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[Field Research]

Students' Perspectives (Stream-Wise) of Parameters Affecting Education Quality in an Affiliated Undergraduate Engineering Institution

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Abstract

Purpose - This study examines students' perspectives (stream-wise) of parameters affecting education quality in an affiliated undergraduate engineering institution in NCR, Haryana.

Research design, data, and methodology - This study involves descriptive research and data collection using a structured questionnaire based on the Likert scale. The sample comprises 500 student respondents. For data analysis, an *t*-test was performed using high quality SPSS software.

Results - For "Selection" and "Personality Development & Industry Exposure," the analysis of variance revealed a statistical difference between the mean values of the groups. Whereas, for "Academic Excellence," "Infrastructure," "Placements," and "Management & Administration," the analysis of variance revealed no statistical difference between the mean values of the groups.

Conclusions - Students' perceptions about the "Selection" and "Personality Development & Industry Exposure" change according to the various specializations they opt for in their undergraduate engineering education in Haryana. Whereas, for "Academic Excellence," "Infrastructure," "Placements," and "Management & Administration," the perceptions of the students do not vary because of the different specializations they have opted for in their undergraduate engineering education.

Keywords: Engineering, Higher Education, Private Technical, Technical Education, Quality Education.

JEL classifications: I12, M31, M39, Q13.

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1. Introduction

Quality education is a package which means (a) conforming to comparable standards with innovative approach (b) fulfilling the academic intellectual requirements with optimal degree of excellence (c) adequate capability to consistently cope with the demands of the world of work & scope for employability (d) development of innate qualities to optimum level (e) satisfying the stake holders as per social expectation(Neeraj et al., 2013).

To ensure quality every institution should have a road map of its own. This road map must contain vision and mission statement, quality of policy details, and programmes of action supported by constant review and monitoring. To ensure quality every higher education institution should have sufficient infrastructure, learning resources, academic environment, competent dedicated teaching faculties with due, status, need based curriculum design and planning with diversity and flexibility. There must also be provision of appropriate teaching learning experience, use of technology and provision of facilities to promote research or extension related activities.

Higher education will become both repository and creator of knowledge. It will become the driving force of economic development and local point at learning in the society. Due to liberalization and privatization in education sector the nonqualified institution will automatically die down. University no longer will have the monopoly of higher learning. National system of higher education will become varied and complex. Besides, a large number of satellite institutions will come up to supplement the needs for higher education.

Given that we need to compete globally in the 21st century, our education system should adopt certain benchmarking techniques for improving instruction models and administrative procedures in universities/colleges to move forward. We need a thorough study and evaluation of models implemented elsewhere and work out strategies to adopt such models in our system. Benchmarking would provide benefits to our education system in terms of reengineering, setting right objectives, etc. The country is showing consistency in economic growth pattern, leading the

world in terms of information and technology, modernization, various economic activities and pushing for higher share of industries and services sectors of the economy but there is one area which needs reform is "education system". While it is true that some investments are taking place in the country's higher education system, we are yet to establish world class research facilities, recruiting profound academicians in universities/colleges/research institutions, etc. to sustain and forge lead in economic development. It is important to understand that countries like China, Singapore, South Korea, etc. are moving fast in investing in education system. Therefore, it is imperative that our educational institutions are equipped with the desired quality and standards which are essentials for transforming the younger workforce into productive ones. Needless to reiterate that in the higher education system focus on use of technology for effective learning by students also need to be encouraged to have cutting edge over our competitors in the globalised world.

1.1 Implications for Higher Technical Education

Deming, Juran and Crosby may be given the credit of developing the vocabulary on quality management (2012). All three concentrated on quality in the manufacturing, but their contribution can be applied to education sector including education. Higher education institution can learn a great deal from these ideas. We can summarize a few points as under:

- Leadership and commitment of top management plays a significant role in quality improvement.
- Creating an environment for learning and staff development is crucial to do task right every time.
- Adopt new philosophies and technologies that can improve the quality.
- Encourage teamwork and participatory management.
- Develop a communication strategy to report progress and results.
- Recognize the efforts of staff without creating a competitive environment.
- Put appropriate systems and processes in place as per the needs of the stakeholders.
- Encourage quality circles and a culture of quality.

2. Literature Review

Sharma & Goswami (2013) in the study, an effort has been made to analyze the role of FDI qualitatively for sustenance of Quality in Higher Education in India and all over the globe. The study concluded that FDI will be an important tool for development quality and its sustenance in the realm of higher education, particularly for the developing and the poor nations as well as the developed States all over the globe. FDI also brings international cooperation, develop friendship between two nations and in nutshell brings peace to the humanity.

Mohan & Sudarsan (2013) the study attempts to aggregate the academic ambience prevailing in a case institution of higher education with an aim to identify the areas of shortcomings that can aid the management to focus their efforts on improvising the ambiance. The study concluded that the current investigation is a part of other major expectations in the field of higher education in India. The experience throughout the current investigation and competitions had been accelerating providing insights into the perceptions of students undergoing higher education in an institution of repute.

Melissa (2013) the objective of the study was to identify the need for a program in either soft skills or personality development at the professional colleges. The study concluded that there is a direct need for not only training the students in soft skills but also enabling the trainees to be professionally trained. This will ensure the effectiveness and success of any training programs. The management as well as the trainers and trainees would benefit if the organization send the trainers for training which is imperative for teachers in their mid-career, whose services are required to handle such courses in soft skills/personality development.

Uma (2013) the case study provides an insight into the process of eGyanKosh evolving from a digital repository to an OER repository. The study concluded that adoption of an OER policy will give further impetus to the university to evolve as a system leader on the ODL front. The concept of OER is very new to the country and is at a nascent stage of development. IGNOU will have to play a major role in building awareness about OER, and possibly help other ODL institutions in the country to adopt OER policies.

Levy (2008) The objectives of the study were to present the massive Indian case to a global audience and to provide global context within which Indians can analyze their private higher education. The study concluded that India's private proportion of total enrolment is roughly similar to the evolving global average. In regard to types of institutions, the private sector is especially concentrated in non-universities and in small institutions. Religious orientations are noteworthy, especially early on in a private sector's life. Elite academic universities are rare in private sectors, though the future could be distinct in both India and beyond.

Agarwal (2007) The study maps the growth of private higher education in India within the context of overall developments in Indian higher education and considers how current policy, legislative and social factors might shape itsfuture development. The study concluded that a pragmatic approach is required in the formulation of public policies to govern important components of higher education. Whilst appropriate regulations could help to eliminate profiteering and poor quality, all efforts to burden the overloaded regulatory bodies to maintain quality standards and ethical practices would be wasted unless accompanied by a clear understanding of the roles of private, public, and foreign provision in higher education.

Mishra (2007)The study aims at providing basic understanding of quality in general and its application to higher education in particular. The study clarifies various terms, modules and practices widely used in the context of quality assurance in higher education. The study concluded that quality assurance system leads to performance excellence and total quality management. Assuring quality is a continuous teamwork in which standards, benchmarks, and quality audit play a significant integrated role. Quality assurance has to be implemented internally though it is normally monitored/ assessed through external agency for accreditation.

Vohra & Nair (2007) The study is a response to one such call in which the authors describe an effort to restructure an engineering college in India. The study concluded that the educational institutions thrive on tradition and continuity and maintenance of the status quo is part of the cultural coding. Bringing about change goes against the implicit code, thus making change more difficult. Constant learning for the consultant by seeking help from the community of professionals (colleagues or accumulated knowledge available in books and journals) is just as important as for the consultant to coax the complex system to learn to unlearn and seek help to grow further.

Arora (2007) The research carried out tried to understand the decision making process of Indian students which would help the universities not only understand the Indian student better but give them an opportunity to tailor their marketing efforts in a way to attract and recruit more Indians and to target appropriate segments. The study concluded that if a positive word-of-mouth'alumni base is achieved, greater awareness levels will be achieved with potential students who in turn will be encouraged to pursue their higher education in the UK by this satisfied alumni base and ultimately add to this alumni base that will further spread and communicate the strengths and positives of studying in the UK.

Varshney (2006) The objectives of the study were to investigate the factors that lead to the current state of technical education in India and to suggest public policies that would rectify the situation. The study concluded that once the quality of engineering education in India increases to a suitable level, the flight to foreign engineering colleges should also subside, thereby solving the two major social ills associated with adverse selection in the engineering education market.

3. Research Methodology

The objective of the study is to examine the students' perspective (stream wise) of parameters affecting the quality of education in an affiliated undergraduate engineering institution NCR, Haryana. The research is a descriptive type of research in nature. The data has been collected with the help of Questionnaire Based Survey. The sample size for the study is 500 comprising of the students respondents. The sample has been taken on the random (Probability) basis and the questionnaire was filled by the students (pursuing B.Tech) chosen on the random basis from an affiliated undergraduate engineering institution in NCR, Haryana. The primary data was collected with the help of questionnaire and personal interview method from an affiliated undergraduate engineering institution chosen randomly. And the secondary data was gathered through the study of studies and research work carried out in the past. The area for the study is National Capital Region (NCR) and the institution to be studied is an affiliated undergraduate engineering institution in NCR, Haryana. The respondents are the students pursuing B.Tech who were selected randomly from the above said geographical area. For data analysis and results of the survey, *f* test was performed with the help of high quality software; SPSS.

4. Data Analysis and Interpretation

Applying *f* test (one way ANOVA)

<Table 1> Showing descriptive (stream wise) of students' sample

						95% Confidence Interval for Mean			
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Selection	Electronics & Communication	112	15.45	4.345	.411	14.63	16.26	6	30
	Computer Science	253	15.65	3.633	.228	15.20	16.10	6	30
	Information Technology	30	14.13	2.330	.425	13.26	15.00	10	20
	Mechanical	105	14.30	3.698	.361	13.58	15.01	7	28
	Total	500	15.23	3.793	.170	14.90	15.56	6	30

Academic Excellence	Electronics & Communication	112	38.76	10.580	1.000	36.78	40.74	15	75
	Computer Science	253	40.22	8.565	.538	39.16	41.28	19	75
	Information Technology	30	37.70	6.909	1.261	35.12	40.28	27	54
	Mechanical	105	37.93	8.809	.860	36.23	39.64	17	68
	Total	500	39.26	9.051	.405	38.46	40.06	15	75
Infrastructure	Electronics & Communication	112	82.17	22.265	2.104	78.00	86.34	32	160
	Computer Science	253	82.38	18.835	1.184	80.04	84.71	32	160
	Information Technology	30	83.80	14.705	2.685	78.31	89.29	57	124
	Mechanical	105	82.44	19.993	1.951	78.57	86.31	32	131
	Total	500	82.43	19.633	.878	80.70	84.15	32	160
Personality Development And Industry Exposure	Electronics & Communication	112	38.54	10.563	.998	36.56	40.51	14	70
	Computer Science	253	40.11	9.017	.567	39.00	41.23	20	70
	Information Technology	30	37.57	5.655	1.032	35.46	39.68	24	47
	Mechanical	105	37.01	8.554	.835	35.35	38.66	14	63
	Total	500	38.96	9.199	.411	38.15	39.76	14	70
Placements	Electronics & Communication	112	16.95	5.329	.504	15.95	17.94	6	30
	Computer Science	253	16.30	4.340	.273	15.77	16.84	6	30
	Information Technology	30	15.33	3.010	.549	14.21	16.46	10	23
	Mechanical	105	15.85	4.837	.472	14.91	16.78	6	29
	Total	500	16.29	4.629	.207	15.89	16.70	6	30
Management And Administration	Electronics & Communication	112	29.71	8.717	.824	28.08	31.35	11	55
	Computer Science	253	29.37	7.035	.442	28.50	30.24	14	55
	Information Technology	30	28.77	4.629	.845	27.04	30.50	21	41
	Mechanical	105	28.84	7.008	.684	27.48	30.19	11	45
	Total	500	29.30	7.313	.327	28.66	29.94	11	55

INTERPRETATION: For each dependent variable (e.g. Selection, Academic Excellence, Infrastructure, Personality Development & Industry Exposure, Placements and Management & Administration) the descriptive output gives the sample size, mean, standard deviation, minimum, maximum, standard error, and confidence interval for each level of the independent variable. The numbers of respondents from various streams are as follows: Electronics & Communication (112), Computer Science (253), Information Technology (30), and Mechanical (105).

<Table 2> Showing ANOVA (stream wise) for students' sample

		Sum of Squares	df	Mean Square	F	Sig.
Selection	Between Groups	178.166	3	59.389	4.208	.006
	Within Groups	7000.384	496	14.114		
	Total	7178.550	499			
Academic Excellence	Between Groups	517.832	3	172.611	2.121	.097
	Within Groups	40364.368	496	81.380		
	Total	40882.200	499			
Infrastructure	Between Groups	64.656	3	21.552	.056	.983
	Within Groups	192269.752	496	387.641		
	Total	192334.408	499			
Personality Development And Industry Exposure	Between Groups	815.142	3	271.714	3.255	.022
	Within Groups	41409.890	496	83.488		
	Total	42225.032	499			
Placements	Between Groups	96.310	3	32.103	1.503	.213
	Within Groups	10595.472	496	21.362		
	Total	10691.782	499			
Management And Administration	Between Groups	51.312	3	17.104	.319	.812
	Within Groups	26635.286	496	53.700		
	Total	26686.598	499			

INTERPRETATION: Following are the null and the alternate hypothesis:
H0: μ Electronics & Communication = μ Computer Science = μ Information Technology = μ Mechanical
H1: not H0

Where μ represents the mean number of group

1. Selection: The p value is 0.006 which is smaller than the α level, so we reject H0. That is, there is sufficient evidence to claim that some of the means may be different from each other. Thus, analysis of variance revealed statistically difference between the mean number of the groups, where *F* (3, 496) = 4.208, *p* = 0.006, *M Serror* = 14.114, α = 0.05. The 3 is the between-groups degrees of freedom, 496 is the within-groups degrees of freedom, 4.208 is the F ratio from the F column, 0.006 is the value in the Sig. column (the p value), and 14.114 is the within-groups mean square estimate of variance.

2. Academic Excellence: The p value is 0.097 which is greater than the α level, so we fail to reject H0. That is, there is insufficient evidence to claim that some of the means may be different from each other. Thus, analysis of variance revealed statistically no difference between the mean number of the groups, where *F* (3, 496) = 2.121, *p* = 0.097, *M Serror* = 81.380, α = 0.05. The 3 is the between-groups degrees of freedom, 496 is the within-groups degrees of freedom, 2.121 is the F ratio from the F column, 0.097 is the value in the Sig. column (the p value), and 81.380 is the within-groups mean square estimate of variance.

3. Infrastructure: The p value is 0.983 which is greater than the α level, so we fail to reject H0. That is, there is insufficient evidence to claim that some of the means may be different from each other. Thus, analysis of variance revealed statistically no difference between the mean number of the groups, where *F* (3, 496) = 0.056, *p* = 0.983, *M Serror* = 387.641, α = 0.05. The 3 is the between-groups degrees of freedom, 496 is the within-groups degrees of freedom, 0.056 is the F ratio from the F column, 0.983 is the value in the Sig. column (the p value), and 387.641 is the within-groups mean square estimate of variance.

4. Personality Development and Industry Exposure: The p value is 0.022 which is smaller than the α level, so we reject H0. That is, there is sufficient evidence to claim that some of the means may be different from each other. Thus, analysis of variance revealed statistically difference between the mean number of the groups, where *F* (3, 496) = 3.255, *p* = 0.022, *M Serror* = 83.488, α = 0.05. The 3 is the between-groups degrees of freedom, 496 is the within-groups degrees of freedom, 3.255 is the F ratio from the F column, 0.022 is the value in the Sig. column (the p value), and 83.488 is the within-groups mean square estimate of variance.

5. Placements: The p value is 0.213 which is greater than the α level, so we fail to reject H0. That is, there is insufficient evidence to claim that some of the means may be different from each other. Thus, analysis of variance revealed statistically no difference between the mean number of the groups, where *F* (3, 496) = 1.503, *p* = 0.213, *M Serror* = 21.362, α = 0.05. The 3 is the between-groups degrees of freedom, 496 is the within-groups degrees of freedom, 1.503 is the F ratio from the F column, 0.213 is the value in the Sig. column (the p value), and 21.362 is the within-groups mean square estimate of variance.

6. Management and Administration: The p value is 0.812 which is greater than the α level, so we fail to reject H0. That is, there is insufficient evidence to claim that some of the means may be different from each other. Thus, analysis of variance revealed statistically no difference between the mean number of the groups, where F (3, 496) = 0.319, p = 0.812, M Serror = 53.700, α = 0.05. The 3 is the between-groups degrees of freedom, 496 is the within-groups degrees of freedom, 0.319 is the F ratio from the F column, 0.812 is the value in the Sig. column (the p value), and 53.700 is the within-groups mean square estimate of variance.

5. Conclusions

For "Selection" and "Personality Development & Industry Exposure", analysis of variance revealed statistically difference between the mean number of the groups. Thus it can be inferred that the two samples (stream wise) have varied perceptions with respect to the above parameters. While for "Academic Excellence", "Infrastructure", "Placements" and "Management & Administration", analysis of variance revealed statistically no difference between the mean number of the groups. Thus it can be inferred that the two samples (stream wise) have same perceptions with respect to the above parameter.

It can be inferred that the students' perceptions about the "Selection" and "Personality Development & Industry Exposure", does change according to the various specializations they opt for the undergraduate engineering education in Haryana region. While for "Academic Excellence", "Infrastructure", "Placements" and "Management & Administration",the perceptions of the students does not vary due to the different specializations they have opted for undergraduate engineering education. The similar kind of study could be conducted for studying the students' perspective (age wise, gender wise and year wise) of parameters affecting the quality of education in the same affiliated undergraduate engineering institution.

References

Agarwal, Pawan (2007). *Private Higher Education in India: Status and Prospects*. New Delhi: The Observatory On Borderless Higher Education.

Arora, Vikas (2007). International students' motivations for studying in UK Higher Education: Understanding choice and decision making process of Indian students. MA Dissertation, Nottingham University.

Dharini, S., Deepa, Mohan, & Sudarsan, N (2013). Assessment of Factors Influencing Academic Performance in Higher Education, International Conference on Technology and Business Management.

Helen, Melissa (2013). Importance of Soft Skills Training in a Number of Professional Colleges. *Using Multi Media for Training in Soft Skills Training*, 13(03), 118-125.

Kanjilal, Uma (2013). Digital Repository to Open Educational Resource Repository: IGNOU's eGyanKosh, Open Educational Resources: An Asian Perspective, 221-230.

Levy, Daniel C. (2008). Indian Private Higher Education in Comparative Perspective, PROPHE Working, volume paper 13, 25.

Mishra Sanjaya (2007). Quality Assurance In Higher Education: An Introduction, National Assessment and Accreditation Council (NAAC) in collaboration with Commonwealth of Learning (COL), pp.1-101.

Sharma, Himani, & Goswami, Virendra K. (2013).Qualitative Approach for Sustenance of Quality Higher Education through FDI, International Conference on Technology and Business Management.

Varshney, Lav R. (2006). Private Engineering Education in India: Market Failures and Regulatory Solutions, 14.

Vohra, Neharika, & Nair, Nisha (2007). Bringing about Changes at a Large Engineering College: Lessons for Designers and Implementers of LargeScale Change Efforts, W.P., May issue, 1-28.