

**APPLICATION OF HR SCORECARD IN HIGHER  
EDUCATIONAL INSTITUTIONS IN INDIA: A STUDY  
OF A SELECTED UNIVERSITY**

**Synopsis of the Ph. D. Thesis**

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**The Maharaja Sayajirao University of Baroda**

**Vadodara-390002**

**JANUARY 2023**

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## **Introduction**

During pre-independence era, Indian education system was guided by Britons through enactments of Acts and formation of various commissions. These actions were responsible for bringing in structural reforms through formation of various universities and introduction of professional and vocational education. They further stressed on many aspects of higher education viz., need and finance of university education, upliftment in standards of teaching and learning, improving standards of higher education, setting up of more universities in India so that education is spread throughout the country, providing autonomy in higher education, bringing in quality in higher education and need for technical education in universities, segregation of education into two: Centre/ Federal and State/Provincial, need of vocational education and formation of UGC and hiring of capable faculty who can raise the standards of teaching and improvement in teachers' salaries (UGC, 1985).

In post-independence India, the status of higher education improved in terms of size and system. India is third after US and China in size of higher education. Post-independence the government took interest in human resource development in a bid to have socio-economic development of India. Consequently, some committees and commissions were formed that investigated the then existing education system of the country, many aspects of teachers, students, infrastructure, and research facilities etc. which resulted into India Educational Plan (1986).

At present student enrolment and strength of teachers have increased. Ways and methods of teaching learning have changed drastically from conventional methods to a more sophisticated methods with the aid of technology. Hence, in the changed scenario there is a need to overhaul the education system just not by providing structural changes, but also having high level of human resource management interventions for organisation change and development. However, it has been observed that majority of committees and commissions on higher education gave priority to structural changes rather than Human Resource Management practices. It was further observed that a few functions of HRM were considered in bits and pieces by some committees and commissions. There was a recommendation to form a separate Human Resource unit in the IIT's.

The process of attracting, developing, and retaining able employees to meet organisational goals, objectives and vision of the organisation is called as Human Resource Management (Bhattacharya, 2007) and when its activities are carried out by keeping goals

and objectives of organisation it is known as Strategic Human Resource Management. With strategic HRM both employees and organisations get benefitted. The most popular method to carry out strategic human resource management is to have the HR scorecard in place which is based on Balance Scorecard Method introduced by Norton and Kaplan in 1992 (Kaplan & Norton, 1992). The pioneers of the HR scorecard are Brian Becker, Mark Huselid, and Dave Ulrich (Becker, Huselid, & Ulrich, 2001). The HR scorecard measures management performance by considering current workforce, their engagement and commitment to the organisation, followed by the outcomes of the workforce. The HR scorecard is formulated to achieve organisational goals by assessing SWOT with respect to HRM. The four perspectives which are considered in the HR scorecard are customer service, learning and growth, internal processes within organisations and maximising profit considering time and cost of organisations which can be achieved by fixing the targets, assigning tasks, defining measures of success.

The educational institutions at least in India have not tried this new concept may be due to lack of time, money, energy and will power. However, changed aspirations of educational institutions require strategic guidance to achieve NAAC (National Assessment and Accreditation Council) grading (National Assessment and Accreditation Council, n.d.), NIRF (National Institute Ranking Framework, n.d.) ranking, global ranking, to become global leader and to become centres of excellence. To achieve these targets the educational institutions require gaining a competitive edge over the competitors by continuously developing employees' core skills by training and development initiatives. HR scorecard thus will be helpful in achievement of strategic goals by improving employee competencies and behaviour with respect to goals, policies and activities that are cost effective.

To achieve the foregoing goals through HR scorecard, organisations need to refocus on HRM practices that are performance oriented. Thus, implementation of HR Scorecard means - create a vision for the organisation where strategy influences HR decisions which are precise and focused. HR Scorecard measures contribution of HRM Department in success of an organisation's financial performance. However, successful implementation of HR scorecard requires equal contribution of line managers as well as that of HRM department. The change in system to shift to HR scorecard will make employees resist changing but they need to be trained and communicated so that the system will give their organisation a boost and competitive edge over their competitors.

## **The problem Statement**

The 21<sup>st</sup> century started with a focus on development w.r.t. technology and human beings and this calls for a paradigm shift in treating men, machines and methods.

The newly found obsession of Indian govt. (HRD Ministry) and Higher education institutions towards competition and ranking has led the stakeholders of higher education to think differently viz., getting higher ranks in the elite list to get better resources than the competitors (HRD, 2016). The higher education institutions i.e. universities and colleges have been responsible to teach Human Resource Management concepts to organisations and students sans recourse their own institutions. This has led to absence of human resource management concept as a key for development and of development. The corporate world has changed the conceptual framework of human resource management from time to time that started from labour management to strategic human resource management. The required research was conducted in the institutions of higher education but higher education themselves neither participated in such conceptual framework to apply nor seemed inclined to change (Chatterji & Kiran, 2017). In India, the situation is still worse than its foreign counterparts. Indian universities and colleges hardly find any place in world ranking. Therefore, the Indian higher education institutions must ponder over the issues which make them lackadaisical to wake up to the issues and transform themselves to compete with the world class institutions. Normally, when the higher education institutions don't get a ranking in the global list year after year the so-called critical analysis starts and ends with "the Indian institutions lack research prowess and hence they lag behind the world". This sentence reflects the academicians and educationists' attitude with limited scope and identity.

There are many evidences that revealed that if human resource of an organisation is managed to fulfil the organisational objectives can turnaround the organisation to get competitive edge over their competitors. Moreover, an HR Scorecard gives a specific guide to improve organisational efficiency with four perspectives specifically: Learning and growth, customer, internal process w.r.t. vision and mission of the organisation and financial aspects. HR Scorecard is helpful to create value by focussing on strategy influenced by human resource decisions that are taken in a better and systematic way leaving room for ongoing changes.

The higher education institutions are vying for better ranking from various agencies. Hence the problem of this study was identified as “whether it is possible to apply HR Scorecard method to manage human resources in higher education to meet the vision and mission of the organisation and achieve competitive advantage over its peers?”

### **Rationale of the study**

Balanced Scorecard has been proved as a better measure of managerial performance irrespective of sector and type of industry. But the case is not the same with HR Scorecard. In current scenario the higher education institutions need to follow certain HR practices that will be responsible for attaining the required strategy of becoming the world-class institutions. HR Scorecard is the latest concept to guarantee the strategic success and hence the study is relevant to find out whether HR Scorecard is the right method to get the competitive edge through human resource management in higher education and if yes, how it can be achieved?

### **Literature Review**

#### **Higher education in India**

**Pre-independence:** Higher Education has been a subject of concern since pre-independence. Many Acts and Commissions were formed that provided impetus to Higher Education since then. As stated by Unhale (2006) in his study stated that Charter of East India Company (1813), Charter of (1833) and Wood’s Dispatch (1854) recommended formation of universities in Bombay, Calcutta and Madras followed by other recommendations viz. professional and vocational education, setting up a hierarchy for education starting from primary to secondary to colleges to universities and training of all teachers. Indian Education Commission popularly known as Hunter Commission (1882-83) under the chairmanship of William Hunter while stressing on the need for higher education, recommended how to finance universities education. Under University Education Commission (1902), Indian University Commission was appointed in 1902 that proposed upliftment in the standards of teaching and learning. It was the Indian Universities Act, 1904 that tried to improve the standard of higher education by defining the roles of senate and syndicate. Government Resolution on Educational Policy (1913) recommended setting up of more universities in India so that education is spread throughout the country. Saddler Commission (1917-1919) under chairmanship of Sir M.E Saddler recommended for providing autonomy in higher education. It focussed mainly on reformation and reorganisation of Calcutta University. For bringing quality in higher education, the Hartog

Committee (1929) suggested the need of technical education in universities whereas Abbot Wood Report (1937) focussed on the need of vocational education. Finally, Sargent Report (1944) suggested the formation for UGC and hiring of capable faculty who can raise the standards of teaching and improvement in their salaries (Jonaki & Prasenjit, 2016).

**Post-independence:** The status of higher education improved after independence in terms of size and system. India is third after China and US in size of higher education that includes colleges and universities (Jonaki & Prasenjit, 2016). The access to higher education in pre-independence phase (1833-1947) was very limited as there were a smaller number of colleges, universities and student enrolments. Due to government's keen interest in the human resources development for socio-economic equality and development, the stature of higher education improved post- independence with the recommendations of various committees and commissions on higher education. The Radhakrishnan Education Commission (1948-49) was the first such committee that investigated the existing education system of the country. Subsequently, other commissions including Kothari Commission (1964-66) took into consideration many aspects of teachers, students, infrastructure and research facilities etc. (Komow, Khanna, & Sharma, 2012). It was the National Education Policy (1986) that put up the concept of open universities. India Education Plan (2008) was published in *digital LEARNING* magazine focussed on improving the quality of higher education. Currently, the education system is regulated and governed by various rankings from government agencies and international rankings which are based on certain parameters (Gupta, 2008). According to information provided by Ministry of Human Resource Development on University and higher education (2016), there is a tremendous increase in the number of universities and colleges, students' enrolment, and strength of teachers from pre-independence till date. The universities have increased from 20 in 1950 to 677 in 2014 and 850 in 2018 (University Grants Commission, n.d.).

### **Committees and Commissions on Higher Education**

Committees and Commissions formed on Higher Education since independence talked about the structural changes in higher education but incorporating Human Resource Management practices in Higher Education could be seen in bits and pieces.

Those few Committees and Commissions that were formed post-independence in higher education talked about the human resource practices viz., training (Radhakrishnan Education Commission, 1948; Kothari Commission, 1964; Yashpal Committee, 2009; Kelkar



Committee, 1976; C.S Jha Committee, 1978; National Policy on Education, 1986; P.V. Indiresan Committee, 2000); manpower planning (S.S. Bhatnagar committee on Technical Education, 1947) and recruitment and retention of teachers (P. Rama Rao Committee, 2002-04). Annexure I reveal that Gnanam Committee's (1987) focus was on raising and proper allocation of funds and appointment of vice-chancellors for universities who can take care of administration of universities. This shows that a vice chancellor not only has to be an academician but also a good administrator. However, no recommendation was made for giving training to would be vice-chancellors (i.e., at professors and associate professors' levels) to develop them as good administrators.

Punnayya Committee (1992-93) called for cost-effective educational institutions by proper utilisation of grants. However, there was no mention of providing training on cost-effectiveness of processes. Swaminadhan Committee (1994) also stated mobilisation of resources without recourse to mobilisation of human resources. L.S. Chandrakant Committee (1971) stated about autonomy in higher education, however, in the absence of any training to deal with autonomous status becomes futile.

All India Council for Technical Education (AICTE) (1945), S.S Bhatnagar Committee (1947), C.S Jha Committee (1978), Ramamurti Committee (1990), Amitabha Bhattacharya Committee (1991) and National Policy on Education (2016) focussed on manpower planning by assessing manpower requirements. However, due to government control, the state government universities are not empowered to do manpower planning of their own. Sarkar Committee (1945) and Radhakrishnan Commission (1948-49) stressed on improving quality of teaching by research, industry visits, proper students-teacher ratio, professional and vocational training to teachers. To aid in enhancement of quality of teaching Radhakrishnan Education Commission (1948-49) recommended merit-based recruitment and promotion of teachers. But in 1976, Kelkar Committee recommended to organise special programs to bring changes in attitude of senior personnel. Further to this, ninth five-year plan (1997-2002) stressed the need to conducting workshops for college principals.

The merit-based promotion and recruitment are possibly annual appraisal and training of teachers (Ramamurti Committee, 1990) & (Programme of Action (POA), 1992). Concept like 360-degree feedback was also introduced by POA (1992) with recommendation that evaluation of teachers be based on teaching, innovation and research, regularity in attendance and appraisal of quality of teaching by self, students, university heads and peers.

Kothari Commission (1964-66), NPE (1968), Nayudamma Committee (1986), Central Advisory Board of Education (CABE) (1992), P. Rama Rao Committee (1995-99) and National Knowledge Commission (NKC) (2005-08) recommended compensation to teachers be paid commensurate with their qualification, responsibilities and talent, quality and stage of education wherein he teaches. Damodaran Committee (1970), Kelkar Committee (1976), C.S. Jha Committee (1978), P. Rama Rao committee (1995-99), Mashelkar Committee (1996-98), P.V Indiresan Committee (2000) and NPE (2016) recommended training and re-training of faculty through industrial training. CABE (1992), NPE (1986), Nayudamma Committee (1986), Ramamurti Committee (1990), CABE (2005) Yashpal Committee (2009) and University Grants Commission (1956) recommended initial and in-service training for faculty members and orientation/ induction for a period of 6-8 weeks and refresher courses at least once in 5 years.

NPE (1986) and POA (1992) recommended that universities should have grievance redressal system to resolve the grievances related to pay scales and service conditions. It further went to suggest penalties for non-performers and neglectful teachers. On the other hand, CABE (1992) recommended that grievances of teachers (secondary and higher education) must be redressed formally. However, in (2002-04), P. Rama Rao recommended a separate human resource unit to look after recruitment and retention of faculty. Thus, introduced the word human resource management into the education system. To aid further to the concept of HR, 10<sup>th</sup> five-year plan (2002-07) used words like ‘strategic planning’ and ‘benchmarking’ and ‘optimum utilisation of resources.’ The National Knowledge Commission (2005-08) recommended healthy working environment for teachers of higher education. Anil Kakodkar Committee (2010-11) stressed on rewarding of faculty based on teaching, academic research, consultancy, and outreach. Training of teachers in content and pedagogy. Twelfth five-year plan focussed on certification programmes and modular training courses for full time and part-time faculty.

### **Improving the quality of higher education**

National Board of Accreditation (1994) and NAAC (1994) were established to focus on quality of higher education through grading system by accreditation. For this, the council encouraged teamwork, workers participation in management, promote quality circles, leadership and top-level commitments by doing self-evaluation, benchmarking, innovations to improve quality in higher education. NPE (2016) focussed on fair recruitment and selection of teachers. Vice-chancellors should be appointed based on merit. Training

programmes in teaching and communication skills. Though the concept of HR management was used quite frequently but none of the foregoing committee/commission recommended a separate HRM department which can take care of HRM functions in institutes of higher education viz., HR planning, performance appraisal, wage and salary administration, recruitment and selection, retention, organisational change management, competency management, potential appraisal, succession planning etc. However, only Rama Rao Committee (2002-04) recommended formation of a separate Human Resource unit in the IIT's to take care of recruitment and retention of teaching staff. Orientation programmes including communication skills, curriculum development and assessment skills for university/college teachers (Yashpal Committee, 2009). Assessment and compensation of faculty be based on teaching, academic research, consultancy and research. There should be open evaluation system. Industrial visits for faculty to improve quality of teaching. Training of teachers in content and pedagogy (Dr. Anil Kakodkar Committee, 2010-11). Faculty development by creating network of universities and remuneration of faculty be based on evaluation from students and peers (Twelfth five-year plan, 2012-18). Assessing manpower requirements for faculty positions, fair recruitment and selection of faculty, training programmes in teaching and communication skills for faculty. Appointment of vice-chancellors be merit-based.

### **Human Resource Management and Strategic HRM:**

It is defined as system of strategies and practices that focus on developing and maintaining employees at all levels in organisations to accomplish individual and organisational goals (Bhattacharya, 2007). Human Resource Management includes many functions like; Recruitment, Selection, Training and Development, Performance Appraisal, Potential Appraisal, Compensation Management, Retention, Induction, Manpower Planning, Motivation, Conflict Management, Industrial Relations to name a few. Aligning strategies with organisation's vision and mission to benefit both the employees and organisation is strategic human resource management (Richard & Johnson, 2001). Strategic human resource management (SHRM) is different from traditional human resource management (HRM) as the latter is reactive, focusses on short-term goals, bureaucracy and invests in products and capital unlike SHRM that is proactive, initiator, transformational and flexible that creates value addition (Mello, 2010). To remain competitive organisations carry out various analysis viz., SWOT, PEST, benchmarking, visioning, value chain, sensitivity analysis, risk analysis, Delphi technique, Cost benefit analysis, Porter's five forces etc. However, these

analyses are not based on resource allocation (Tapinos, Dyson, & Meadows, 2011), which is the foundation for SHRM.

### **HRM Practices in Higher Education**

Various academicians studied the HRM practices and their impact on the performance of Higher education institutions/organisations. They tried to validate the HR practices in higher education. Motivated teacher is essential for motivating students and creating sustainable higher education institution (Rao M. B., 2016). Khan, Ghauri, & Akram (2012) observed that performance of teachers can really improve if university takes the responsibility of proper career counselling as it will enable them to be more professional. Another study, conducted by Agha, Azmi, & Irfan (2017) stated that organisations of higher education that have work-life balance lead to enhanced loyalty and commitment of teacher towards organisation, however, cognitive intrusion of work reduces their job satisfaction. Gender analysis show that male teachers are more satisfied with their jobs than female teachers. Raza & Shah (2010) opined that organisational climate was positively and highly correlated to teacher performance, but paternal and closed climates were negatively correlated to teacher performance. Open and autonomous climates showed better performances than closed and paternal. However, it was observed in another study on higher education that HRM practice impacted company performance but not the employee well-being. Communication satisfaction is positively related to positively effective organisational commitment resulting in happy, committed and satisfied workforce (Bray & Williams, 2017).

In relation to academic staff various studies revealed that KIP ( Key Intangible Performance) of academic staff could further enhance KPI (Key performance Indicators, viz., teaching, supervision, research, publication, consultancy) of academic staff (Masron, Ahmad, & Rahim, 2012).

Quality of work life provided by the institution, research facilitation, perks and benefits to retain talented faculty, level of faculty commitment, diversity and pluralism at workplace are critical for human capital (Chatterji & Kiran, 2017). However, success of an organisation depends on extent of its commitment to quality management practices, organisational learning and organisational culture (Mohammed , Taib, & Nadarajan, 2016). Selvi (2013) found that present higher educational institutions require effective application of HRM

functions as human resources play an important role in goals and objectives of higher education as they lead to greater organisational effectiveness.

Thejomoorthy (2015) found that human resources lead to competitive advantage in higher educational institutions. Faculties in higher educational institutions determine their success or failure. There is no dearth of talented faculty and institutions in our country, but the only lacking area is poor management. The sure shot success is only through effective human resource management practices. But, strategic HR in higher education focuses on personal skills, management skills, managing change, managing culture, relationship management and therefore HR staff and HR managers should have more business knowledge and knowledge of HR practices. It was thus concluded that HR staff and managers should have more of personal skills, management skills, business knowledge, HR practices that are crucial for any organisation as it adds value to them (Schultz, 2010). Devi (2012) found that management in human, materials, personnel, institutions, classroom and finance needs to be done to improve quality of higher education. A complete overhaul of management in higher education from ministerial level to principal level needs to be done (top to bottom) professionally.

### **HR Scorecard in higher education**

The basis of HR scorecard lies in Balance Scorecard Method introduced by Norton and Kaplan (1992) (Kaplan & Norton, 1992). The HR Scorecard redefines the role of HR as a strategic partner wherein HR Scorecard is considered as a better measurement technique of HR management performance (Murad & Asaduzzaman, 2014). As HRM has been considered as business partner its focus is to have valuation of Human Resources to reveal contribution in alignment of organisational strategy. It focuses on the current workforce that is working in the organisation (HR Competency Perspective) and their engagement and commitment to the organisation (HR Engagement Perspective) followed by the outcomes of the workforce (HR Performance Perspective) (Murad & Asaduzzaman, 2014). In a bid to become business partner an overall HRM architecture changes with respect to HRM functions, HRM systems and employees' behaviour. HR scorecard is formulated keeping in view HRM's performance and is more helpful to achieve organisational goals by assessing SWOT with respect to HRM. HR scorecard helps to cater to the four perspectives as to how HR can contribute to the customer service, how HR can foster learning and growth, how HR can take care of the internal processes within organisations and how HR can contribute towards maximising profit considering time and cost of organisations. Finally, the

implementation is done by fixing the targets, assigning tasks, defining measures of success (Cunningham & Kempling, 2011).

### **Importance of HR Scorecard:**

The HR Scorecard aligns the organisation with the human resource department wherein HR drives the organisation in terms of strategy in higher education (viz., to get a NAAC grading, to get a global ranking, to become a global leader and to become centre for excellence), resource allocation, budgeting and reporting (Bhattacharya, 2007). HR Scorecard takes care of learning and growth perspective of Balanced Scorecard. HR scorecard also takes workforce competencies into competency perspective which is called as 'Workforce Scorecard' (Murad & Asaduzzaman, 2014). However, the focus of HR Scorecard is to set targets for improvement with respect to HR costs (i.e. effective and efficient HR management). For a successful implementation of strategy, workforce needs to understand the strategy and its implementation followed by their competencies. To gain a competitive edge over the competitors, employees' core skills needs to be continuously developed through training and development initiatives (Lepak & Snell, 1999). Thus, HR Scorecard, workforce scorecard and Balanced Scorecard need to work in resonance to be successful (Huselid, Becker, & Beatty, 2005). HR Scorecard helps to implement the best HRM practices in line with business strategy as follows (Walker & MacDonald, 2001):

1. Formulate Business Strategy to achieve strategic goals.
2. Identify employee competencies and behaviours that HR must deliver to enable the business to reach its goals.
3. Formulate HR strategies, policies and activities to produce required employee competencies and behaviours.
4. Identify HR deliverables.
5. Develop detailed HR scorecard measures by developing HR management system, HR functions, employee competencies and behaviour.
6. Implement HR Scorecard.

**Need of HR Scorecard:** HR Scorecard helps to refocus HRM practices, skills and behaviour of people so that the organisations can achieve their strategic objectives (Cunningham & Kempling, 2011) and helps to focus on HR deliverables that have a major impact on the performance. HR scorecard helps to contribute to the customer service,

learning and growth, internal processes within organisations and maximising profit considering time and cost of organisations. HR Scorecard also helps to create value by focussing on how HR can create a vision for the organisation where strategy is influenced by HR decisions that are taken in a better and systematic way leaving room for ongoing changes, if any, for better strategic awareness and precise HR decisions (Becker, Huselid, & Ulrich, 2001). The main department that determines success in an organisation is Human Resources Department. Human Resources Department focuses on short term as well as long- term goals (Marfuah, Dewiyan, & Mutmainah, 2017). HR Scorecard measures contribution of Human Resources Department's actions in success of an organisation's performance in financial terms and bottom line profitability. Implementation of HR Scorecard is important for aligning the HRM architecture to the firm's strategy. For successful implementation, first requirement is line managers and HR head. Then, a vision must be created in the minds of staff that implementation of HR Scorecard will give their organisation a boost and competitive edge over their competitors. Successful implementation requires engagement and commitment from staff at all levels. Make the HR Scorecard functional by assigning tasks, allocating budget to take care of finances and technology to keep the scorecard moving. Progress is monitored, and the HR Scorecard is sustained by incorporating changes as and when required to keep it relevant (Becker, Huselid, & Ulrich, 2001).

### **Objectives of the study**

In line with the problem of the study, the objectives were framed as follows:

To study application of HR Scorecard in higher education to meet vision and mission of an educational institution.

To meet the above objective, subsidiary objectives are as under:

- a. To understand the current HR practices in the selected higher education institutions.
- b. To explicate the stakeholder views on current performances of higher education institutions' employees.
- c. To explore the probability of using HR Scorecard in higher education institution.
- d. To understand the challenges in implementing HR Scorecard in the higher education institutions i.e. w.r.t. organisational change and development.
- e. To explore whether the higher education institution can achieve the goal of competitive advantage after implementation of the HR Scorecard.
- f. To understand the impact of introduction of HR Scorecard on various stakeholders.

- g. Whether the HR Scorecard could enhance the performance of teaching and non-teaching staff which directly impacts various stakeholders.

### **Formulation of Hypotheses**

H<sub>01</sub>: There is no significant difference between age of students and perception about curriculum appropriateness

H<sub>a1</sub>: There is a significant difference between age of students and their perception about curriculum appropriateness

H<sub>02</sub>: There is no significant difference between gender of students and their perception about curriculum appropriateness

H<sub>a2</sub>: There is a significant difference between gender of students and their perception about curriculum appropriateness.

H<sub>03</sub>: There is no significant difference between medium of instruction of students and their perception about curriculum appropriateness.

H<sub>a3</sub>: There is a significant difference between medium of instruction of students and their perception about curriculum appropriateness.

H<sub>04</sub>: There is no significant difference between students of various faculties and their perception about curriculum appropriateness

H<sub>a4</sub>: There is a significant difference between students of various faculties and their perception about curriculum appropriateness

H<sub>05</sub>: There is no significant difference between the level of education and their perception about curriculum appropriateness

H<sub>a5</sub>: There is a significant difference between the level of education and their perception about curriculum appropriateness.

H<sub>06</sub>: There is no significant difference between age of students and their perception about teachers' adaptability to technology

H<sub>a6</sub>: There is a significant difference between age of students and their perception about teachers' adaptability to technology.

H<sub>07</sub>: There is no significant difference between gender of students and their perception about teachers' adaptability to technology.

H<sub>a7</sub>: There is a significant difference between gender of students and their perception about teachers' adaptability to technology.

H<sub>08</sub>: There is no significant difference between medium of instruction of students and their perception about teachers' adaptability to technology.

H<sub>a8</sub>: There is a significant difference between medium of instruction of students and their perception about teachers' adaptability to technology.



H<sub>0</sub>9: There is no significant difference between students of various faculties and their perception about teachers' adaptability to technology.

H<sub>a</sub>9: There is a significant difference between students of various faculties and their perception about teachers' adaptability to technology.

There is no significant difference between age/ gender/ medium of instruction/ level of education/ students of various faculties and their perception towards teachers' adaptability to technology.

Above hypotheses have been framed to know the relationship between independent variables (i.e. age, gender, medium of instruction, students of various faculties, level of education) of various students at the Maharaja Sayajirao University of Baroda, and various factors of students' perception (dependent variables) have been framed and tested. Hypotheses have been framed for knowing the impact of age, gender, medium of instruction, students of various faculties, and level of education on curriculum appropriateness. Similarly, hypotheses have been framed to know the impact of all the above independent variables on teachers' adaptability to technology and teachers' vitality. The hypothesis will be tested and presented in the analysis section. A few more hypotheses will be made as the study progresses. Hypotheses will be tested to fulfil objective (b) of the study.

### **Research Methodology**

1. Research design will be exploratory and descriptive which will be done through case study method. This research will explore the research subject and probability of its application in HEI's.
2. Sample: The Maharaja Sayajirao University of Baroda (MSU) has been taken as the university for the purpose of study. Case study of Faculty of Management Studies (FMS), MSU, has been conducted to explore the possibility of applying the HRSC in HEI's. MSU has been studied in depth.
  - a. Population: All universities in India.
  - b. Sample Unit: Faculty and department of a selected university.
  - c. Sample size: All faculties and departments of a university will be considered.
  - d. Data:
    - Data collection:

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

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

- Data analysis:

Descriptive analysis of data and inferential techniques was used to find certain causal relationships between dependent and independent variables. Factor analysis technique was also 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 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 respected faculty. The quota size for a larger faculty is more (for e.g. Arts, Science, Engineering and Technology, and Commerce), and other faculties/ departments is less based on the number of students. However, the samples from faculties were chosen freely by the researcher. Thus, the sampling is uncontrolled quota sampling ( (Simkus, 2022) and ( Dudovski, 2011).

<b>S. No</b>	<b>Name of the faculty</b>	<b>Sample collected</b>
1.	Faculty of Arts	204
2	Faculty of Engineering and Technology	293
3	Faculty of Science	204
4	Faculty of Commerce	226
5	Faculty of Performing Arts	105
6	Faculty of Social Work	100
7	Faculty of Journalism and Communication	53
8	Faculty of Management Studies	100
9	Faculty of Law	145

10	Faculty of Family and Community Sciences	130
11	Faculty of Education and Psychology	170
12	Faculty of MK Amin Arts, Science, and Commerce College	82
13	Faculty of Pharmacy	60
14	Faculty of Fine Arts	101

Total sample collected= 1973 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. The details of the table has been attached in annexure 4 of the synopsis.

For the study of objective no. 1, the target population was registrars/ vice-chancellors of universities in India. To carry this out, convenience sampling method was used, and the following universities were considered after they showed their willingness to participate in the study (Sansanwal, 2020). All the four zones have been covered. However, the data collection from south is yet to be done. The universities were:-

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)

### **Data Collection**

#### **Data Source**

This study is conducted using both primary and secondary forms of data. The primary data for the questionnaire is collected through students' perception survey. Around 2002 students filled the questionnaire, out of which 1973 were valid responses. Further to this, another questionnaire is to be made to take the opinions of vice-chancellors/ registrars of various universities pan-India. This study is going to explore the experts' viewpoints on how well teachers and non-teaching staff is groomed by the universities to take care of students' satisfaction. This will help to accomplish the first objective of the study which is to understand the current HR practices in the selected higher education institutions. Further,

secondary data have been collected from government websites, government reports, books, and journals.

**Tools for data Collection :** A questionnaire was developed for the target population to conduct the study. The questionnaire has framed for both nominal and ordinal data. In the data collection instrument, measurement scales like continuous (summated rating scale) and categorical (i.e. binary) have been used. The data was collected through a hard copy that was distributed among the respondents. Also, the google link was sent through information and communication technology (ICT) devices which depended on the choice of the researcher. Further, expert interviews will be carried to understand the psyche of teaching and non-teaching staff at the faculty of management studies, at the Maharaja Sayajirao University of Baroda, post the application of the HRSC.

### **Instrument Validation Procedures**

#### **Validity**

To validate the instrument for the collection of data, expert opinion of professors and the research guide have been considered. This study is about students' perception on current performance of teaching and non-teaching staff at Maharaja Sayajirao University of Baroda. The expert from Faculty of Education and Psychology (Retd. Vice-chancellor and Prof, (Dr. Ramesh Kothari has been sought), and retd. Prof. R.S Mani (Faculty of Education and Psychology) have been consulted. This instrument of data collection fulfils all the validity criteria i.e., content, construct, and criterion. A content validity table has been attached as annexure 1, which enlist all items pertaining to characteristics of students' perception affecting the performance of the teaching staff. All the items enlisted in annexure 1 have been covered in the instrument.

#### **Reliability**

Reliability means the consistency in measuring a particular construct. There are various ways to measure consistency. Highly used are the test-retest reliability, internal consistency, and split half. To measure the internal consistency of factors, the value of Cronbach's alpha was calculated for the responses that were collected for the pilot study. The responses were collected from a random number of students from varied departments. The SPSS software was used. Cronbach  $\alpha$  normally ranges between 0 and 1, however, George and Mallery (2003) suggested a rule of thumb as " $\alpha > 0.9$ - Excellent,  $\alpha > 0.8$ -Good,  $\alpha > 0.7$ - Acceptable,  $\alpha$

>0.6-Questionable,  $\alpha > 0.5$ -Poor and,  $\alpha < 0.5$ -Unacceptable". Table 1 shows the internal consistency of constructs used in instrument.

Construct	No. of variables	Instrument	Cronbach's Alpha
Curriculum Appropriateness	5	Likert summated rating scale	0.862
Teachers' adaptability to technology	4	Likert summated rating scale	0.803

Table:2 Internal Consistency of Constructs

### **Statistical Tools and Techniques**

Descriptive statistics were used to gain insights into the respondents' profile. Nominal and ordinal scales were used to gather data.

Tests like principal component analysis, independent sample T-test, ANOVA, factor analysis, one-sample t test, z-test, multiple regression, and nonparametric tests: Kruskal - Wallis test, Mann-Whitney U-Test,  $\chi^2$  test, and other such statistical tests will be carried out. For analysing the qualitative data, thematic analysis will be conducted to generate themes and interpret results.

### **Limitations**

The current study will be applicable to all the public universities. Th cultural and other factors may be different in private universities. Hence, another such survey for students could be conducted for private universities.

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.

## Data Analysis

One-Sample Kolmogorov-Smirnov Test		
		Curriculum Appropriateness
N		60
Normal Parameters <sup>a,b</sup>	Mean	3.7233
	Std. Deviation	.83896
Most Extreme Differences	Absolute	.117
	Positive	.064
	Negative	-.117
Kolmogorov-Smirnov Z		.903
Asymp. Sig. (2-tailed)		.388
a. Test distribution is Normal.		
b. Calculated from data.		

H<sub>0</sub>: Test distribution is normal

H<sub>a</sub>: Test distribution is not normal.

One-sample Kolmogorov -Smirnov Test for the component - Curriculum Appropriateness, was conducted to check if the test distribution Since the p value is more than 0.05, we fail to reject null. Hence, it can be inferred that the data is normal. Accordingly, parametric tests have been conducted further.

One sample t test at 5%  $\alpha$  level was conducted to find students' perception towards 'Curriculum Appropriateness' The MSU of Baroda.

Construct	Items	Score	Max/ Min Score
Curriculum Appropriateness	Course content	1. SA	No. of items* Score 5*5=25/ 5*1=5
	Interesting Course	2. A	
	Relevant for Employability	3. N	
	Updated regularly	4. D	
	Updated Notes	5. SD	

To find out perception of students towards curriculum appropriateness, null hypothesis and alternate hypothesis is formulated as follows:

Null hypothesis: H<sub>0</sub>:  $\bar{X} = \mu$

Alternate Hypothesis  $H_a: \bar{X} \neq \mu$ , (i.e.  $\mu < \bar{X} / \mu > \bar{X}$ )

Where,  $\mu$  is population mean, and  $\bar{X}$  is the hypothesised (sample) mean.  
Population Mean (test value/ hypothesised mean: 3 (Neutral)).

Table 1

*One-Sample Test of Curriculum Appropriateness: Students of “The MSU, Baroda”*

	<i>t</i>	<i>d.f.</i>	Sig. (2-tailed)	MD	Test Value = 3	
					Lower	Upper
Curriculum Appropriateness	6.678	59	.000***	.72333	.5066	.9401

\*\*\*  $p < .001$

Based on Table 1 and annexure 3 the values for the component ‘Curriculum Appropriateness’ ( $M = 3.072$ ,  $S.D. = .84$ );  $t(59) = 6.68$ ,  $p < .001$ . Hence, null hypothesis is rejected.

It infers that perception of students towards ‘curriculum appropriateness’ is above the average level. It means that students have a positive perception towards ‘curriculum appropriateness’.

Group Statistics				
	N	M	S.D.	S.E.M
Curriculum Appropriateness	60	3.7233	.83896	.10831

*Independent Samples T-Test of Curriculum Appropriateness: Age*

Curriculum Appropriateness		
Equal variances Assumed		
Levene's Test for Equality of Variances	F	2.447
	Sig.	0.123 (ns)
	t	-.194
	df	58
	Sig. (2-tailed)	0.847

t-test for Equality of Means	MD	-0.4889
	SE difference	0.252
95% CI of the Difference	Lower	-.55371
	Upper	0.45593

---

\*  $p < 0.05$ , \*\*\*  $p < 0.001$ , ns: not Significant

Independent-sample t-test at 5%  $\alpha$  level was conducted to see the impact of age group (between 20-25 and above 25) on 'curriculum appropriateness' at M.S university, Baroda.

Levene's Test for Equality of Variances was conducted by the researcher.

*Curriculum Appropriateness (CA)*  $p = .123$ , which is  $> .05$ . Thus, it can be inferred that there does not exist any homogeneity of variance for factor 'curriculum appropriateness'. There is a difference between various age groups of students at MSU.



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## Annexure:1

### Students' Perception: Content Validity

Our course content is clearly defined
Our curriculum is interesting
Our curriculum is relevant for employability
Our curriculum is regularly updated to align with the latest knowledge requirements
Teachers are well-prepared for their sessions
I feel that teachers use fresh and updated notes to teach
Teachers are comfortable using smart boards/ projectors in <b>offline</b> sessions
Teachers are comfortable using digital pads in <b>online</b> sessions
Self-learning or learning through online courses are highly encouraged by my teachers
Teachers use technology-aided instruction method in the classrooms

Teachers provide me with bridge courses/ classes for the subject which are difficult to understand
In your opinion, should teachers
- Keep on improving their digital skills
- Adjust to new methods of teaching
- Encourage innovation among students

## Annexure: 2 Reliability Reports

<b>Reliability</b>			
<b>Scale: ALL VARIABLES</b>			
<b>Case Processing Summary</b>			
		N	%
Cases	Valid	60	100.0
	Excluded <sup>a</sup>	0	.0
	Total	60	100.0
a. Listwise deletion based on all variables in the procedure.			
<b>Reliability Statistics</b>			
Cronbach's Alpha		N of Items	
.862		6	

## Scale: ALL VARIABLES

### Case Processing Summary

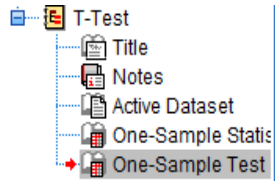
		N	%
Cases	Valid	60	100.0
	Excluded <sup>a</sup>	0	.0
	Total	60	100.0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	N of Items
.803	4

### Annexure:3 (One-sample and Independent sample T-tests)



#### T-Test

[DataSet1] C:\Users\abhin\Desktop\Synopsis folder\Final FA and RT- 4-7-22.

#### One-Sample Statistics

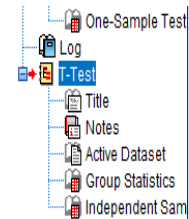
	N	Mean	Std. Deviation	Std. Error Mean
CAA	60	3.7233	.83896	.10831

#### One-Sample Test

Test Value = 3

	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
CAA	6.678	59	.000	.72333	.5066	.9401

Double-click to activate



#### T-Test

[DataSet1] C:\Users\HP\Desktop\Vartikas\_ANOVA.sav

#### Group Statistics

Age of the Student	N	Mean	Std. Deviation	Std. Error Mean
Curriculum Appropriateness	15	3.7111	.91806	.13686
Super Matured	7600	.56163	.14501	

Double-click to activate

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Curriculum Appropriateness	Equal variances assumed	2.447	.123	-.194	58	.847	-.04889	.25219	-.55371	.45593
	Equal variances not assumed			-.245	39.959	.808	-.04889	.19939	-.45189	.35411



**Annexure:4**  
**Krejcie and Morgan: Table on Sample size determination**

### Required Sample Size<sup>†</sup>

Population Size	Confidence = 95%				Confidence = 99%			
	Margin of Error				Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1141	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678	1176	3288	586	1066	1734	3842
7,500	365	710	1275	4211	610	1147	1960	5165
10,000	370	727	1332	4899	622	1193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	381	772	1491	8056	655	1318	2520	12455
75,000	382	776	1506	8514	658	1330	2563	13583
100,000	383	778	1513	8762	659	1336	2585	14227
250,000	384	782	1527	9248	662	1347	2626	15555
500,000	384	783	1532	9423	663	1350	2640	16055
1,000,000	384	783	1534	9512	663	1352	2647	16317
2,500,000	384	784	1536	9567	663	1353	2651	16478
10,000,000	384	784	1536	9594	663	1354	2653	16560
100,000,000	384	784	1537	9603	663	1354	2654	16584
300,000,000	384	784	1537	9603	663	1354	2654	16586

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