Differing Perspectives to Education for Sustainable Development – ExploringApplicability in Higher Education Context

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ABSTRACT

Education for Sustainable Development (EDS) has been identified as a fundamental contributor for accomplishing many Sustainable Development Goals. Framing of an efficient system for quality sustainable education in Higher Education sector is a very challenging and difficult task to achieve. Yet, development and practice of such a system would have far reaching influence. This paper attempts to shed light on the applicability of different theoretical approaches to ESD to get clarity on the conceptual requirements of ESD in Higher Education sector and helps the practitioners and academicians to adopt an integrated view for better planning and implementation of sustainable higher education. This article discusses about the applicability of three outcome based theoretical approaches to ESD- Capability Approach (CA), Transformative Learning Theory (TLT), and Theory of Change (ToC) - whichaddress human, transformation and change management perspectives respectively in sustainability adult education. The theories deal with conversion or change that takes place in human behavior and actions, as a result of the functions of certain relevant factors. A systematic description and a qualitative review of the applicability of these approaches have been done with an intention to obtain clarity on the conceptual contributions and limitations of each of these theories. We discuss and analyze the theoretical strength, weakness and applicability of the three theories in forming a base for Higher Education for Sustainable Development (HESD). Though the theories individually contribute to the theoretical background of ESD, the short comings indicate the need for a more integrated approach to sustainable higher education. This study will form the basis for framing and implementing a most suited approach for ESD in future in higher education sector

Introduction

Education plays a crucial role in advancing sustainable development and enhancing capabilities of individuals and society to handle the environmental and developmental problems (Chapter 36, Agenda 21). For all the different groups of society, stakeholders, NGOs, industries and government,Higher Education Institution act as a meeting point and is a unique place where different perspectives,expertiseand ideas come together. Learning for Sustainable development fundamentally is an opportunity to acquire knowledge and skills to recognize and use the environmental, economic and social values for the sustainability, development and prosperity of the societies.

In 2015, the Sustainable Development Goals (SDGs) were declared by the UN as a guiding lamp for social,economic and environmental sustainable advancement. Education is a primary tool for transformation towards sustainable advancement. In ESD the students are to be instructed the practical skills required to help the society and solve the local environmental problems. However, Sterling(1996) criticizes education for reproducing an unsustainable society and points out the need for providing due importance to education as the subject of change itself. In his view, in order to make ESD the basis of a new epitome, for education, educators need to explain the purpose and significance of ESD. The higher education sector, through sound institutional policies and practices, has to play a vital role to execute and drive sustainable development initiatives (Blessinger et al., 2018; Tumbas et al., 2015). Various exponents of sustainable development claim that the concept cannot be limited to addressing the ecological or economic issues, instead it must also discuss problems related to social equality, democracy, human rights, social justice and peace. The ineffective or lack of implementation of ESD by many HEIs proves the insufficiency of research in the conceptualization and practice of ESD.Though ESD has been discussed by scholars(Landorf et al., 2008; Sinakou et al.2019; Boström et al. 2018;) from different theoretical point of view in the past, a comparative assessment of the applicability of these theories for the identification of the best suited approach is required. Past works by researchers (Boström et al., 2018; Aleixo, 2020; Sinakou et al., 2019; Mula et al., 2017; Wals, 2013) called attention to that numerous issues stay for additional investigation in the conceptualization and execution of ESD. Mula et al. (2017) points out that currently the universities lack the capability to effectively integrate ESD into main stream teaching, academic staff development programmes or into their institutional learning priorities. Theymention about the "translation gaps" in applying ESD pedagogy in institutions. According to Leal Filho et al. (2019) "since over the years, few HEIs have shown interest in ESD initiatives, while many others have not been done anything in this area or were less active". The inadequacy of support, policies, programmes and research can be some of the major reasons behind this. ESD in advanced education field must be seen from various perspectives and the interconnected basic, theoretical, and structural components must be well understood.

ESD in HEIs requires a multi-dimensional and multi-disciplinaryapproach. Due to the interconnectedness of different practices and institutions at different levels,

presence of multiple stakeholders and the multi dimensionality of the concept, HEIs require an ESD system with theoretical inspirations from different social science streams. This paper is trying to address the need for a theory based approach to ESD from multiple perspectives to provide a deeper understanding of the various aspects of sustainability education and multi-dimensional structure of the ESD concept.

Objective

The main objective of the study is to theoretically evaluate and discuss the relevance, applicability and the relative importance of the three theories – Capability Approach (CA), Transformative Learning Theory (TLT) and Theory of Change (ToC) – in the higher education context to provide insights for the practitioners and help them to develop a conceptual structure most suitable for HESD in the light of extensive literature review.These three theories, from different angles address the varied and wide requirements of ESD. The study analyzes the scope of each of these theories in HESD and provides the resultsand insights for better conceptualization and implementation of ESD. The first part provides an overview followed by a discussion on the applicability of each of these theories, and second part includes an evaluation and discussion on the contributions and limitations of the theories.

Methodology

For this study structured literature review method is followed and the recommendations of Geissdoerfer et al., (2018), Easterby-Smith et al. (2015) and Creswell (2014) have been considered. Initially a thorough structured database search and cross-reference search using key words were conducted for collecting articles and other secondary data materials. Filtering of literature was done by scrutinizing the abstracts and as a second stage cross references from initial sample were selected and examined. The selected literature again underwent the same procedure and the cross references were added to the initial literature pool. This process repeated until collecting all the relevant literature for the research and this final sample was reviewed and integrated to prepare the research paper.

The Theories - An Overview and Applicability in sustainability Higher Education

This section reviews the three theories relevant to the domain of education for sustainable development and how these theories relate conceptually and practically, to the advancement of sustainable higher education.

4.1.   Capability Theory by Amartya Sen

As opposed to products and assets, the focal point of Amartya Sen's Capability Approach (CA) is "individuals" and their "capabilities". CA also includes views on topics such as poverty, social exclusion, disparity and gender bias which are not really moved by the economic point of view.For Sen (1995), Capability Approach is "concentration

on freedom to achieve in general and the capabilities to function in particular". It plans to upgrade individuals' prosperity by growing their capabilities that are associated with freedom of choice. It unequivocally perceives existence of diversity and the multidimensionality of human prosperity. Here the emphasis is not just on how individuals really work, yet in addition, on having the "capabilities" that are their "practical choices" - "to achieve outcomes that they value and have reason to value". Instead of accumulating commodities, it understands capabilities in so far as individuals have substantive opportunities. CA provides a generally acceptable framework to understand the components of human and societal well-being.

Capabilities,according to Sen (1999),are the "real opportunities for a person to achieve valued functionings or the substantive freedom to achieve alternative functioning combinations or the freedom to achieve various lifestyles" and for Sen, "functioning is an achievement, whereas a capability is the ability to achieve. Functionings are, in a sense, more directly related to living conditions, since they are different aspects of living conditions" (Saito, 2003).

The researchers who are working on Sen's Capability Approach have worked on to identify a list of basic capabilities for grounding discussion on pedagogy and curricula that foster the development of human well-being. Despite the fact that Sen(1999) is reluctant to provide a significant over view of operational abilities, he suggests five classifications of instrumental opportunities: "political freedoms, economic facilities, social opportunities, transparency guarantees and protective security" (Landorf etal., 2008).

4.1.1.   Application of Capability Theory in ESD

Sen's concepts provide the basic theoretical elements and functional rules for the essential restructuring of the ESD framework. Sen views public education as a crucial factor that influences an individual's life and an individual's relation with society.By intertwining Amartya Sen's human capabiliity theory, we get more clarity of definition, reason and characteristics of ESD.ESD is considered as a stimulus for a paradigm shift in education theory and practice. A helpful meaning of ESD must have two segments in particular "agency" and "educational applicability" (Landorf et al., 2008). The main notions of Human Capability Approach – "functioning, powerand agency" – will help in the development of a design for managing the academic and assessment choices of ESD.

Nadeera Rajapakse (2016) remarks that, "most higher education policies embrace the instrumental view of education, prioritizing the development of human capital, with the ultimate objective of promoting economic growth. Indeed, it focuses on social justice as the metric for evaluating and shaping universities". The capability approach incorporates social justice into the goals' list and explores how the universities can contribute to creating a more "just society", by taking human dignity and well-being for everyone into account.The Capability Approach sees education as a right, and Sen's theory significantly influenced and improved the views on poverty, inequality, and human development. Sen has recognized human heterogeneity and diversity, accepted human agency and

addressed community inequalities.Sen advocated the use of democratic dialogue, engagement and deliberative democracy for decision making, policy making and shaping priorities. (Nadeera Rajapakse, 2016). These concepts highlighted by Capability Approach are highly significant in the shaping and implementation of ESD in the higher (adult) education sector.

Landorf et al (2008) indicates the long term implications of Capability Approach by redefining sustainable development as sustainable human development (SHD). Children and adults need to be encouraged in developing skills through education that help them in critical and creative thinking, solving problems, making informed choices, coping with and handling new challenges and interacting effectively. The education content, process and environment should be of high standard to produce quality learning outcomes or 'capabilities'.

As Sen has suggested, everybody is eligible for well-being, both now and later. In this way, educators and academicians should analyse the rational circumstantial factors that decide the capabilitiesof individuals to achieve well-being and success and evaluate outcomes and future opportunities in the same way. It is their obligation to engage and encourage democratic dialogue among various stakeholders to observe key "capabilities" and socially as well as culturally valued "functionings" in the communities in which they live. This procedure will help educators to frame locally relevant educational programme, pedagogy, curriculum and evaluation tools.

The educational experts and stakeholders through democratic dialogue should build an educational plan that tends to what students should know and be able to do to accomplish valued functionings. While the education for sustainable development necessitates students to know how to evaluate the accomplishment of their own personal goals, it also requires the students to assess the interlinking between their individual well- being and that of their community, environment, country and culture.

4.1.2. Criticism on Sen's Capability Approach

According to Sen (1987), "capability" is the "ability to achieve", while "functioning" is an "achievement". In a way, functionings are more specifically connected to living conditions, but capabilities, on the other hand, are ideas of liberty, in the positive sense: what real possibilities you have with regard to the life you may live.

Saito (2003) critically explored the educational value of Amartya Sen's approach to human well-being. Saito argued that "Amartya Sen is not an educationalist but an economist and a philosopher and he has therefore not directly explored the notion of education in his theories". Even when Saito concur that functionings, in Sen's sense, the collection of things that an individual can do in life are obviously significant for children, he finds the matter complicated and problematic when it comes to capabilities in children (Saito, 2003). By citing Hobbes and McLaughlin's claims about the need for parental control and management of the child's educational experience and development, Saito notes that children need guidance from parents, community and others in choosing what capabilities to practice. John White argues that taking an extreme libertarian approach in the case of

children is irrational and encouraging children to choose what they want could well limit their choice and might neglect to choose about certain things that should also have been included (White, 1973).

During an interview with Sen, when Saito raised the question about the applicability of capability approach to children when they don't have the maturity to make their own decisions, Sen explained the applicability by emphasizing the importance of the freedom children will have in the future, not the freedom they enjoy now. Sen has argued that "if the child does not want to be inoculated and you nevertheless think it is a good idea for him/her to be inoculated, then the argument may be connected with the freedom that this person will have in the future by having the measles shot now. The child when it grows up must have more freedom. So when you are considering a child, you have to consider not only the child's freedom now, but also the child's freedom in future" (Saito, 2003).

Nussbaum criticizes Sen's idea that "freedom per se is always good, although, it can be badly used" which he illustrated with the example of male strength which is good in general, but turns bad when used to beat up women (Nussbaum, 2003). Nussbaum argues that "capabilities can help us to construct a normative conception of social justice, with critical potential for gender issues, only if we specify a definite set of capabilities as the most important ones to protect. Sen's perspective of freedom is too vague. Some freedom limit others; some freedoms are important, some trivial, some good, and some positively bad". Using another example of "freedom of the motor cycle rider to ride without a helmet", Nussbaum argues that freedom is "neutral and trivial in itself, probably bad in use rather than always good" (ibid). In other words, these criticisms point out that capability building through empowerment does not determine, if the result of the use of that capability is good or bad (Saito, 2003). Nussbaum also criticized Sen's non-specification of capabilities by arguing that when capabilities are to be used to advance the creation of social justice, it is obvious that they must be specified (Nussbaum, 2003). This notion of specificity of capabilities, freedom, and functionings has great significance in the conception, development, and implementation of ESD.

4.2. Theory of Transformative Learning

Theory of Transformative learning is an adult learning theory in which the learners' thinking processes are challenged by disorienting dilemmas. Disorienting dilemmas are the experiences which do not reflect the individual's present beliefs about this universe. The learners are encouraged to use their critical thinking and questioning skills to to examine if their fundamental beliefs and convictions about this world are correct.Transformative LearningTheory was developed and popularized by Jack Mezirow, an adult educationalist in 1978, with a corresponding publication series.

Transformation theory moves the learners away from static memorizing and promotes the processes that challenge the existing knowledge systems(Adamson& Bailie, 2012). Mezirow has been strongly inspired by the conscientization thought of Paulo Freire. Mezirow also drew on Kuhn's concept of paradigm shift and Habermas's concept of the

three learning realms (technical, practical, and emancipator) to the development of Transformative Learning Theory, for explaining how adults learn and make sense (Kitchenham, 2008; Mezirow, 1991; Enkhtur & Yamamoto, 2017).Mezirow was particularly interested in the mechanism through which adults create the transformation of perspectives.

The theory today, has come to follow the notion of many theorists (Freire's TL for Social Transformation (1972); Kolb's TL of experiential learning, (1984); Mezirow's TL for perspective transformation; Boyd's TL as individuation) heading towards a comprehensive paradigm (Enkhtur & Yamamoto, 2017; Papastamatis & Panitsides, 2014). Mezirow used this theory to illustrate how individuals build up and utilize critical self – reflection to evaluate their convictions and encounters, and over time, change the dysfunctional ways of seeing the world (Mezirow, 1991). Mezirow was keen on people's perspectives about the world and what actually leads individuals to change their specific beliefs on the world (Christie et al., 2015).

Mezirow accepted that this adjustment in conviction happens when individuals face a "disorienting dilemma". (Howie, P.& Bagnall, R., 2013).At the time when individuals faced with a disorienting dilemma, they are forced to reconsider their beliefs in a way that fits this new insight through the rest of their world views. This also happens by "critical thinking" with respect to the dialogue with others(Howie, P.& Bagnall, R., 2013). Mezirow further indicates that reflection has three key roles to serve: directing practice, bringing coherence to the unknown and re-evaluating the justifications of what is already understood.

4.2.1.   Transformative Learning Theory and ESD

According to Enkhtur & Yamamoto (2017), "one of the most referenced theories in Adult Education Quarterly Journal (Christie et al., 2015), Transformative learning theory predates the idea of 21st century learning skills". Christie et al. (2015) shares the expectations for TL that "better individuals will build a better world". In a global environment, HEIs need to engage learners in local, national and international problems, developments and concerns. Genuine efforts are required to develop the critical thinking skills of learners in order to qualify them to function effectively in a highly complex and demanding environment. According to many authors (Glisczinski, 2007; Lin & Cranton, 2005; Blackie et al., 2010; Blake et al. 2013; Stevens Long et.al., 2012) traditional education is still giving more emphasis on molding students fit for market expectations.

A list of five main areas of intervention approaches to support transformational learning and to help students to examine experiences and world views, is provided by Kasworm & Bowles (2012) which include (a) Developing self- reflection through experiential activities, blogs, essays (b) Action research projects, collaborative projects or using critical assessment for helping students to analyze their experiences and world views (c) Creating safe, trusting, respectful, supportive, social and learning environment (d) Using literature, arts, drama and film as tools for transformative learning (e) Spiritual processes that focus on

emotions, mindfulness and spirituality. Blackie et al. (2010) defines the learner centered approach as a style of teaching, which requires interest, investment and attention in the actual process of learning that is happening within students.

A move from "conformative" or even "reformative" learning to "transformative" (higher order) leaning would entail students' personal, institutional and political obstruction, posing a challenge to their convictions and thoughts and an entire rebuilding of meaning (Sterling, 2013). In this context transformative learning is a type of "third-order learning", suggesting a paradigm shift triggered by the experience of liminality, which leads to "the experience of seeing our world view rather than seeing with our world view so that we can be more open to and draw upon other views and possibilities" (Sterling, 2011). Mezirow(2000) argued that self –reflection and modified thoughts and behavior occur only with the help of participatory pedagogy and his theory helps to describe the teaching and learning procedures that leads to sustainable lifestyle (Ryan& Cotton, 2013).Howlett et al.(2016) also emphasises the importance of critical thinking in achieving sustainability.

A.E.J. Wals (in UNESCO 2017) emphasize that "both the facilitators of, and the participants in, transformative learning in the context of sustainable development will need a certain number of basic competencies. They will need these in order to trigger and support a learning process powerful enough to bring about innovations and transformations that require a change of values, a change of (corporate) culture, a change of lifestyle, and ultimately, a change in the whole system". Recently, three elements (cultural - aesthetic, political - institutional and religious - spiritual) have been defined by Burford et al., (2013), focused on less concrete dimensions of sustainability that can be added with the conventional ones.

4.2.2.   Critical Discussions on Transformative Learning Theory

Mezirow's theory is significantly centered more on individual transformation. However he also underlines logical and non-coercive dialogue as a way to introduce changes to improve things. The point of transformative learning is to assist people with testing the present beliefs on which they act and if they discover a need for change, to transform them. This incorporates a psychological move along with a behavioral move.

Although an enormous number of research studies have been led based on Mezirow's theory, it confronted strong criticisms as well. Edword Taylor (1997) condemned Mezirow's TL theory on the ground that his theory doesn't address different possible ways of knowing, other than 'critical reflection' and the role of 'diversity' in terms of class, gender, ethnicity and sexual orientation' has not been considered. Clark & Wilson (1991) argued that Mezirow's theory has a significant weakness in that it failed to account for context. According to Collard and Law (1989) he had neglected the value of "collective social action" as an objective. Mezirow (1989) explained the role of significant mediating factors and defended Collard & Law's views by pointing out the difficulty of categorizing "learning

transformations" and "social action" as both can take different forms.

Papastamatis & Panitsides (2014) argues that "transformative theories of learning have traditionally over-relied on rational and cognitive processes in describing perspective transformation, while it makes the assumption that for transformative learning to take place, cognitive, physical, emotional, and spiritual dimensions are closely interrelated. When we come to knowing and learning, linear and fragmented approaches cannot account for the perplexity of the human being, consisting of mind, body and spirit, and therefore all these parameters should be attended to". They argued that in order to take place a 'holistic transformation', the involvement of the whole individual, i.e., mind, body and spirit, is required.

4.3. Theory of Change

Community based change initiatives regularly have aggressive objectives, but arranging explicit on-the-ground techniques to those objectives and planning and carrying out the assessment is challenging and troublesome. A Theory of Change approach (ToC) gives a structure which empowers program staff and stake holders to create exhaustive portrayals and outlines of how and why an ideal change is required to occur in a specific setting. It is results-based, and encourages those included to identify the long term objectives and afterward map in reverse to determine essential preconditions that will be required for progress (P. Brest, 2010). The significance of the idea was featured by Weiss, C. (1995) who expressed in her exploration that a key explanation for complex projects are so hard to assess is that the suppositions that move them are inadequately explained.

Theory of Change portrays change strategyby drawing out the causal linkages within the change activity. It decides the three levels of outcomes- short term, intermediate and long term.All around characterized changes are outlined as 'outcomes pathway' demonstrating each 'outcome' in a consistent relationship with every other outcome and the successive stream too. The associations between the 'outcomes' are explained by means of 'rationales' or 'arguments' clarifying why an outcome or result is viewed as a prerequisite for another outcome (H. Clark & D. Taplin, 2012).

A ToC can be established retrospectively by studying the program papers and records, communicating with stakeholders and reviewing the results. Generally, this is done during the evaluations that show what has worked or not, for understanding the past and preparing for the future. Theory of Change is not just focusing on creating knowledge about program effectiveness, yet in addition on clarifying what strategies to be used to make program effective (Chris etal., 2011). Carol Weiss (1995) contended that the partners of complex program initiatives usually fail to pay attention to the early and mid-term improvements that may lead to the achievements of a longer term objective, as they are generally unaware about how the transition process proceeds. The absence of clarity about the small and sequential steps that need to be taken to achieve a long-term result, will make the evaluation more complex and may

create chance to miss out the important factors that need to be addressed while carrying out the plan.

4.3.1. Application of Theory of Change in ESD

By implementing a transition model, executives will make informed choices about tactical steps and strategies. The possibility of monitoring and reviewing data through this approach allows the refinement of Toc regularly. In the ESD scenario, the usual conventional approaches (Austin & Bartunek, 2004) will not be effective., Carol Weiss in 1995, suggested that it would be too strenuous to analyse complex initiatives as the concepts underlying them were not well articulated. According to herthe managers of complex initiatives need to be more specific and clear about their theories of change, in order to strengthen the overall assessment plans and improve the chances of achieving the results predicted by the theory.

ESD can be considered as a change programme which requires clearly stated outcomes, inputs, policy initiatives, support and implementation plan. For the application of Theory of Change in ESD, stakeholders need to differentiate between desired and actual outcomes and have to model the desired outcomes prior to agreeing on courses of action to achieve those outcomes. Weiss (1995) recommended a methodology be used to determine the sequence of outcomes expected from a change intervention and to plan an evaluation system to track if those projected outcomes are actually attained. While the goal of ESD is future transformation of both individuals and communities towards the development of a more sustainable planet,focusing solely on processes and procedures might leave us only with abstract conclusions instead of concrete, factual insights. A well organized,quantifiable and result based methodology will assist the partners with guaranteeing powerful execution of the ESD program and a follow-up progress review for making the essential improvement in the program for getting the ideal outcomes.

The three stage quality model which incorporates "plausibility, feasibility and testability" built up by Anne Kubish and others (Kubisch, 1997) are pertinent in ESD's execution in HEIs. Plausibility insinuates the justification of the outcomes pathway (its rationale, rightness of order, the essential and sufficient preconditions to accomplish long haul results, the gaps in the pathway and effect).Feasibility indicates how the arrangement will really accomplish its drawn out outcomes and effects – asset ampleness, partner's association and the requirement for modifications in the expectations and scope of theory.Testability is basically about the indicators - their quality and quantifiability, whether giving expected information to evaluate the advancement of the change activity and accessibility of decisive and pertinentinformation.

Possible future-oriented improvements at several levels to promote sustainable development should be introduced by the higher education institutions in all the possible dimensions. Instructors and educators are the change agents who catalyses the transformation process in formal, and casual settings placing in proof for progress, quality, and results of groundbreaking instructive exercises and challenges and counsels while doing the exertion of 'instructing for change'(Taylor, 2009; Romano A., 2017).

4.3.2.   Critical discussion on ToC

Many researchers admit the applicability of ToC in the planning and evaluation of educational reforms (Connell& Klem, 2000; Fullan, 2006; Gambone et al. 2001), mathematics and science(Connolly&Saymour, 2009). In spite of its wide acceptance, ToC has been criticized for its shortcomings in not having a specific evaluation method, the manner it is articulated, or in its ownership (Blamey & Mackenzie, 2007; Sullivan & Stewart, 2006). ToC, since it does not have a common programme framework, has been adopted, framed and evaluated in a number of ways. However, some connections and similarities can be identified among these varieties when we examine them. Vogel (2012), rightly observes that the ToC for a change initiative is usually developed through the discussions among the members of the team managing the change regarding : the context of change initiative, the actual issues/problems that are to be solved through the change program and their current status along with the details of people acting as change agents, the long term objectives or change expected, the sequence of events that may lead to the expected result, the assumptions regarding the change activity and the contextual conditions. Making explicit assumptions will help to articulate the program better. Assumptions are described as "the values, beliefs, norms and ideological perspectives, both personal and professional, that inform the interpretations that teams and stakeholders bring to bear on a programme" (Vogel, 2012).

When it comes to ESD, the reach of word change is reduced as contrasted with transformation. Change may be small and gradual, or big and complex. But it is something that must be tracked and managed constantly (Palinkas, 2013).

Contributions and Limitations – A Discussion

The literature review yield insights about the suitability of the theories in conceptualizing and practicing ESD in higher education sector. However, the critical discussions point out the shortcomings of each theory in its applications. Hence ESD requires an integrated approach of all these three theories for ensuring achievement and quality of expected outcome by addressing the limitations of these approaches.The following figures represent the contributions (Figure 1) and limitations (Figure 2) of each of these theories pertinent in the area of HESD.

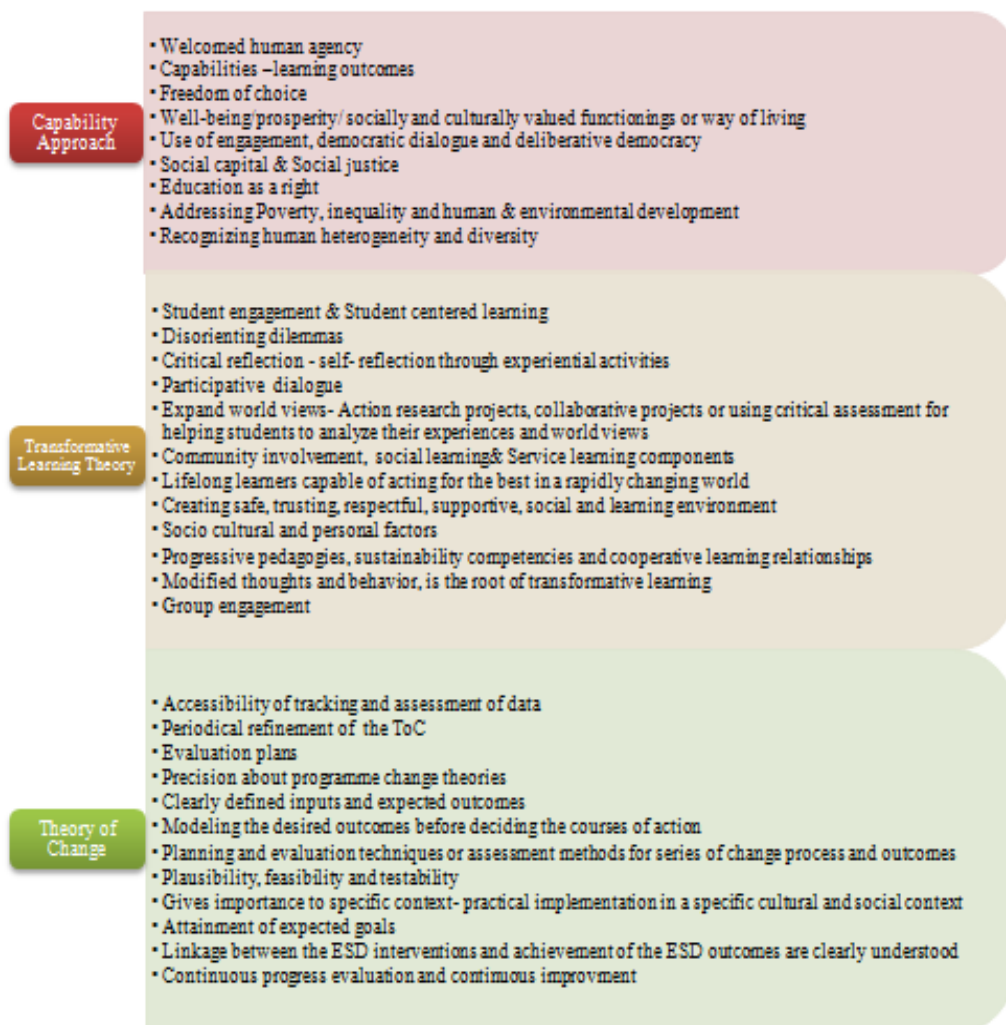**Figure 1:** Contributions of CA, TLT and ToC to Higher Education for Sustainable Development

Limitations for application in HESD

Capability Approach
- Perspective of freedom is vague
- Freedom can be negatively used
- Non Specification of capabilities

Transformative Learning Theory
- More on individual transformation rather than group
- Doesn't address different possible ways of knowing other than 'critical reflection'
- The role of "diversity" in terms of class, gender, sexual orientation and ethnicity has not been considered
- Failed to account for context
- Neglected the value of "collective social action" as an objective
- More focused on rational and cognitive processes in describing perspective transformation and the emotional, physical, and spiritual dimensions are neglected.

Theory of Change
- Not having a specific evaluation method, the manner it is articulated, or in its ownership
- ToC does not have a common programme framework, and hence adopted, framed and evaluated in a number of ways
- Reach of word 'change' is reduced as contrasted with 'transformation'
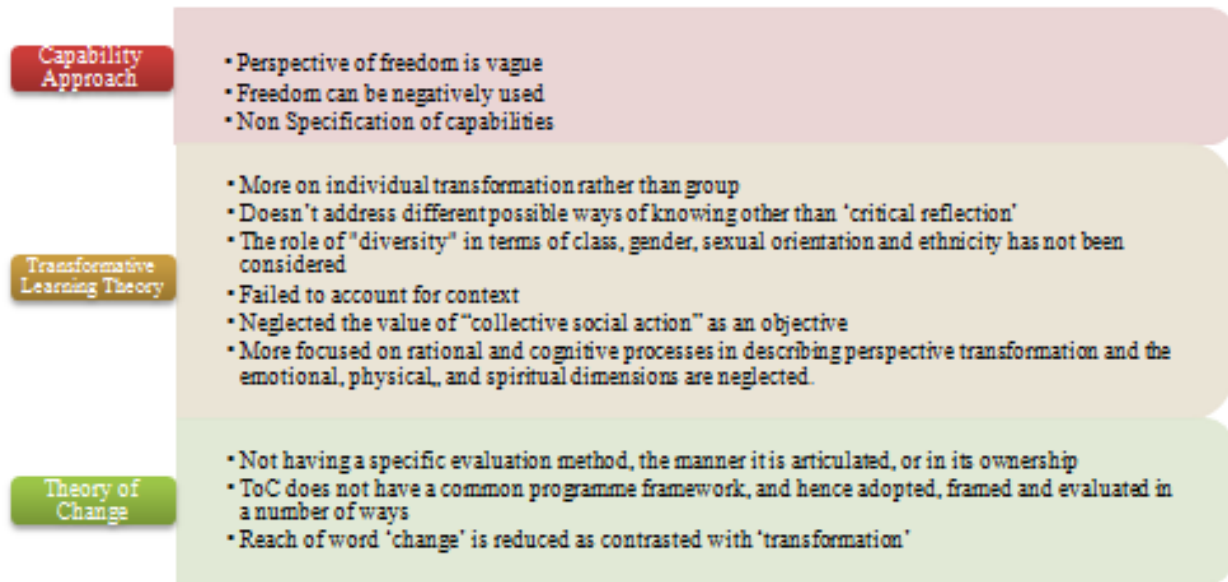
Figure 2: Limitationsfor application in Higher Education for Sustainable Development

Saito (2003) questions the applicability of Sen's Capability Approach (CA) in education. But the drawback of Saito's criticism is that he approached capability theory only from the narrow perspective of child education. When comes to adult education or higher education, Sen's theory gains more importance and overhauls Saito's arguments. Adult learners have specific and clear learning objectives and in most cases, are matured enough to take decisions regarding the matters related to their education. But here two issues need to be resolved. First, even when higher education students have the right to have freedom in choosing the function they have to perform or the lifestyle they have to follow after achieving the capabilities (here education), sustainable behavior and social concerns cannot be considered as choices left for a person. Instead, they are the most important attitudes and actions that have to be reinforced in order to save the lives of humans, planet, and future generations. Hence, in ESD, the application of transformative learning theory is also undeniable and the sustainability skills and attitudes need to be encouraged through planned instructions and critical reflections, since the present situation highly demands it.

Second, even when CA explains the 'provision of resources', 'necessary conditions to achieve the capabilities' and 'the freedom of choice to use the capabilities to achieve the functionings', it faces the criticism that as a human development model it does not consider the wrong usage of freedom, or the conditions that lead to the wrong usage of freedom. "According to Sen (Dre`ze and Sen, 1995), the notion of capability relates centrally to freedom—the range of options a person has indeciding what kind of life to lead"(Saito, 2003). As Nussbaum observes freedom is

"neutral and trivial in itself, probably bad in use" rather than "always good" and "if capabilities are to be used in advancing a conception of social justice, they will obviously have to be specified" (Nussbaum, 2003). Here Nussbaum critically notes two aspects: the wrong usage of freedom and non-specification of capabilities in Capability Approach. For enhancing social justice, the capabilities not only need to be specified but also to be promoted and practiced. The most realistic way to do this is sustainability focused education activities, designed fora transformationin adult learners in the right direction.

In adult education, if young adultsdo not get opportunities to strengthen their skills and values to recognize and utilize their capabilities effectively, in a constructive way to enable the sustainable growth of the society, it may result in undesirable adverse effectslater. To develop the skills, attitudes and potentials to utilize the freedom specified by Capability Approach positivelyand constructively, we need to ensure that the resources or entitlements, the conditions or conversion factors and the capabilities or potential functionings offered to them should have high quality and novelty. They must be good, result oriented, adequate, fit and designed to produce an expected (sustainability) outcome.

At this point we need to consider the relevance of Transformative Learning Theory (TLT), an approach which focuses on providing the necessary conditions, resources,materials and coaching to influence and critically examine the already acquired capabilities and beliefs.It also hone in on creating new beliefs and capabilities that help them to use the freedom of choice in a socially desirable manner. These competencies and attitudes thus developed will monitor the thought process and lead them

towardsexhibiting a socially and environmentally responsible behavior, which is critical in achieving the functioning or lifestyle that is suitable for a sustainable future.UNESCO (2018) also highlights the use of "exploratory, action oriented and transformative learning" to enable learners "to think criticallyandsystematically develop values and attitudes for a sustainable future".

However, TLT doesn't mention about the freedom of choice which is an inherent quality of Capability Approach. In an education system, whenlearners get the freedom to choose the domain of their interest, the freedom to utilize their expertise to achieve the functioning they value (specified in CA), and at the same time when they are exposed to value based, sustainability oriented and social skill enhancement training, and resources and conditions that influences their critical thinking, beliefs and actions (specified in TLT), it becomes a true sustainable human development model.

In CA, "Capabilities are the freedom a person has to enjoy valuable functionings. Thus a functioning is an achievement, while a capability is the ability to achieve. For example, with regard to higher education, functionings would include, being able to study, being able to participate in university life, in addition to being able to pass an examination or receive a qualification" (Rajapakse, 2016).But in reality, life goes beyond achieving certain functionings. The behavior of individuals in different social settings and diverse situations, and their decisions on various matters, in the whole lifetime, need to be explained. In every context, to ensure a socially and environmentally favourable behavior, the young learners need to experience the transformation of ideas, knowledge, skills and attitudes, at the stage of learning or acquiring capabilities. Thiswill guaranteeconsistent behavior or responses.In this sense,Sterling (1996) rightlyargues that adequate attention must be paid to education as the "subject of change itself" inorder to realize its potential as an agent of change towards a more sustainable society.

Capacity Approach and Transformative Learning Theory together give the rules to strategy viewpoint and academic structure for sustainability advanced education. They demonstrate the concentration and course of progress of an ESD program as well.Yet, two main necessities for the fruitful execution of a program - activity plan and assessment additionally should be coordinated with the framework. Theory of Change approach offers spacefor the integration of these two components.It explicitly guides us about the requirement for a long term and shortterm plan for the execution of any program and the significance of assessment at each point, for taking remedial measures.ToC empowers an organized way to deal with ESD, yet additionally adds to better evaluation of the program, through estimating the advancement of accomplishment of longer-term targets (here, steady and rehashed sustainable behaviour) which goes beyond the fulfillment of program outcomes. Accordingly, we interpret that a mix of the three methodologies (CA, TLT and ToC) offers a comprehensive execution framework to ESD programs in higher education sector.

Implications and Conclusion

UNESCO (2014) considers ESD, as "holistic and transformational education which addresses learning content

and outcomes, pedagogy and the learning environment and achieves its purpose by transforming society". The higher education system can play a superior role of fostering environmental and social sustainability for a healthy progress of the country. In order to ensure the sustainable transformation of learners and communities, we need a more thorough comprehension of the various theoretical elements relevant to this area.

The study evaluated and discussed the relevance, applicability and the relative importance of the three theories – Capability Approach (CA), Transformative Learning Theory (TLT) and Theory of Change (ToC) – in the higher education context. These three theories, from different angles address the varied and wide requirements of ESD. The study analyzes the scope of each of these theories in HESD. The discussion in the previous section clarifies that, even though, the three theories conceptually contribute to ESD, the execution of any one of them is insufficient to provide a full operational context. Rather a joined methodology, including the significant credits of Capability Theory, Transformative Learning Theory and Theory of Change, successfully clarify the working of sustainability education models.The review and discussion provides a detailed understanding of the conceptual and practical contributions of each of these theories from three different perspectives such as human (CA), transformation(TLT) and management (ToC).

Mula et al. (2017) points out that currently the universities lack capacity to integrate ESD effectively into their main stream activities and institutional learning prioritiesand mentions about the "translation gaps" in applying ESD institutions. Leal Filho et al.(2019) states about the lack of interest of many HEIs in ESD.To build and implement an integrated result oriented model, ESD requires a strong conceptual basis.The present study is trying to addresses the inadequacy of research in supporting such initiatives and providing a conceptual basis for recognizing the theoretical requirements of ESD in HEIs. This is helpful to academicians, educators and researchers in enhancing the knowledge about the multidimensional nature and structure of ESD and to improve the implementation and evaluation of ESD in HEIs.

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