# Understanding Sustainability Consciousness through Mindfulness: A study of University Students from Delhi

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**Introduction:** Resource-strenuous existence of users has been recognised as the major reason for ecological dilapidation. Therefore, it expects for varied conscious attempts on the part of human beings to become more mindful and conscious of their actions. It is thus essential to involve people in making behavioural shifts that may enable them to lead a sustainable way of life.

Research Objectives: Through this work, we intend to understand the psychosomatic mechanisms like "mindfulness" and "sustainability consciousness" holding a potential influence in encouraging an evolution towards sustainable lifestyles.

Research Methodology: A sample of 157 university students comprising of graduate and post graduate students were taken for this study. Standardized scales for Sustainability Consciousness and Sustainability Consciousness were used. Analysis were done through the help of Smart PLS3.

Findings: Mindfulness has a positive role to enhance Sustainability consciousness. Students can be shaped as responsible citizens of tomorrow and this can be done through mindfulness. Specifically, we propose that students should be exposed to various activities to make them understand the concept of sustainability.

## Introduction

The natural balance of the environment is under substantial stress, because of the immeasurable use of resources. "Over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fiber and fuel. This has resulted in a substantial and largely irreversible loss in the diversity of life on Earth" (Secretariat of the Convention on Biological Diversity, 2010, p. 94). This voluminous use of resources has been attributed as the major reason for environmental dilapidation. Therefore, it expects for varied conscious attempts on the part of human beings to become more mindful and conscious of their actions. It is thus essential to involve people in making behavioural shifts that may enable them to lead a sustainable way of life. This can be initiated through an increase in demand for various sustainable goods, decrease in the reckless behaviour of consumption helping enable people to have more sustainable lifestyles (Brown and Cameron 2000; Jackson

and Michaelis 2003; Hume 2010; Young et al., 2010; Antonetti and Maklan 2014; Verhofstadt et al., 2016)

Additionally, Ecopsychologists, have pointed out to an aspect that suggests, mindful awareness of our mutuality with the Mother Nature, may help us gain our environmentally entrenched individuality (Roszak, 1992) and help us conduct ourselves more sustainably. It will close the recognised gap between proenvironmental attitudes and behaviours. It can therefore be interpreted that, in the contemporary consumer beliefs, mindful consideration may be a necessary alternative to advance sustainable habits. Further (Andres R. Edwards 2015), in his book, "The Heart of Sustainability", draws out attention on the fact that dearth of mindfulness in today's time is the major concern confronting the societies. It also quotes, "Mindful School", which is enabling children become mindful and aware of their thoughts and feelings. He supplemented his thoughts by attributing to three internal components, "consciousness, creativity, and compassion" that may cavern into the human potential for accomplishing sustainability. These components have an ability to infix a sense of accountability in the people, giving a special mention to consciousness, which has the ability for "generates benefits for identifying solutions".

Thus through this research work, we intend to understand the psychosomatic mechanisms like "mindfulness" and "sustainability consciousness" holding a potential influence in encouraging an evolution towards sustainable lifestyles. The present study has been undertaken in the student context, as they quite well represent the, contemporary adolescents and younger generations who are ideal targets of extensive conservational programs in today's civilisation. Through this study we intend to propose a model explaining the relation between "mindfulness" and "sustainability consciousness" and styding the effect of various variables. As far as we know this is the first study, to explore the relation between, "mindfulness" and "sustainability consciousness".

The paper is arranged as follows in the following paragraphs, firstly; we have discussed about mindfulness; mindfulness and related work in context to sustainability, sustainability behaviour. Secondly, we discuss about sustainability consciousness as the recently developed construct and it measurement. Thirdly, we discuss the research methodology adopted for this study. Fourthly, in this section hypothesis for the study are developed. In the later sections, we have the analysis and discussions of our study. Followed by, conclusion and implications.

**Mindfulness**

There has been a keen interest in the field of research on "mindfulness". It has become a buzzword and research attention in the topic has wheeled over the last decade (Fischer et al., 2017). (Kabat-Zinn 1996), elucidated the concept of mindfulness as, "paying attention in a special way, i.e., intentionally, in the present moment and non judgmentally". Further, (Nyanaponika Thera 1972) has distinctly defined mindfulness as "the clear and single-minded awareness of what actually happens to us and in us at the successive moments of perception". Additionally (Hanh 1976) well-defined mindfulness as "keeping one's consciousness alive to the present reality". (Baer et al. 2006) elucidated mindfulness as, "to focus on the present moment and be aware of those intuitive notions or ideas that come to mind and open up new insights". Bishop et al. (2004); Brown et al. (2007) explicated mindfulness as, "a psychological state of consciousness in which individuals pay attention to the present moment with an accepting and non-judgmental attitude". Thus the concept shares its ideation from various psychological and metaphysical practices including primeval Greek beliefs and Eastern traditions mainly Buddhism which comprises of a practice of meditation and this dates back to the olden times (Kabat-Zinn 1982; Linehan 1993). Additionally, it has its origin from a word sati, from Pali language, which means "to remember" as a means of consciousness which generally implies being present in the current situation (Guranatana, 2009).

Mindfulness has further grown into an increasingly popular management, organisational and psychological subject matter of research (Fiol and O'Connor 2003; Levinthal and Rerup, 2006 Dane, 2011; Hayland et al., 2015; Arthington 2016; Svalgaard 2018). A considerable extent of exploration of mindfulness has been conducted over the last few years, which has emphasised on several affirmative effects of mindfulness in various fields like; mental well-being (Grossman et al. 2004; Bajaj et al. 2016; Beshai et al. 2016; Lomas et al. 2017); psychological and physical health (Brown and Ryan 2003; Schutte and Malouff (2011); Kong et al., 2014; Brown et al. 2015; Rogers et al. 2017; Tomlinson et al. 2018). The concept has also been widely studied in context to sustainability and have had some excellent inferences from these varied studies, suggesting some positive effects of mindfulness in context to, "sustainable behaviour", "pro-environmental behaviour" "ecologically conscious behaviour", "consumption behaviour", "sustainable lifestyle and behaviour", "pro-social behaviours" (Amel et al. 2009; Bahl et al. 2013; Barber and Deale (2014); Barbaro and Pickett 2016;Condon 2017; Fischer et al. 2017; Park and Dhandra 2017; Geiger et al. 2018; Hunecke and Richter 2019)

Consequently, it has been observed that mindfulness as a construct has been researched widely, the effect of "mindfulness" on "sustainability consciousness" has not been explored in the literature so far. This is regardless of the various, clues that can be drawn from research in other associated domains like sustainability (Brown and Kasser (2005); Ericson et al. 2014; Geiger et al. 2019). Hence, from the preceding paragraphs it can be inferred that mindfulness may play a substantial role in stirring folks towards a change in behaviour heading towards sustainability. A further research in the relevant field may culminate towards exploration of other necessary components for transition towards a more sustainable society.

**Sustainability Consciousness**

Sustainability seems to be at the vanguard of all business operations in the contemporary times (Sloan et al., 2013). The conception of sustainability is intricate (Faber et al. 2005; Rossignoli and Lionzo 2018). The general and the most widely accepted definition is the one given in the Brundtland report by the "World Commission for Economic Development (WCED)" in the year 1987; "Sustainable development (SD) means meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Loucks et al. 2010; Hult 2011; Mukherjee-Saha 2011; Sisaye 2011; Elliott 2012). Theterms "Sustainability" also referred to as, "sustainable development" are highly disputed and are often complained for its wide-ranging explanation (Bonnett 1999; Giddings et al. 2002; Jabareen 2008). It embraces practically everything; with reference to everyone. Thus, making it appropriate for any person to acclimatize the concept conferring to their own schema.

Sustainability consciousness (SC) as a concept is developed from the various backgrounds like "sustainable development" and "environmental consciousness".

The literature advocates the development of varied scales in the domain of ecological studies like the one given by Dunlap and Liere (1978) by the name of New Ecological Paradigm (NEP)"scale. This scale has had various adaptations in varied countries context (Dunlap et al. 2000; Konini 2011; Khan et al. 2012; Ntanos et al. 2019). The various additional scales reviewed from literature are; the one given by Leeminget al.1995, named as the "Children's Environmental Attitude and Knowledge scale (CHEAKS)". This scale has been used in various

in various studies like (Malandrakis and Chatzakis (2014); Schmitz and Rocha (2018); Alfoldi, Z. and Alfoldi, P. (2019)); "Two Major Environmental Values (2-MEV)" scale (Bogner& Wiseman 1999, 2006) used extensively in various studies like Sellmann and Bogner (2013); Boeve-de Pauw and Van Petegem (2017, 2018); "Environmental Concern scale" developed by Fransson and Gärling (1999) used broadly in several studies like (Junior et al. 2015; Magnier and Schoormans (2015); Lezak and Thibodeau (2016); Landry et al. 2018); "Environmental Attitudes Inventory Scale" (Milfont and Duckitt (2010) used in researches like (Sutton and Gyuris (2015); Tolsma 2018). The various instruments discussed above have a narrower scope and are majorly inclined towards environmental attitudes. Further it can be inferred that, there are no inclusive psychometric instruments casing the whole space of sustainability. Thus, Gericke et al., identified this gap and introduced the holistic concept of "Sustainability Consciousness" (SC). It may be defined as "the experience or awareness of sustainability phenomena. These include experiences and perceptions that we commonly associate with ourselves such as thoughts, feelings and actions". Therefore it can be interpreted that "Sustainability Consciousness" as a construct is still naïve and seeks for an extensive research in years to come. Thus, through this research work we intend to measure the students' sustainability consciousness, incorporating the emotional and rational aspect of the three dimensions of SD (Olsson et al. 2014). This piece of work, offers information in context to students consciousness of sustainable development, and observing the interconnectivity of the varied dimensions of sustainability (environmental, economic, and social).

**Research Methodology**

The present study is interpretative and explorative in nature. A comprehensive and wide search of obtainable works was piloted on a range of online databases to deliver an inclusive list of journal articles on, "mindfulness", "sustainability consciousness", "and sustainability". Google Scholar was also travelled to hand-pick studies that comprised any of the above-mentioned key terms. EBSCO host, Elsevier's Business, Emerald Management and Taylor and Francis Online are the various databases used extensively in this study.

Further, a total sample of 157 college students comprising of graduate and post graduate students were taken for this study. "Mindfulness" is measured as a dependent variable and "Sustainability Consciousness" as an independent variable. Questionnaire designed for this research comprises of three parts. Part A collected information on the demographics of the respondents. Part B mapped Mindfulness throughthe "five facets of mindfulness questionnaire" (FFMQ). Baer et al., 2006 designed FFMQ as a five-point Likert scale, going from 1 to 5 (from never to always) comprising of 39 statements. This scale has been used to draw a total composite score by aggregating the

responses on all these 39 items. Part C measured the Sustainability Consciousness using theGericke, N. et al., (2019) short version scale comprising of 27 items. This scale permits the examination of the varied aspects of sustainability in context to the student knowingness, attitudes, and behaviours (Gericke et al., 2018). The Sustainability Consciousness Questionnaire (SCQ) documents the investigation of student sustainability knowingness, attitudes, and behaviours. Furthermore, Smart PLS 3 was used to provide for path coefficients and P- values for confirming the statistical significance.

The following hypotheses were framed:

**Hypothesis**

H1: There is a relationship between mindfulness and sustainability consciousness

H2: Various characteristics/ behaviour of student moderate mindfulness and sustainability consciousness

2a: Family type moderates mindfulness and sustainability consciousness

2b:Type of source of knowledge about sustainabilitymoderates mindfulness and sustainability consciousness

2c:Teaching (subject/ workshop etc.) about sustainability moderates mindfulness and sustainability consciousness

2d:Engagement in sustainability activities (e.g. community services, tree plantation etc)moderates mindfulness and sustainability consciousness

2e: Mindful activities (e.g. meditation, mindful eating etc) moderates mindfulness and sustainability consciousness

2f:There is a relationship between student's prolonged illness (because of polluted air or water etc)moderates mindfulness and sustainability consciousness

2g:Experience with depression moderates mindfulness and sustainability consciousness

2h: Level of course (graduation/ post-graduation)moderates mindfulness and sustainability consciousness

**Analysis and Discussion**

The data was collected from 157 respondents. All the respondents are University students doing different undergraduate and post graduate courses in Delhi NCR. Table1 gives the details. 80 students have a business background whereas 63 students are from job family background. 67 students have heard about sustainability only from one source but 90 students have heard about the concept from many sources. 115 students have had a stint with sustainability as a subject/ workshop and 42 had no such experience. 117 students are engaged in community services or have association with some NGO whereas 40 students are not engaged with any such activity.114 are involved with mindful activities such as meditation, mindful eating etc. 51 students have been prolonged ill because of polluted air or water. 50 students have been under depression. 60 students are doing graduate courses as compared to 97, who are pursuing post-graduation.

**Table 1**

| Between-Subjects Factors | | |
|---|---|---|
| | Group for Multi Group Analysis | N |
| Family | business | 80 |
| | job | 63 |
| | others | 14 |
| From where | One source | 67 |
| | Many source | 90 |
| taught | yes | 115 |
| | no | 42 |
| engage | yes | 117 |
| | no | 40 |
| Mindful activities | yes | 114 |
| | no | 43 |
| illness | no | 106 |
| | yes | 51 |
| depression | yes | 50 |
| | no | 107 |
| course | grad | 60 |
| | postgrad | 97 |

**Discussion regarding analysis of all the moderators:**

We checked for outer weights and outer loadings of Mindfulness as it is a formative construct. All indicators of mindfulness; have no collinearity issues as the VIF values were found to be less than .5 (Hair et.al 2017) ; as shown in the following Table:

| indicators | VIF |
|---|---|
| Act aware | 1.402 |
| description | 1.435 |
| Non judgemental | 1.182 |
| nonreactive | 1.229 |
| observation | 1.177 |

**Relevance and Significance of Mindfulness- a formative construct**


Both outer weights and outer loadings were assessed. Outer weights explain the relative importance of each indicator (Hair et al.,2013). Each indicator's absolute contribution can be understood through outer loading. Bootstrapping was conducted to find the significance of outer weights and loadings. Outer weights of all indicators were found to be significant. Three out of five indicator's loadings were found to be insignificant.The theory-based conceptualization of the construct of mindfulness supports retaining all the indicators. Therefore, no indicator was removed.

Outer weights are given below:

| | mindfulness |
|---|---|
| Act aware | 0.820 |
| description | 0.355 |
| non-judgemental | -0.187 |
| nonreactive | -0.073 |
| observation | 0.103 |

**Outer loadings are given below:**

| | mindfulness |
|---|---|
| Act aware | 0.926 |
| description | 0.703 |
| non-judgemental | 0.108 |
| nonreactive | 0.271 |
| observation | 0.303 |

**Path Co-efficient and p-value of the Measurement Model of Mindfulness and Sustainability Consciousness**

| Construct relation | Path coefficient | p-value |
|---|---|---|
| Mindfulness> sustainability consciousness | 0.234 | 0.001 |

**R square value**

| | R Square | R Square Adjusted |
|---|---|---|
| sustainability consciousness | 0.055 | 0.049 |

**F square**

| | mindfulness | sustainability consciousness |
|---|---|---|
| mindfulness | | 0.058 |
| sustainability consciousness | | |

According to Cohen, 1988, F- square values of 0.35,0.15 and 0.02 respectively, represent large, medium, and small effects.The value is interpreted that the predictor variable latent influence of small, medium and large at the structural level (Henseler et.al 2010). In this study, the relationship is positive and significant (p-value = .05) and the effect of mindfulness on sustainability consciousness is medium.

We conducted PLS-Multi Group Analysis over t-test to find out significant differences between among path coefficients because PLS-MGA is more powerful surpassing any normality issues (Henseler et al., 2009). Multi Group Analysis method in SmartPLS is done by dividing the data in two groups. In case of family we divided into three groups; based on mean value (Hair et al., 2014). Two groups at a time are taken into consideration to look out for the differences. PLS-MGA, parametric and Welch-Satterthwaite were used to compare the path coefficients of all the groups. The results of these tests are shown in the Table 3

**Table 3: PLS-MGA Analysis Result for all the Moderators on the relation mindfulness ->suscon**

| | **PLS-MGA** | **Parametric Test** | **Welch- Satterthwait Test** |
|---|---|---|---|
| PLS-MGA Path Coefficients -diff (business - job) | p-Value new (business vs job) | p-Value (business vs job) | p-Value (business vs job) |
| 0.127 | 0.814 | 0.645 | 0.670 |
| PLS-MGA Path Coefficients -diff (others - job) | p-Value new (others vs job) | p-Value (others vs job) | p-Value (others vs job) |
| 0.660 | 0.236 | 0.303 | 0.311 |
| PLS-MGA Path Coefficients -diff (onesource - many) | p-Value new (onesource vs many) | p-Value (onesource vs many) | p-Value (onesource vs many) |
| -0.090 | 0.844 | 0.759 | 0.787 |
| PLS-MGA Path Coefficients-diff (taughtyes - taughtno) | p-Value new (taughtyes vs taughtno) | p-Value (taughtyes vs taughtno) | p-Value (taughtyes vs taughtno) |
| -0.087 | 0.463 | 0.742 | 0.739 |
| PLS-MGA Path Coefficients -diff (yesengage - noengage) | p-Value new (yesengage vs noengage) | p-Value (yesengage vs noengage) | p-Value (yesengage vs noengage) |
| -0.184 | 0.303 | 0.582 | 0.423 |
| PLS-MGA Path Coefficients -diff (mindactyes - mindactno) | p-Value new (mindactyes vs mindactno) | p-Value ( mindactyes vs mindactno) | p-Value (mindactyes vs mindactno) |
| 0.137 | 0.996 | 0.580 | 0.696 |
| Path Coefficients -diff (illyes - illno) | p-Value new (illyes vs illno) | p-Value (illyes vs illno) | p-Value (illyes vs illno) |
| 0.116 | 0.318 | 0.591 | 0.636 |
| Path Coefficients -diff (depressionyes - depressionno) | p-Value new (depressionyes vs depressionno) | p-Value (depressionyes vs depressionno) | p-Value (depressionyes vs depressionno) |
| 0.070 | 0.423 | 0.768 | 0.797 |
| Path Coefficients -diff (grad - postgrad) | p-Value new (grad vs postgrad) | p-Value (grad vs postgrad) | p-Value (grad vs postgrad) |
| 0.019 | 0.896 | 0.941 | 0.939 |

**Bootstrapping results** (shaded boxes- p-value is significant)

| | | | |
|---|---|---|---|
| FAMILY | diff (business - job) | p-Value (business) | p-Value (job) |
| | | 0.009 | 0.513 |
| | | | |
| TYPE OF SOURCE | diff (onesource - many) | p-Value (many) | p-Value (onesource) |
| | | 0.000 | 0.466 |
| TAUGHT | diff (taughtyes - taughtno) | p-Value (taughtno) | p-Value (taughtyes) |
| | | 0.153 | 0.092 |
| ENGAGE | diff (yesengage - noengage) | p-Value (noengage) | p-Value (yesengage) |
| | | 0.002 | 0.262 |
| MINDFUL ACTIVITIES | diff (mindactyes - mindactno) | p-Value (mindactno) | p-Value (mindactyes) |
| | | 0.542 | 0.000 |
| ILL | diff (illyes - illno) | p-Value (illno) | p-Value (illyes) |
| | | 0.052 | 0.147 |
| DEPRESSION | diff (depressionyes - depressionno) | p-Value (depressionno) | p-Value (depressionyes) |
| | | 0.022 | 0.182 |
| COURSE LEVEL | diff (grad - postgrad) | p-Value (grad) | p-Value (postgrad) |
| | | 0.095 | 0.152 |

**Hypothesis testing summary**

| S.no. | Hypothesis | Remarks (significant) p-value) | Interpretation |
|---|---|---|---|
| 1. | There is a relationship between mindfulness and sustainability consciousness | Accepted | Mindfulness has a positive effect on Sustainability consciousness (SusCon) |
| 2. | Family type moderates mindfulness and sustainability consciousness | Accepted | Business family background are high on SusCon |
| 3 | Type of source of knowledge about sustainability moderates mindfulness and sustainability consciousness | Accepted | Many source information gaining is on higher side of SusCoN |

| | | | |
|---|---|---|---|
| 4 | Teaching (subject/ workshop etc.) about sustainability moderates mindfulness and sustainability consciousness | rejected | No effect of teaching |
| 5 | Engagement in sustainability activities (e.g. community services, tree plantation etc) moderates mindfulness and sustainability consciousness | rejected | No effect of engagement in terms of community services |
| 6 | Mindful activities (e.g. meditation, mindful eating etc) moderates mindfulness and sustainability consciousness | Accepted | Mindful activities lead to higher SusCon |
| 7 | There is a relationship between student's prolonged illness (because of polluted air or water etc) moderates mindfulness and sustainability consciousness | rejected | No effect of illness |
| 8 | Experience with depression moderates mindfulness and sustainability consciousness | Accepted | No depression is higher on SusCon |
| 9 | Level of course (graduation/ post - graduation) moderates mindfulness and sustainability consciousness | rejected | No effect of course |

Trait mindfulness is related with high conscientiousness (Giluk, 2009; Thompson & Waltz, 2007). In our study we conclude that mindfulness has a positive impact on Sustainability Consciousness. According to Schmertz, Anderson, & Robins, 2009, mindfulness is been found to be associated with improved performance on various tasks measuring sustained attention. This attention can be referred to as 'waking up' from our metaphysical sleep – we can begin to notice what we are conscious of. Thus, mindfulness has the power to lead to sustainability consciousness. The affinity for or tolerance of calculated risk is well known for businesspersons (Dana, 2002).

Business family background have instinct to foresee survival if business fails. Thus, it can be interpreted that children from such families, understand the meaning of limited resources. Information from many sources will definitely reinforce the fact that Sustainability is the only way ahead. Social reinforcement includes many societal members who play an active role as intermediaries. The student's teachers, parents, peers and social group play an important role and can assist throughgiving advice and providing direct aid; along with voicing empathy and showing concern (Sundel and Sundel 2005).

Mindful activities such as meditation does not allow anything to distract consciousness from itself. One becomes "an onlooker to his stream of consciousness" (Goleman 1978) while meditating. Thus, the process of mindful activities empowers one to develop an attitude to observe and be more introspective and explore your role to be better.

Depression is described as a state of mental health that presents with negative mood, low energy, poor concentration and feeling of little self-worth.United Nations General Assembly in 2015 espoused mental health and substance abuse in the Sustainable Development Agenda. This is the proof of importance of eradicating depression for sustainable development.We found students who have had no past experience with depression were high on sustainability consciousness; simply because mental strength enables you to think beyond all problems.

**Implications and Conclusion**

We conclude that Mindfulness has a positive role to enhance Sustainability consciousness. Students can be shaped as responsible citizens of tomorrow and this can be done through mindfulness. Mindfulness is all about living in the moment. It's like finding joy in simple pleasures. Specifically, we propose that students should be exposed to various activities to make them understand the concept of sustainability. Teaching may not be a solution; at least this is what our study reveals; but participating in mindful activities including meditation (to increase concentration) will definitely help. Students are involved in hectic schedules all the day which can be so energy draining. It can make them more likely to experience stress and prolonged stress might lead to depression. Practicing

mindfulness exercises (meditation, yoga etc) can help students take a break and handle stress effectively. Laughter classes, mental health counselling and inclusion of bombarding sustainability information through various mediums can help awaken the sustainability consciousness. We list out some activities to enhance "sources" of information to enhance sustainability consciousness: encouraging waste management/ recycling in the university, encouraging cycling as a means of transport at least within the campus, Students voluntary group can get into organic farming on campus, jungle trekking as picnics can be organized, campus can be made plastic free i.e. all cutlery used can be replaced with paper/wood or students can be encouraged to bring their own cutlery etc.

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