academic | Al-turki & Duffuaa (2003), Saudi Arabia | • Adopts a systems approach and identifies performance measures to evaluate productivity, efficiency, effectiveness, internal structure, growth and development |
| Departments | | • Hierarchical performance measurement model is based on outcome measures for each category – input, process and outputs |
| Internal Audit | Reid & Ashelby (2002), UK | • Identifies tangible benefits from internal audits, such as: significant cultural changes which can re-enforce quality enhancement, create greater staff involvement, as well as benefits to the institutions<br>• Considers programme management, development and evaluation, staff development, assessment of students, external examining processes, collaborative provision and value added |
| Internal Audit | Becket & Brookes, (2006), UK | • Model to evaluate quality management approaches in departments<br>• 6 dimensions identified: internal/external perspective, qualitative/quantitative information, snapshot/longitudinal time span, quality dimension assessed, and system elements |
| Quality Dimensions Framework | Owalia & Aspinwall (1996), UK | • 30 different quality characteristics identified for HE using generalised dimensions defining quality drawn from manufacturing/software and service methods |
| Programme Evaluation Model | Mizikaci (2006), Romania | • Considers HE as a system (input, processes and outputs) for programme evaluation and identifies social, technical and management systems within these |
| Quality Management Framework | Grant, *et al*. (2004, 2002) Widrick *et al.* (2002), USA | • Identify dimensions of quality in HE – quality of design, conformance and performance<br>• Quality of performance is least likely to be considered |

| Subject Quality Assurance System | Martens & Prosser (1998), Australia | • University-wide system of quality assurance to enable systematic review and enhancement of individual subjects, allowing for discipline-specific requirements.<br>• The focus is on the improvement of student learning |
|---|---|---|
| ISO – Based TQM Model | Borahan & Ziarati (2002), Turkey | • Combine TQM, Malcolm Baldridge and ISO 9000 principles drawing on USA and UK practices to identify quality criteria<br>• Building blocks for quality assurance and control include: programme management and operations, curriculum design content and organisation, teaching learning and assessment, student support and guidance, and quality assurance and enhancement. |
| 5 Phase TQM Implementation Model | Motwani & Kumar (1997), USA | • Identifies the issues which institutions need to consider when implementing TQM in 5 phases: deciding, preparing, starting, expanding or integrating, and evaluating |

**Sources:** Maureen Brookes, Nina Becket: Quality Management in Higher Education: A Review of International Issues and Practice: Quality Management in Higher Education: A Review of International Issues and Practice
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## Competencies Development

Moving on from synopsis to the substance to develop framework for preparing conceptual model for enhancing capacity and skill of students & teachers both, our analysis draws attention to a lack of empirical evidence, depth, and rigor in the discourse on key competencies. Basic objective of academic sustainability is to empower students & faculty to develop strategy and engross in sustainability research and problem solving skills which is based on a) Value systems & critical thinking, b) anticipatory/normative, c) strategic and d) interpersonal competencies. The basic framework for competency development literature review is being represented below:
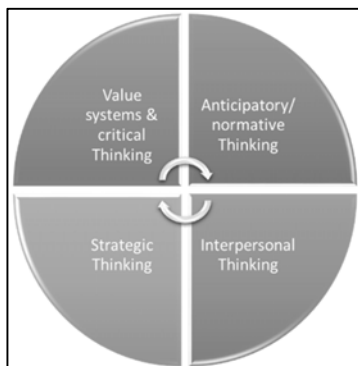


**Sources:** Based on available literature review of last 30 years (2015)

**Fig 2:** Conceptual model on competency required in sustainable development.

## Complied by authors

Gisela and Mercè 2015 focused on promotion of ethical values, positive attitudes towards sustainability and the management of emotions among students & faculty. Jones, P.; Selby, D.; Sterling, S. (2010) [27] documented on inter disciplinary connection and value based thinking for teachers as well as students. Porter and Cordoba 2009 [46]; Major *et al.* 2001 Crofton 2000; Sterling 1996 [11], focused on Systems thinking competence which are based on Variables like sub-systems, structures, functions Feedback loops, complex cause-effect chains, surging effects, apathy, local to global Across/multiple/coupled provinces: society, environment, economy, technology People and social systems: values, preferences, needs, perceptions, (collective) actions, decisions, power, tactics, politics and institutions Participatory systems approaches. Withycombe and Wiek 2010; Grunwald 2007; de Haan, 2006 & Major *et al.* 2001 [61]; have proposed the work on Concepts of time including temporal phases (past, present, future), terms (short, long), states, continuity (dynamics, paths), desirability of future developments (predictions,

scenarios, visions. Bammer 2005; de Haan, 2006 Grunwald 2007, based on Strategic competence for sustainable development found variable like Intentionality Methods Transitions and transformation Strategies, action programs, (systemic) intervention, transformative governance Planning Decision Success factors, viability, feasibility, effectiveness, efficiency, Competence in foresighted thinking to deal with uncertainty and future prognoses, expectations and plans characterizes the sub-competence of being able to think beyond the present. It is essential that the For interpersonal thinking (Crofton 2000 [11]; Byrne 2000), deliberating and negotiating (Sipos *et al.* 2008) [54], collaborating (de Haan 2006; Sterling and Thomas 2006) [56], leadership (Ospina 2000; Kevany 2007) [41], pluralistic and trans-cultural thinking (de Haan 2006; Kelly 2006; Mc Keown and Hopkins 2003; van Dam Mieras *et al.* 2008), and empathy (de Haan 2006; Sterling and Thomas 2006) [56]. All of these skills are particularly important for successful stakeholder collaboration. The capacity to understand, embrace, and facilitate diversity across cultures, social groups, communities, and individuals is recognized as a key component of this competence

## Multi-Stakeholder Partnership

Academic collaboration has become ubiquitous, embedded in organizational cultures, and is increasingly organized in a wide variety of structural forms and for different purposes among individual researchers, academic institutions, international development agencies, and governments. Research partnerships can promote knowledge production and sharing; stimulate the pooling of financial and high level human resources across boundaries; and create synergies and complementarities among the diverse participants for mutual benefit. The search for stakeholder participation in the post-apartheid era in higher education was firmly laid by the Report of the Council on Higher Education (CHE) in 2000 (Bitzer 2006) [7]. According to Jita (2006, 924) [24] the processes of stakeholder participation in the higher education quality assurance (HEQA) system have been rather limited and poorly conceptualized. Bitzer (2006, 934) [7] defines the concept of stakeholders as some person or group who appears to have some form of ownership of, interest in and responsibility for something of value. For the purpose of this current article it appears that stakeholders consist of all relevant parties expecting value from higher education
Jongbloed, Jürgen and Salerno (2007) [26] state that "the legitimacy of higher education to society is increasingly evaluated by the level and quality of the HEI commitment to its community of stakeholders and is inherently of greater depth than any simple maintenance of contacts. It rather means that the organization seeks out and adopts the means of involving the stakeholders so as to best perceive how the latter value the

services provided and just how these can be improved." The community of stakeholders is increasingly playing an active role in the validation process of the products that are being released by the HEIs, and this does have an influence on the operations of a given HEI.

To create sustainability diagonally at the assorted academic disciplines, interdisciplinary has become a dominant impression to the demesne of sustainability in the HEIs. Vigorous partnership with various stakeholders is must. (Clark and Dickson 2003). In this new paradigm, intellectual property plays a central role, and governments, universities and industry cooperate are contributing for sustainable development partnership. Greenberg and Shroder 2004 [16] reported in his article regarding, "Various research communities at the University of Tokyo have come together to engage in a process that is referred to as ''social experimentation for sustainability.'' The traditional definition of social experimentation applies to social welfare experiments designed to test government policy interventions in a process that must be both generalizable and replicable. The findings suggested that, a multi-stakeholder intervention on society to demonstrate the impacts or results of a particular policy or technology for sustainability. This expanded definition would be useful in describing a series of multi-stakeholder driven demonstrations and pilot projects currently being implemented by the university in view of accelerating a local transition to sustainable development. Nagaya & Pramanik; 2011 [39] The focus of this document is the Industry-Academia relationship as a subset of stakeholder relationships in HEIs. A good definition for a healthy academia-industry relationship could be that an academia-industry interface is characterized as an interactive and collaborative programme between academic institutions and industrial sector for the attainment of certain reciprocally beneficial purposes and missions.

Mugabe 2004 [31] One of the major incentives for Industry-Academia relationships is the presences of Research and Development in industry. HEIs endeavor to globally position themselves as research centers and as such tend to attract partnerships. Whereas this is the normal trend, in Africa it is still in its very early stage; with the exception of a few fairly industrialized countries like South Africa and Egypt, Research and Development is still low. The weak domestic R&D capability, and in many cases the absence of institutional mechanisms that provide explicit incentives to investors to target knowledge-based and intensive activities hinders or restricts opportunities for collaboration

As Lozano *et al*. found, for HEIs to become sustainability leaders and change agents they must ensure that the needs of present and future generations are better understood and addressed, so that professionals, who are well versed in SD, can effectively educate students of 'all ages' to help them make the transition to 'sustainable societal patterns.

Meyer, M & Bushney, M (2008) [33] developed model on extensive liaison with representatives. of all 18 identified stakeholders over a period of three years. Learners, Alumni, Employers, Government departments, Local universities, International universities, Consultants or specialists, Mentors and coaches, SETAs(SETAs know what the major skills priorities are in their sectors), ETQAs (ETQAs set clear quality criteria that should also be met by higher education institutions.), SAQA (SAQA provides the overall national quality standards and registers qualifications that should meet real national needs.), SAQA (SAQA provides the overall national quality standards and registers qualifications that should meet real national needs.) Professional bodies,

Advisory bodies, Community, Research institutions, Private providers & Academics

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