

Factors that influence Sustainable Education with respect to Innovation and Statistical Science

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Abstract: Education is a systematic and collective process of acquiring knowledge and skills to develop the members of the executive or administration of an organization for managing and controlling the professional requirements of individuals, organizations and society at large. This research paper unfolded the contribution from Innovation and Statistical Science in Sustainable Management Education that can ensure the managerial Skills up gradation, Technical acquisition, Skilled employment, Direct Link to Productive Industries, Advanced technological knowledge and Discovering various fields of environmental scenario. The study is empirical in nature and the requisite data was collected both from primary and secondary sources. Total 800 respondents were considered from diverse background of Teachers, Decision-makers and Students and the semi-structured interview schedules of randomly selected 120 stakeholders were employed and make an attempt to assess the contribution from Innovation and Statistical Science in Sustainable Management Education. Data so collected was carefully collated and analyzed for hidden patterns. Based on the results, suggestions and recommendations were listed.

Index Terms: Sustainable Management Education, Innovation, Statistical Science, managerial or administrative skills and advanced technological knowledge

I. INTRODUCTION

The future is uncertain and challenging in terms of employability and survive long journey towards perfection. Social responsibility, expectation of high standards, imparts practical knowledge and shift in the attitudes of the management education institutes to profit maximization are the major issues towards perfection. A systematic and collective process of acquiring knowledge and skills to develop the members of the executive or administration of an organization for managing and controlling the professional requirements of individuals, organizations and society at large ensure a balance between future demand and supply and build a sustainable society. All Organizations are now trying for the best of the best managers, well trained and highly resourceful persons are needed to handle the critical business matters, meet the standards to achieve successful human resource management and development of information technology. Sustainable management education is one that can ensure the development and up gradation of managerial or

administrative skills and knowledge to protect from the negative impact of repeated changes of business and environmental scenario so that civilization can continue its long journey towards perfection.

II. REVIEW OF LITERATURE

The several authors and scholars have given their own view related to Management Education, Sustainable Management Education, Innovation, Statistical Science, managerial or administrative skills and advanced technological knowledge. The review of literature contains the details about few research papers and articles. Maryam Alavi and Douglas R. (2017) describes in the research article "Using Information Technology to Add Value to Management Education" that the design and delivery of a graduate-level course in management at two universities via advanced information technology, which was used to enable collaborative learning, teaching with transcontinental student teams and multiple instructors, and integration of external expertise. This partnership enriched student learning and expedited faculty and institutional development. M.E. Moge, Moge Res. and Anal. S (1993) defines in the research article "Educating innovation managers: strategic issues for business and higher education" that the Successful commercialization of new technology presents companies with a series of difficult and complex management challenges that require special understanding, skills, and techniques. These management challenges in turn translate into an educational challenge and how institutions of higher education can help prepare managers who can recognize technological opportunities and successfully match them with customer needs.

Cheryl Kerr and Cathryn Lloyd (2008). Designates in the article "Pedagogical learning's for management education: Developing creativity and innovation" that the management education needs to consider a trend in learning design which advances creative learning through an alliance with art-based pedagogical processes. A shift is required from skills training to facilitating transformational learning through experiences that expand human potential, facilitated by artistic processes. This creative learning focus stems from a qualitative and quantitative analysis of an arts-based intervention for management development. Porter, Lyman W. and McKibbin (1999), analyzes in the research paper titled "Management Education and Development: Drift or Thrust into the 21st Century" that the evaluation of management education generated internally by the profession. It surveys management education as traditionally provided by colleges and universities and also as delivered by other systems such as corporations and third-party providers. The degree programs in management education, including discussions of the evolution of the curriculum, students and graduates, faculty, teaching, scholarship and research.

Factors that influence Sustainable Education with respect to Innovation and Statistical Science

RayIsona and NielsRöling (2007), labeled in the research article “Challenges to science and society in the sustainable management and use of water: investigating the role of social learning” that the Water catchments are characterized by connectedness, complexity, uncertainty, conflict, multiple stakeholders and thus, multiple perspectives. Catchments are thus unknowable in objective terms although this understanding does not currently form the dominant paradigm for environmental management and policy development.

III. RESEARCH GAP AND NEED FOR THE STUDY

Sustainability related activities are dynamic in nature because the concept of ‘Management education’ keeps on changing with changes in person and situation. In view of dynamic in nature it is required to study the theme in the practical world to arrive at the hidden patterns. Other prominent reasons for taking up the present study is the lack of a comprehensive study on contribution from Innovation and Statistical Science in Sustainable Management Education in Indian context as depicted by the literature review, and therefore, the research gap.

IV. SCOPE OF THE RESEARCH STUDY

The scope of the study is outlined through the following points:

- (i) The scope of the study is limited to the contribution from Innovation and Statistical Science in Sustainable Management Education.
- (ii) The scope of the study pertains to generally applicable to factors i.e., causal factors, effect factors and trend related factors influencing sustainable management education.

V. OBJECTIVES OF THE STUDY

With the curiosity of the researcher and the consideration of research title the following objectives were derived:

To identify the factors that influences Sustainable Management Education.

To find out Levels of Difficulties in Changing the Causal Factors that Influence Sustainable Management Education.

To identify the Levels of Difficulties in Changing the Effect Factors that Influence Sustainable Management Education.

To find out the Levels of Difficulties in Changing the Trend Related Factors that Influence Sustainable Management Education.

To identify the Contribution from Innovation in Sustainable Management Education.

To find out the Contribution from Statistical Science in Sustainable Management Education.

Based on the study, to list the relevant suggestions and recommendations.

VI. HYPOTHESES FOR THE STUDY

Based on the objectives of the study, following hypotheses were formulated to facilitate the purposeful research methodology:

H01: There is no significant level of difficulties in changing

the causal factors that Influence Sustainable Management Education.Or,

Mathematically, H01: [the level of difficulties in changing the causal factors that Influence Sustainable Management Education.] = 0

H02: There is no significant level of difficulties in changing the effect factors that Influence Sustainable Management Education. Or,

Mathematically, H02: [the level of difficulties in changing the effect factors that Influence Sustainable Management Education.] = 0

H03: There is no significant level of difficulties in changing the trend related factors that Influence Sustainable Management Education. Or,

Mathematically, H03: [the level of difficulties in changing the trend related factors that Influence Sustainable Management Education.] = 0

VII. RESEARCH METHODOLOGY

The present study makes an attempt to develop a framework for identifying the Contribution from Innovation and Statistical Science in Sustainable Management Education. The requisite data is collected both from primary and secondary sources. A set of questionnaire and consequent semi-structured interview schedules were employed to collect the primary data. The secondary data sources included web literature, journals, periodicals and newspaper reports to get a picture about the prevailing context.

VIII. DATA ANALYSIS AND INTERPRETATION

The collected data were arranged systematically with required tables. The arranged data were analyzed by employing the statistical techniques of CV Analysis to obtain the hidden patterns with respect to factors that influence outsourcing of HR functions in Indian Service Organizations for establishing hypotheses and achieving objectives of the research. a. Analysis Regarding the Factors that influences Sustainable Management Education Various influencing factors were extracted by talking to experts, teachers, decision-makers and students. They have given their valuable opinion and the most frequent opinion occurrence predominantly influence sustainable management education arrived at. Table no. 1 shows the factors that influence sustainable management education are “Causal Factor”, “Effect Factors”, and “Trend Related Factors”

SL. No.	Outsourcing of HR Functions	Frequency of Occurrence in Percentage
1	Causal Factors	49
2	Effect Factors	35
3	Trend Related Factors	16



Table 1: Factors that influences Sustainable Management Education (Based on the Responses of Semi-Structured Interview Schedule) (N=120)

b. Analyzing the level of difficulties in changing the causal factors that Influence Sustainable Management Education.

The analysis related to the levels of difficulties in changing the causal factors that influence Sustainable Management Education from the view point of concerned stakeholders. The degree of difficulties levels encountered in changing the existing behaviour of Teachers, Decision-makers and students. The results of the Table no. 2 point out the comparison of basic statistics among different category of respondents with respect to different causal factors. H01: There is no significant level of difficulties in changing the causal factors that Influence Sustainable Management Education.

Or,

Mathematically, H01: [the level of difficulties in changing the causal factors that Influence Sustainable Management Education.] = 0 The above hypothesis (H01) is based on the CV Value. More CV value is the indication of more difficulties to change. If the CV value is less than 0.25, then there is no significant level of difficulties in changing the causal factors that influence sustainable management education. The CV values of various causal factors i.e., Skilled employment, Advanced technological knowledge, Discovering various fields of environmental scenario, Social responsibility are less than 0.25 in the Teachers point of view. The results from Table 2 indicate there is no significant level of difficulties in changing the causal factors that influence sustainable management education. So, the Null Hypothesis is not rejected. On the other hand, the CV values of various causal factors i.e., Skills up gradation, Technical acquisition, Direct Link to Productive Industries and Impart practical knowledge were more than 0.25 in the Teachers point of view. The results from Table 2 indicate there is significant level of difficulties in changing the causal factors that influence sustainable management education. So, the Null Hypothesis is rejected. The CV values of all causal factors i.e., Skills up gradation, Technical acquisition, Skilled employment, Direct Link to Productive Industries, Advanced technological knowledge, Discovering various fields of environmental scenario, Social responsibility and Impart practical knowledge were less than 0.25 in the Decision-makers point of view. The results from Table 2 indicate there is no significant level of difficulties in changing the causal factors that influence sustainable management education. So, the Null Hypothesis is not rejected. The CV values of all causal factors Skills up gradation, Technical acquisition, Skilled employment, Direct Link to Productive Industries, Advanced technological knowledge, Discovering various fields of environmental scenario, Social responsibility and Impart practical knowledge were less than 0.25 in the Students point of view. The results from Table 2 indicate there is no significant level of difficulties in changing the causal factors that influence sustainable management education. So, the Null Hypothesis is not rejected.

c. Analyzing the Level of Difficulties in Changing the Effect Factors that Influence Sustainable Management Education The analysis related to the levels of difficulties in

changing the effect factors that influence sustainable management education from the view point of concerned stakeholders. The degree of difficulties levels encountered in changing the existing behavior of Teachers, Decision-makers and Students. Table 3 indicates the comparison of basic statistics among different category of respondents with respect to the effect factors. H02: There is no significant level of difficulties in changing the effect factors that Influence Sustainable Management Education. Or,

Mathematically, H02: [the level of difficulties in changing the effect factors that Influence Sustainable Management Education.] = 0 The CV values of effect factors i.e., Functional Effect Factor, Demographic Effect Factor, Opportunity Effect Factor and Financial Effect Factor are more than 0.25 in the Teacherspoint of view. The results from Table 3 indicate there is significant level of difficulties in changing the causal factors that influence outsourcing of HR functions in Indian service organizations. So, the Null Hypothesis is rejected. The CV values of effect factors i.e., Functional Effect Factor, Demographic Effect Factor, Opportunity Effect Factor and Financial Effect Factor are less than 0.25 in the Decision-makers point of view. The results from Table 3 consider there is no significant level of difficulties in changing the causal factors that influence sustainable management education. So, the Null Hypothesis is not rejected. The CV values of effect factors i.e., Functional Effect Factor, Demographic Effect Factor, Opportunity Effect Factor and Financial Effect Factor are less than 0.25 in the Students point of view. The results from Table 3 consider there is no significant level of difficulties in changing the causal factors that influence outsourcing of HR functions in Indian service organizations. So, the Null Hypothesis is not rejected.

d. Analyzing the Level of Difficulties in Changing the Trend Factors that Influence Sustainable Management education

The analysis is based on the levels of difficulties in changing the trend related factors that influence outsourcing of HR functions in Indian service organizations from the view point of concerned stakeholders. Table 4 points out the comparison of basic statistics among different category of respondents with respect to different trend related factors.

H03: There is no significant level of difficulties in changing the trend related factors that Influence Sustainable Management Education. Or,

Mathematically, H03: [the level of difficulties in changing the trend related factors that Influence Sustainable Management Education.] = 0

The CV values of trend related factors i.e., Quantity Related Factors and Quality Related Factors are less than 0.25 in the Teacherspoint of view. The results from Table 4 indicate there is no significant level of difficulties in changing the trend related factors that influence sustainable management education. So, the Null Hypothesis is not rejected. The CV values of trend related factors

Factors that influence Sustainable Education with respect to Innovation and Statistical Science

i.e., Quantity Related Factors and Quality Related Factors are less than 0.25 in the Decision-makers point of view. The results from Table 4 indicate there is no significant level of difficulties in changing the trend related factors that influence sustainable management education. So, the Null Hypothesis is not rejected. The CV values of trend related factors i.e., Quantity Related Factors and Quality Related Factors are less than 0.25 in the Students point of view. The results from Table 4 indicate there is no significant level of difficulties in changing the trend related factors that influence sustainable management education. So, the Null Hypothesis is not rejected.

Category	Sub-Category	Mean	SD	df	t
HighDegree of Contribution	Innovation	23.33	7.26	2	0.280
	Statistical Science	20.33	7.80		
LowDegree of Contribution	Innovation	6.67	3.28	2	-0.608
	Statistical Science	9.33	2.91		

Table-2: Summary of independent sample t-tests differentiating Between Degree of Contribution from Innovation and Statistical Science in Sustainable Management Education

IX. CONCLUSION

Sustainable Management Education is one that can ensure the development and up gradation of managerial or administrative skills and knowledge to protect from the negative impact of repeated changes of business and environmental scenario. Innovation and statistical science are the two important pillars of sustainable management education in which innovation indicates various issues, challenges and opportunities, statistical science contemplate the trends, indicators and probability. The results of the research paper unfolded the contribution from Innovation and Statistical Science in Sustainable Management Education.

REFERENCES

1. Cheryl Kerr and Cathryn Lloyd (2008). "Pedagogical learnings for management education: Developing creativity and innovation", *Journal of Management & Organization*, 14(5), pp. 486-503
2. Greer, Youngblood, and Gray (1999) *Human Resource Management: The Make or Buy Decision*. *J of Academy of Management Executive*, 13(3), pp 85–96.
3. M.E. Moge, Moge Res. and Anal. S (1993). "Educating innovation managers: strategic issues for business and higher education", *IEEE Transactions on Engineering Management* 40(4), pp 410 – 417
4. Maryam Alavi and Douglas R. (2017). "Using Information Technology to Add Value to Management Education", *Academy of Management Journal*, 40(6), pp 89-97
5. MaikAdom and Daniel Fischera (2014), "Emerging areas in research on higher education for sustainable development – management education", *Journal of Cleaner Production*, 62 (1), pp 1-7.
6. Suplab Kanti Podder , Arun B K, "Comparison of effectiveness of employee engagement through permanent employees or outsourced employees", *International Journal of Academic Research and Development*, Volume-3, Issue-2, March 2018; pp 1406-1408. ISSN: 2455-4197, 2018-06-07.
7. Suplab Kanti Podder, Arun B K, "Contribution of HR sub-functions outsourcing in the improvement of quality and innovation of

- education", *International Journal of Commerce and Management Research*, Volume-III, Issue-1, 2015-06-16.
8. Suplab Kanti Podder , , "Impact of Differential Compensation Patterns Due To HR Outsourcing On Motivational Levels", *Primax International Journal of Human Resource*, Volume-II, Issue-2, 2015-01-06.
9. [9] Porter, Lyman W. and McKibbin (1999), *Management Education and Development: Drift or Thrust into the 21st Century?*, Information Analyses; Reports - Research; Books, pp 125-134
10. Suplab Kanti Podder , , "Contribution from Outsourcing of HR Functions Towards Innovation and Quality Improvement in Higher Education for Holistic Development of Society", *International Conference on Responsible Management Education - Key to Holistic Development of Society on 21- 22 October* organized by Dayananda Sagar Business Academy, Bangalore, 2016.
11. Suplab Kanti Podder , Mukesh Soni, "Factors that Influence Responsible Management Education towards HRM Ethics and its Practices in Respect of Educational Institutions in Bangalore", *International Conference on Responsible Management Education - Key to Holistic Development of Society on 21- 22 October* organized by Dayananda Sagar Business Academy, Bangalore , 2016.
12. Suplab Kanti Podder , Arun B K, "Comparison of Effectiveness of Employee Engagement Through Permanent Employees or Outsourced Employees", *National Conference on Changing Role of HRM - The Strategic Opportunities and Challenges* on 3 March , 2016.
13. Raylsona and NielsRöling (2007), "Challenges to science and society in the sustainable management and use of water: investigating the role of social learning", *Environmental Science & Policy*, 10(6), pp 499-511.