

Chapter – 3

Research Methodology

The present study focuses on exploring perception of students for their teachers and staff in context of teaching-learning activities including curriculum, pedagogy, and assessment. The study is both descriptive and exploratory in nature. The study is empirical and both sources of data; primary and secondary have been used to understand the perception of students of the selected university and registrars / vice chancellors in India to understand the current HR practices in the selected higher education institutions. The secondary sources of data are: text and reference books, journal articles, and periodicals. A variety of electronic database has also been used in the study like, Elsevier, Springer, Emerald insight, to name a few. A conceptual model has been developed on the basis of available literature and the perspectives are understood in the higher education set up.

The study that is conducted to fulfil the objectives of the study is descriptive and exploratory in nature. Considering the nature of descriptive study - where insights are gathered about a phenomenon based on which decisions are taken – limits itself to the fact as why the phenomenon took place remains unfolded. To unfold this, exploratory study is conducted to gain deeper insights into a problem so that the investigation is more robust and supported by facts. Descriptive analysis has been carried to analyse demographic variables like age, gender, medium of instruction of respondents, name of the faculty of respondents, their level of education. Exploratory research has been conducted to fulfil other objectives of the study where the registrar/ vice-chancellor of the selected university is asked about whether there is any possibility of using the HRSC in higher education institution. It is also understood what the possible challenges could be in implementing the HRSC in higher education institutions.

Research Design

The study is empirical in nature. The research design has the following variables.

Independent variables under the study

The study has the following independent variables. Age, gender, medium of instruction, program or course, awareness about ranking and grading of the selected university.

Dependent Variables under the study

The dependent variables under the study are Curriculum Appropriateness, Tech-pro teachers, Soft skills and Technical skills of teachers, Leadership qualities of teachers, Soft-skills of non-teaching staff, Teacher Engagement and Teaching Pedagogy, Improvement in 'Perception of teachers' from the current position among various areas, and Ability enhancing tools.

Sampling Plan

Target Population

Students are the major stakeholders of any higher educational institution as they play a pivotal role in deciding the fate of their institution. The satisfaction of students with regards to various dimensions that have been considered for the study, contribute to satisfaction of students that leads to improved ranking and grading of educational institutions. Hence, students at the Maharaja Sayajirao University of Baroda (MSU), Vadodara, Gujarat, are considered as respondents to fulfil objectives of the study. Students are selected from 13 faculties across the M.S. University. The sampling technique that has been used for deciding the sample is quota sampling.

Research Methodology

Research design is exploratory and descriptive in nature. This research explores the research subject and probability of its application in HEIs.

Sample: The Maharaja Sayajirao University of Baroda (MSU) has been taken as the university for the purpose of the study.

Population: All universities in India.

Sample Unit: A university that is multidisciplinary having a variety of faculties and departments.

Sample size: One selected university with all faculties and departments.

Data

Sources of data collection

Primary sources: Primary data sources are expert interviews; survey of teaching and non-teaching staff was conducted through students by pre-tested questionnaires.

Secondary sources: Secondary data source are government reports, websites, journals, Shodh Ganga website, books, magazines, newspaper articles etc.

Data analysis

Descriptive analysis of data and inferential techniques are used to find certain causal relationships between dependent and independent variables. Factor analysis

technique has been used to understand factors responsible for implementation of HR Scorecard and challenges to implement the concept.

Sample Size Determination

In this study, students from various faculties/ departments from the Maharaja Sayajirao University of Baroda have been considered as respondents. For selection of these respondents, quota sampling has been adopted. Further, target respondents i.e. students have been selected by the researcher who have attended classes in both online and offline modes of teaching.

Basis of quota sampling

The quotas of target population in this study are being fixed based on the number of students that are studying in the respective faculties. The quota size for a larger faculty is more (viz. Arts, Science, Engineering and Technology, and Commerce), and other faculties/ departments is less based on the number of students. However, the samples from faculties are chosen freely by the researcher. Thus, the sampling is uncontrolled quota sampling (Simkus, 2022), and (Dudovskiy, 2011).

Table 2

Faculty-wise Frequency Distribution of Respondents

S. No	Name of the faculty	Selected sample
1.	Faculty of Arts	203
2	Faculty of Engineering and Technology	292
3	Faculty of Science	203
4	Faculty of Commerce	299
5	Faculty of Performing Arts	105
6	Faculty of Social Work	100
7	Faculty of Journalism and Communication	52
8	Faculty of Management Studies	97
9	Faculty of Law	142
10	Faculty of Family and Community Sciences	127
11	Faculty of Education and Psychology	168
13	Faculty of Pharmacy	60
14	Faculty of Fine Arts	101

Total sample collected= 1949 students

According to Krejcie and Morgan formula, the sample size should be 1491 at 95% confidence interval. The sample size would be rounded to 1500.

For the study of objective no. 1, the target population is registrars/ vice-chancellors of universities in India. To carry this out, convenience sampling method is used, and the following universities are considered after they showed their willingness

to participate in the study (Sansanwal, 2020). All the three zones have been covered except South. The universities are shown in Table 3.

1. Sardar Patel University, Mandi, Himachal Pradesh, (North zone)
2. Himachal Pradesh University, Summer Hill, Shimla, Himachal Pradesh, (North zone)
3. Delhi Pharmaceutical Sciences and Research University, Delhi, (North zone).
4. GSFC university, Vadodara, Gujarat (West zone)
5. Assam Don Bosco University, Assam (East zone)
6. Cotton University, Guwahati, Assam (East zone)
7. Mahapurusha Srimanta Sankaradeva Viswavidyalaya, Nagaon, Assam (East zone).
8. St. Xavier's University, Kolkata (East zone)
9. The Maharaja Sayajirao University of Baroda.

Table 3

Details of Respondent Universities

Name of the university	Type of the university	NAAC Grade/ NIRF Rank	Zone	State
Himachal Pradesh University, Summerhill, Shimla	State government university	A	North	H.P.
Sardar Patel university, Mandi	State government university	No grade	North	H.P.
The Maharaja Sayajirao university of Baroda	State government university	A+	West	Gujarat
Gujarat State Fertilizers and Chemicals Limited	Private university	A	West	Gujarat
Assam Don Bosco University	Private university	A	East	Assam
Cotton University, Guwahati	State government university	A++	East	Assam
Mahapurusha Srimanta Sankaradeva Viswavidyalaya	Private university	No grade	East	Nagaon, Assam
Delhi Pharmaceutical Sciences and Research University	State government university	No grade/ 22 NIRF ranking in Pharma category	North	Delhi
St. Xavier's university	Private Jesuit University	A++	East	Kolkata

Data Collection

Data source

The study is conducted using both primary and secondary sources of information. The primary source of collecting information is from all students of 13 faculties/ departments who have attended both online and offline modes of study. The rationale behind considering the online mode is because future of learning is going to be hybrid learning (Dutta, 2020).

Tool for collecting the data

Data is collected through the instrument i.e. questionnaire. However, students wished to give data per their convenience, so other than the hard copy they demanded an e-questionnaire. Therefore, google link was given to them through email. As people are more active on social media nowadays like WhatsApp, twitter, and other forms of social media so on the request of respondents, google forms were circulated through mail and WhatsApp, and it was observed that response rate was quicker on WhatsApp than getting the responses manually.

Data Collection instrument

The research instrument developed for the study is a self-structured questionnaire that is developed by going through the extensive literature review. By going through the literature review, various independent and dependent variables are identified and decided to be used for this study. The self-structured questionnaire tries to fulfil the objectives of the study. Content validity and reliability have been done thoroughly during the pilot study.

Development of the instrument for collecting data

The instrument for collecting data is mainly developed to understand the perceptions of students towards certain dimensions that enhance their satisfaction. For developing the instrument, extensive research is done with the help of literature available.

The reliability of the instrument for internal consistency for the items that are on a 'summated rating scale' viz., curriculum appropriateness, and tech pro teachers etc. is reliable which is validated through Cronbach's alpha. Reliability of other items is checked and validated through the value of Cronbach's alpha.

Biographical information details

This section entails biographic information of students of various faculties. The information begins with age, gender, medium of instruction, name of the faculty they belong to, highest degree till date, and whether they are aware of the ranking and grading of the university in NIRF and NAAC respectively.

Questionnaire details

Questions are framed after extensive study of available literature that includes articles, periodicals, newspapers etc. Questions 1 to 5 cover demographic information. Questions 6- and 7-gauge awareness about ranking and grading of the M.S. University.

The National Education Policy, 2020 (NEP), stresses upon the importance of curriculum and pedagogy for teachers. So, question no 8 explores the perception of students towards 'Curriculum' and 'Teachers'. The last three items are regarding opinions that are sought from students.

New vistas as seen in the NEP, 2020, and other available literature congregates everyone's attention towards new changes in curriculum, pedagogy, and assessment. During pandemic, online teaching became the need of hour and new normal. Online teaching brings in new challenges for teachers every day. However, the question is whether they possess certain traits that are essential for both online and offline teaching?

Instrument for measuring perception of students about teachers

All items have been measured on a 5- point Likert scale. The questionnaire has been constructed by reviewing the literature on NEP, 2020 and other forms of literature.

Question 9 has 32 statements where certain traits of teachers are mentioned on a formative scale and to what extent do students agree or disagree with them. As the online teaching has set in post pandemic, students expect their teachers to possess certain skills that engage them in both online and offline modes of teaching. After the exhaustive literature that was available where certain traits which should be possessed by the teachers, 32 such traits have been listed. A few suggestions have been asked at the end of this question to know the opinion of students regarding the same. Suggestions from students would really help to plug in the loopholes.

Question 10 entails certain dimensions on pedagogy and engagement of students by their teachers. Teachers play a crucial role in shaping the career of students. Students come to universities with different abilities and learning needs. It is teachers who identify those learning needs and align their teaching so that students' needs are met. Keeping students engrossed throughout their sessions is done through effective pedagogies. Keeping in mind what students want from their teachers, 17 most relevant and important items have been extracted considering National Assessment and Accreditation Council (NAAC), National Institutional Ranking Framework (NIRF), NEP, 2020. The last 8 items are asked as suggestions.

Question 11. Research suggests that it is very important to deliver the right information with right skills to students. The NEP, 2020, has rightly pointed out the significance of soft skills among students. This question was framed to empirically test 9 items against the biographical information of students.

Question 12 was framed to understand the gap between current position of the faculty and highlighting the areas which could have been better. It will further be empirically tested and found out what are such areas that need improvement.

Question 13 encapsulates what the reasons for are enhancing various forms of students' abilities. The available literature suggest that curriculum, pedagogy, and assessment are three pillars for any educational institution. Students were asked questions on which abilities are enhanced through curriculum, pedagogy, and assessment. The empirical testing will show us what contributes the most to enhancing students' abilities and where lies the gap where some intervention needs to be done.

Question 14 As teachers play an important role in building an institution, so does the staff. The importance of non-teaching staff contributing to the growth of an institution cannot be undermined. This question addresses how staff helps students resolve their queries and problems. Teachers address the academic issues and staff addresses the non-academic issues. Table 3. Dimensions in questionnaire, with a brief information regarding measures and scales.

Table 4

Dimensions, Measures, and Scales used in the students' perception towards teaching and non-teaching staff questionnaire

S. No.	Dimensions	Measures	Scales used
Q 1-4.	These represent the biographical information of respondents	Descriptive analysis and hypothesis testing	Independent variables
Q 5-6.	These represent awareness about ranking and grading	Descriptive analysis and hypothesis testing	Independent variables
Q7.	Perception of students towards the following:	14 items on a 5-point Likert scale Factor analysis has been conducted on the same. 2 components have been extracted.	Reflective: Summated Rating Scale No items dropped.
Q8.	Teachers' Traits	32 items on a 5-point ordinal scale	Formative scale

Q9.	Teacher engagement and Pedagogy	17 items for teaching engagement and pedagogy.	Formative scale
Q10.	Feedback on Teachers' leadership skills	8-items/ statements on measuring leadership qualities of teachers.	Formative scale
Q11.	Questions for betterment of the faculty	21 items	5-point ordinal scale
Q12.	Teaching-learning processes	14 items	5-point ordinal scale
Q13.	13 items for non-teaching staff		Formative scale

Table 5

Dimensions, Measures, and Scales used in the Vice-Chancellors and Registrars questionnaire

S. No.	Dimensions	Measures	Scales used
Q1-Q8.	Demographic information	Used for descriptive analysis	
Q9.	In which areas is training given to the newly appointed teachers?	Used for descriptive analysis	Multiple select questions
Q10.	Does university provide training to its teaching and non-teaching staff in following areas?	Used for descriptive analysis	Multiple select questions
Q11.	What are sources of funds spent on faculty development programs?	Used for descriptive analysis	Multiple select questions (MSQ's)
Q12.	Does university collaborate with any of the following to improve teaching and teachers' knowledge?	Used for descriptive analysis	5-point ordinal scale
Q13.	Factors responsible for enhancing motivation among teachers	Used for descriptive analysis	5-point ordinal scale
Q14.	Frequency of teachers going to Human Resource Development centres	Used for descriptive analysis	MCQ's
Q15.	Student-teacher ratios	Used for descriptive analysis	MSQ's
Q16.	Competencies of teachers	Used for descriptive analysis	5-point ordinal scale
Q17.	Factors responsible for return on investment	Used for descriptive analysis	MSQ's
Q18.	Measuring teachers' performance	Used for descriptive analysis	MSQ's
Q19.	Attributes of teachers	Qualitative analysis	Open-ended

Instrument Validity Procedures

Validity: There are four types of validity that can be conducted to test the validity of an instrument. The four types of validity are: content, concurrent, construct, and predictive. However, predictive, and concurrent validity put together form criterion validity. To validate this instrument, the researcher has considered content and construct validity. Content validity ensures that the content that is required to be included in the instrument is there. The construct validity refers the degree to which test or assessment measures the concept or construct. In other words, it refers to the internal consistency of observed variables. The validity of the instruments has been sought by the guiding faculty and a few experts their respective fields. The experts whose opinions were considered were: Dr. Mani (Professor, department of Education and Psychology, M.S university, Baroda, Dr. Ramesh G. Kothari (former Dean, faculty of Education and Psychology, Retd. as Vice-chancellor from Veer Narmad South Gujarat university, Surat. Another expert to validate the instrument was Mr. Abhinav (Centre Director at August Educare, Vadodara).

Table 6

Reliability Test

Construct	Instrument	Cronbach's Alpha	
		Pilot study	Complete data
Curriculum Appropriateness	Likert Summated Rating scale	.862	.827
Tech-pro teachers	Likert Summated Rating scale	.803	.786

Statistics used for data analysis

Descriptive statistics has been used by the researcher to gather information about the respondents' demographic information in detail. The data has been assumed to be normal in the current study as 5-point Likert scale has been converted into interval scale.

Table 7

Statistics used in analysis

Type of data analysis	Analysis type	Parametric	Non-parametric
Hypothesis test	Univariate	One-sample t test	Chi-square test.
	Bivariate	Two-independent sample t test	
	Multivariate	ANOVA	
Factor Analysis	Exploratory Factor Analysis Extraction Method: Principal Component Analysis		
Descriptive	Mean, standard deviation, Frequency, Percentage		

Parametric and non-parametric tests have been applied to understand the relationship between independent and dependent variables. Cross tabulations have been done to understand the relationship between dependent and independent variables.

Delimitation of the study

The study has been limited to Vadodara and to The Maharaja Sayajirao university of Baroda, Vadodara.

Limitations of the study

The current study will be applicable to all the public universities. The cultural and other factors may be different in private universities. Hence, another such survey for students could be conducted for private universities. No university was considered from south zone for the purpose of data collection.

Managerial implications under this study

Though the study is not based on the corporate background but the higher education institutions that are struggling to get place in the elite list of world class universities will have to be managed like a company and hence a paradigm shift to manage the higher education institutions staff like an employee of an organisation will unfold the story of success to become world-class institution.

Future Scope of the Study

The future study can be conducted in other geographical locations other than Gujarat, where the population would be different and so will be their perceptions. Another study can be conducted to create and apply a tailor-made HR scorecard that is best suited for the university selected pan-India. A future faculty-wise study can be conducted which would probe into all faculties of the M.S. University and comparisons would be drawn.

Statistical Tools and Techniques

Researcher has used both descriptive and inferential statistical analysis for the current study. According to Donaldson (1968), if the sample size is $n > 30$, normality can be assumed. Based on this, the researcher has assumed the data to be normal. Descriptive statistics has been used to reveal the demographic profile of respondents. Inferential analysis has been used to analyse the data using dependent and independent variables.