

An Impact of Human Value Course in Engineering Curriculum: A Case Study

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Abstract: The humanities and engineering are contradictory ends of a learning spectrum. However, now a days the human values are an important part and parcel of engineering education. Recent, one of the pioneer university in imparting technical education in India “Visvesvaraya Technological University” has been integrated the culture of human values and humanities in the course curriculum of their engineering programmes. The objective of the inclusion is to provide students with a humanitarian approach to technical education. The purpose of the course is to implant universal values in students so as to make them responsible human beings. With this, the present paper is an attempt to explore the significance of human values in the Engineering institutions. Human society may not meaningfully sustain without human values. Hence, it is essential to talk on the subject and bring about awareness of human values into the present engineering institutions. There is no denying the fact that the contemporary society is facing a lot of crises. Human values crises are a known fact of the modern society. In the present work, two groups of undergraduate students were chosen from an engineering college to test the efficacy of the course. One group was not exposed to the contents of this subject, while the other group undergone the same in their curriculum. Our objective is to evaluate the changes in values-understanding among the students who had been taught the Universal Human value (UHV) course. The influence of the UHV course was estimated by giving the same set of value-based questions to both groups. It was observed that the group of students who had learned the UHV course has marginally more clarity about human ambitions, targets, actions, and the purpose of life on the basis of frequency distribution analysis. The future aspirations of the present generation can be expected to be high human valued humans as the implant of values in the young minds. This would eventually lead to a more harmonious society in the course of a couple of decades.

Keywords: Human Values, Universal Human Values Course, Technical Education, Visvesvaraya Technological University, Case Study, Undergraduates, Engineering Institutions, Engineering Students

Introduction: Human Values are things that have an intrinsic worth in usefulness or importance to the possessor, or principles, standards, or qualities considered worthwhile or desirable. Human Values constitute a significant characteristics of self-concept and assist as managerial moralities for an individual. Human values are the qualities that guide us to take into account the human element when one interacts with other human beings. They are the many positive temperaments that create bonds of humanity between people and thus have value for all of us as human beings. They are our strong positive feelings for the human essence of the other. It's both what we expect others to do to us and what we aim to give to other human beings. These human values have the effect of bonding, soothing, reassuring and gaining peacefulness (Universal Human Values, AICTE, 2020). Human values are the foundation for any viable life within society; they build space for a drive, a movement towards one another, which leads to peace (Kolte, 2018 and Saxena and Sharma, 2022).

Human values monitor us to suitable courses of action. Human values pass from one generation to the next. Society wants humans with values. There are various versions of what is understood by universal human values, like civilization, which has qualities like decent, reality, gorgeousness, liberty, or

civility; a non-nuclear biosphere; environmental safety, etc. However, the attainment of such values is questionable (Sokolova, 1995). The same is notified by Shalom H. Schwartz (2006) except for human values, education and standards are linearly associated. The importance on understanding universal values starts in the last years of secondary school.

The values are anticipated to be extensively thriving among those who attend college. Thus, university education widens the prospects of human values education. It is obligatory to highlight the proposition that a harmonious society is equally as essential as an educated one. Research has found the pervasiveness of stress is increasing among students studying in higher education (Robotham and Julian, 2006). Study (Shanthini, 2018) summarized that the educational institutions should impart human values to teenagers so as to make them lead a health-giving human life. The higher education system should not just focus on a limited money-oriented perspective. The eventual pleasing education has to be based on necessary human values, without any content conflicting to the basic human values. It has to be in the form of applications that the student can explore on their own, verify the values within, and be able to see that living with these values leads to their own happiness. In this way, they can understand and accept fundamental values naturally and live up to them without external enforcement (Education Ministry, Government of India).

Researchers have been studied and analyzed the impact of UHV course at various levels in different institutions using different approaches. Schwartz, 2006 has been developed Portrait Values Questionnaire (PVQ) to measure how individuals from diverse cultures line up 10 universal human values. The facets of human nature and social functioning that figure out individual value primacies are extensively shared across cultures has been observed. Schwartz et al. (2012) summarized that the benevolence, universalism, and self-direction are the most important values of pan-culture, while power and stimulation are the least significant. PVQ was developed by Schwartz and his colleagues in 2001. Two versions are existing in which the original one comprises 40 portraits that defines values and shortened versions consists only 21 questions. Bouman et al. (2018) used a variant of the portrait value questionnaire to measure environmental beliefs. Gupta (2006); Sindhwani and Kumar (2013); Jindal (2013) and Debbarma (2014) enlightened the prominence of human values and the causes for unbroken deprivation of values. They emphasized the sturdy necessity for academic subjects related to human values to enhance the understanding of human values in present day generation. Shantini (2018) carried out studies on youths and observed that there is a close relationship between age and initiatives to enhance human values. Koshy et al. (2022) examined the level to which higher education fulfilment touches the significance of individual place on core human values. They summarized that the graduates had a higher value for relaxation and a lower value for faith as compared to non-graduates. The objective of the current work focuses on overview of the Universal Human Values course offered to the students in engineering institutions, effect of teaching the course to the students at undergraduate level and at the end the insights on the reasons of failure and possible solutions to improve the outcome of the UHV course.

Methodology: The descriptive study is conducted and it is confined to the population of undergraduate students considering a four year full time Bachelor of Engineering course at Ballari Institute of Technology & Management, Ballari an Autonomous Institute under Visvesvaraya Technological University, Belagavi, Karnataka State, India. Total 239 students participated and took the online test in the study. The students were divided in to two groups namely Group-A or With-UHV and Group-B or Without-UHV based on whether they had undergone UHV course as a part of curriculum. The students of 'With-UHV group had undergone a full time course on UHV in the 4th semester of their study that included a semester end examination. The other 'Without-UHV' group were the students of 8th semester, who had not been having UHV course in their curriculum of study. The total number of students responding in the 'With-UHV' group was 167, while in the other group there were 72 total responses received. The questionnaire comprises of 25 questions. The first 21 questions were derived from the Portrait Values Questionnaire (PVQ; Schwartz, 2003). The questions were re-framed to suit gender neutrality. The question numbers from 22 to 25 were drawn based on the UHV course taught to the students. The entire set of 25 questions given to the students is listed in Table 1 of Appendix - I. Each question is mapped to the ten values as per

the methodology suggested by Schwatz (2003). We have used Q12 and Q18 for the benevolence value, Q3, Q8 and Q19 for universalism, Q1 and Q11 for self-direction, measurement of stimulation with Q6 and Q15, Q10 and Q21 for hedonism, achievement by Q4 and Q13, Q2 and Q17 for power, conformity by Q7 and Q16, Q9 and Q20 for tradition. The participants were given to choose one of give options namely : 'Always (A)', 'Often (O)', 'Sometimes (S)', 'Rarely (R)', or 'Never (N)'. The frequency distribution and mode are the tools used to carry out descriptive statistical analysis. Hypothesis testing has been carried out using chi-squared statistics. The null hypothesis used in the study is “ H_0 : There is no significant relationship between learning UHV course and enhancement of understanding of human values”.

Results and Discussion:

The frequency distribution of question-wise responses is listed in Table 2. The mode of each question for the two groups is shown in Fig. 1. The clear-cut responses of type 'Always' to 'Never' are represented mathematically from 5 to 1 respectively in the graph. The ten human values in which each of the questions from Q1 to Q21 map to one unique value as mentioned by Schwartz (2003). The total number of participants given the response “Always” for each of the group of questions under these 10 values is shown in Fig. 2. The significance of UHV studies in undergraduate student's curriculum is listed in the contingency Table 3. The degree of freedom is 4. We have obtained a Chi-square test value of 12.24 and the value of 12.22 for the collected data. It has been concluded that there is a relationship between learning the UHV course and human-values understanding.

Further, the observations has been summarized as below:

- Group B/without UHV felt that 'sometimes' it is important to be rich based on Q2 response to feel the power. Whereas the Group A/With UHV felt that it is always necessary to have a lot of money and expensive things. The difference in their opinion can be endorsed that the Group B had been to industry for internship programme during their final year and due to which they understood the real world more than Group A participants.
- Based on response to Q4, it is evident that the Group A and Group B believed to show one's abilities and have people's admire to boost the value of achievement. Also 'sometimes' it is good to spoil oneself based on Q10 responses. It indicated that the Group A need to understand the real meaning of achievement and happiness, which will be obtained in the later stages of life.
- The universalism values have been understood by Group A participants. An average of nearly 5 % more persons in Group A who have given response 'Always' for the Q3, Q8 and Q19 questions associated with universalism human values.
- Group A gave better answers than Group B in Q22 to Q24 for the specific questions framed with respective to the UHV course. The students did not have as clear an understanding as the group B students. The reason is due to inadequate instances presented to them in their study for their lack of understanding.
- Group A participants have been understood the traditional values greater by nearly 14 % compared to other group students. It is evident that these students are very much closely interweave with their families due to which they strong religious beliefs.
- The importance of security was well-thought-out higher by 11 percent in the WithUHV group as compared to the With-out UHV group. It is concluded that the Group A thought the country and surroundings will be safe as they step-out in to the outside world. However, the Group B students felt that the nation and surroundings is not safe as they already faced the real-world challenges.

Table 2: Frequency Distribution of Responses

Q. No.	With UHV /Group A					Without UHV/Group B				
	A	O	S	R	N	A	O	S	R	N
1	65.06 %	23.88 %	7.24 %	0.00 %	0.00 %	65.06 %	23.88 %	7.24 %	1.23 %	0.00 %
2	31.94 %	29.59 %	29.59 %	3.97 %	2.25 %	31.34 %	22.79 %	32.89 %	1.57 %	3.59 %
3	61.53 %	15.47 %	10.52 %	3.97 %	5.66 %	61.16 %	24.23 %	5.14 %	1.23 %	6.67 %
4	11.94 %	30.76 %	36.65 %	9.89 %	8.14 %	19.97 %	21.26 %	29.37 %	20.62 %	8.01 %
5	69.59 %	20.18 %	6.96 %	1.16 %	1.16 %	50.35 %	29.37 %	13.15 %	3.59 %	1.23 %
6	36.65 %	34.29 %	24.61 %	3.35 %	0.00 %	24.23 %	40.45 %	26.98 %	1.57 %	1.23 %
7	31.94 %	37.82 %	22.53 %	4.17 %	1.16 %	30.08 %	29.37 %	24.23 %	12.06 %	2.60 %
8	57.72 %	29.41 %	11.66 %	1.08 %	0.00 %	40.89 %	38.19 %	14.68 %	2.60 %	1.23 %
9	52.94 %	28.41 %	14.29 %	1.08 %	3.35 %	31.43 %	43.14 %	14.68 %	8.01 %	1.23 %
10	14.89 %	28.41 %	36.65 %	10.39 %	9.31 %	18.29 %	27.83 %	32.34 %	13.86 %	5.14 %
11	43.88 %	43.71 %	8.41 %	1.16 %	0.00 %	37.48 %	40.45 %	16.12 %	3.59 %	1.23 %
12	48.59 %	36.65 %	11.67 %	1.16 %	0.00 %	40.89 %	40.45 %	14.68 %	1.23 %	1.23 %
13	68.41 %	17.82 %	12.94 %	0.00 %	0.00 %	57.11 %	24.23 %	13.15 %	1.23 %	2.60 %
14	30.68 %	39.00 %	20.18 %	6.96 %	2.25 %	26.03 %	36.84 %	20.62 %	10.18 %	2.60 %
15	47.24 %	41.35 %	7.87 %	2.25 %	0.00 %	50.35 %	32.23 %	13.15 %	2.60 %	0.00 %
16	30.76 %	30.76 %	21.35 %	7.02 %	8.14 %	24.86 %	35.94 %	32.34 %	1.23 %	3.59 %
17	36.82 %	36.65 %	20.01 %	2.25 %	2.25 %	35.49 %	32.87 %	13.15 %	9.36 %	6.67 %
18	50.76 %	35.47 %	10.49 %	1.16 %	1.16 %	57.11 %	24.68 %	10.18 %	3.59 %	1.23 %
19	36.65 %	41.35 %	17.65 %	2.25 %	1.16 %	40.45 %	32.34 %	13.15 %	12.06 %	1.23 %
20	69.12 %	23.71 %	5.87 %	1.16 %	0.00 %	56.67 %	35.94 %	6.67 %	0.00 %	0.00 %
21	33.12 %	37.82 %	26.06 %	1.16 %	0.00 %	35.49 %	38.89 %	20.89 %	2.60 %	1.23 %
22	30.95 %	34.29 %	27.24 %	4.17 %	2.25 %	22.79 %	31.05 %	33.68 %	8.01 %	3.59 %
23	41.25 %	36.65 %	17.72 %	1.16 %	1.16 %	34.14 %	37.48 %	20.62 %	3.59 %	1.23 %
24	35.67 %	37.82 %	17.72 %	5.66 %	1.16 %	27.83 %	32.89 %	28.28 %	5.14 %	3.59 %
25	35.92 %	40.48 %	16.65 %	4.17 %	2.25 %	34.14 %	27.03 %	28.28 %	8.01 %	1.23 %

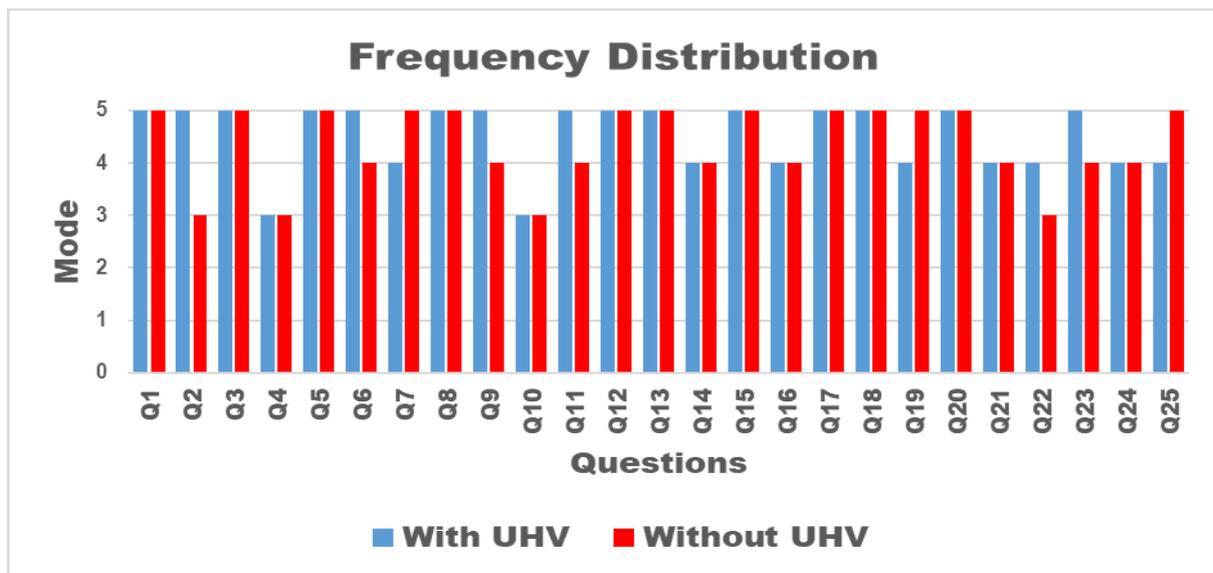


Fig. 1 : Modes for each question of a questionnaire

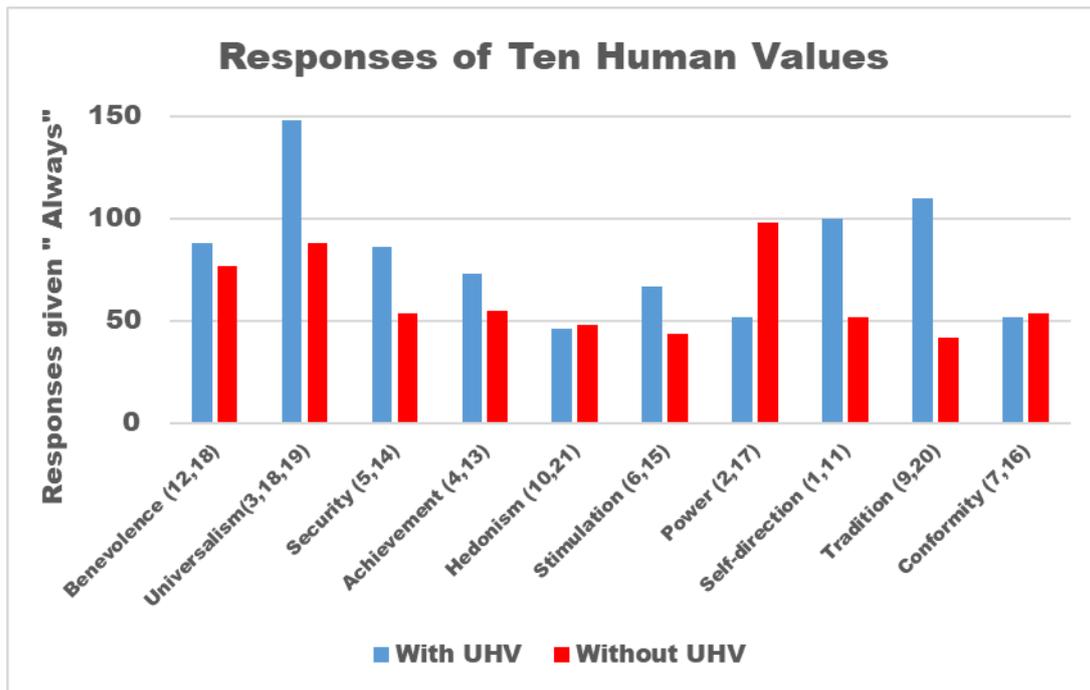


Fig. 2 : Responses of Ten Human Values

Table 3. Contingency Table for UHV Course and values responses

	Always	Often	Sometimes	Rarely	Never	Total
Group A/ With UHV	87	45	28	04	03	167
Group B/ Without UHV	32	23	12	03	02	72
Total	119	68	40	07	05	239

Conclusion: The survey on UHV course has been conducted as it has the capacity to change the human values of young generation. It has been summarized that the course has potential to change the thinking and behaviour of participants. It is evident that the students would be moulded in to better humans, leading to harmonious universal values on a long term basis based on the observations obtained from survey, analysis and compiling of the overall results. The course places forward the thoughts as proposals, and the student, after self-verification and self-validation, can accept them. This would ultimately help each individual and, in turn, the entire human race understand the values of humans.

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APPENDIX-I

Table 1: Questionnaire for participants

Q. No.	Question
1	Thinking up new ideas and being creative is important to me
2	It is important for me to be rich and have a lot of money.
3	I believe that every person in the world should be treated equally.
4	It is important for me to show my abilities. I want other people to admire what I do
5	It is important for me to live in a safe and secure surrounding.
6	I love surprises and I want to try something new.
7	I believe that I should obey rules even when no one is around.
8	It is important for me to stay humble and modest.
9	I believe in listening to people who are different from me and try to understand them
10	Having a good time is important to me. I like to 'spoil' myself at times.
11	I prefer to make my own decisions and do what feels right to me.
12	I like helping people around me.
13	Being successful is important to me.
14	It is important for me to ensure that the government is taking care of my safety concerns
15	I want to take up new adventures and want to live an exciting life.
16	It is important for me to behave properly at all times and not do anything that people consider wrong
17	It is important for me to earn respect from others.
18	Being loyal to my friends is a priority in my life.
19	I try to follow my traditional values and customs that my family and society have endowed on me.

- 20** I strongly believe that we should care about nature.
- 21** It is important for me to do things that give me pleasure.
- 22** I believe that: I want to make others happy and others also want to make me happy. But maybe we lack competence (or way to express).
- 23** I believe that: If my “self” is in harmony and in happy state, then i can make others also happy like my family, society and rest of nature.
- 24** I believe that: “I” am coexistence of “self” and “body”. My body is a tool to help “self”. Self is the core of my existence.
- 25** I believe that: My happiness is dependent on only me. The external factors can trigger in me momentary happiness or unhappiness, but if my “self” is happy, I can ensure continuous happiness.