

EVALUATING THE DETERMINANTS OF QUALITY OF HIGHER EDUCATION:A COMPARATIVE STUDY OF PUBLIC VS PRIVATE UNIVERSITIES IN MAHARASHTRA WITH SPECIAL REFERENCE TO QUALITY EDUCATION MODEL

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ABSTRACT

From ancient times, India is well known for its scholars and talent. Even today, India is unceasingly progressing in education field. In growth story of India, higher education has always played a vital role. Higher education provide knowledge, develop the ability of students and give them a broader perspective of world and becomes input to the growth and development of country. Though India's central and state governments are making seamless efforts to make Indian Higher Education System world class, it is always bogged down by many challenges. So, the question arises whether students are getting good quality education and what are the determinants ensuring this quality.

In same context, this research work focuses on identifying factors affecting quality of higher education and the extent to which these factors affect the quality. A comparative study is been performed to determine the status of Public and Private Universities in Maharashtra. Researcher has taken The Oregon Quality Education Model as base to define quality indicators while designing questionnaire. For data analysis, basic tools like table, frequency, percentage, graphs are used whereas for hypothesis testing Descriptive Statistics, Regression Analysis and t-test are used. The study concludes that, Industry involvement, Classroom Feedback, Status of Institute, Leadership that facilitates student, Infrastructure/learning resources, Teacher's Professional development program, teaching methodology, Students Engagement in academic & extra-curricular activities, Teacher's Research & Industry Collaboration, Participation of students in research activities are the determinants of quality of higher education. Also, Private Universities maintain better quality of education than Public Universities.

Keywords: *The Oregon Quality Education Model, State Public Universities, State Private Universities, Quality Indicators*

1. INTRODUCTION

1.1 Higher Education in India:

Indian Higher Education sector has come a long way since last 70 years post-independence, with some strengths and weaknesses. India has witnessed tremendous growth in number of universities (Public/Private/Deemed) and institutes. After China and USA, India has world's 3rd largest Higher Education System in terms of number of students. Indian government is taking aggressive initiatives to boost the quality of Higher Education System by means of various programs like Education Quality Upgradation and Inclusion Program, Global Initiative for Academics Network, All India Survey on Higher Education, National Institutional Ranking Framework, etc. Government is also planning to revitalize Infrastructure and Systems in Education and providing Graded Autonomy to Universities & Colleges. Government has selected 20 universities from public and private sector and helping them to attain world-class standards of teaching and research. Besides, academic experts from India are considered among the best in the world and are in great demand.

Yet, the weaknesses in the Higher Education System noticeably overshadow the strengths. The Gross Enrolment Ratio for higher education in India is very less, 25%, as compare to developed and other big developing countries. And even in current GER, there is no equity as far as gender and caste are considered. A disparity is also present in location (leading universities and institutes are located in a metropolitan and urban area) and density (number of colleges per lakh eligible population) of institutes. Quality of education is yet another issue for higher education. The sector is also facing the problem of poor infrastructure as there is lack of budget and corruption. Those universities/institutes having sufficient funds, even their infrastructure is not as per global standards. Number and quality of faculty is a posing challenge for long time in the sector. Curriculum of most of the courses is outmoded and unrelated to the requirements of industry focusing just on theory and lagging practical angle. That can be the prime reason for less employability of

graduate students in the country. There are many regulatory issues as well like presence of bureaucratic structure, lack of transparency and accountability. Research is yet another area lagging focus in higher education sector. Fund allocation, quality of research, industry involvement in research, research opportunities all are core issues the area is facing. Despite of all odds, Indian government, Central & State Education Ministry, public/private universities and individual institutions are striving hard to improve the quality and inclusiveness of higher education in India.

1.2 Quality of Higher Education:

Quality is very intangible and vague term and cannot have a fixed definition as far as education is concern (Schindler, 2015). Quality may differ as per the opinions of different stakeholders. The education providers may define quality in terms of enrolment rate and employment ratio. Academicians may pursue quality in terms of academic record and other evaluation criteria. Students may seem to judge quality by brand value of institution or applicability of the course they pursue. While industry people and employers may find quality in end product and skills that students possess. So, it is very important to consider the viewpoints of all the stakeholders while defining the quality of higher education. Also, quality of education cannot be static rather it is ever-changing term. Today's world is changing at very fast rate and so are the requirements of the industry. If the higher education system cannot cope with the changing environment, it may end up providing unemployable end product with obsolete knowledge. So, the term quality keeps on changing with change in the environment.

In India, quality of higher education is one of the crucial factors for deciding future of the country. Indian Higher education Institutions are lagging far behind as compare to other universities worldwide (UGC, 2021). Issues like availability of financial and other resources, less number and poor quality of research publications, inadequate education sector-industry connect, unemployability of graduates, demand for major revolution in the higher education sector in India. For this purpose, government and education providers and influencers need to implement certain immediate measures for quickly improving the quality in certain areas as well as few steps over the period of time for gaining long term sustainability in the quality of higher education.

Immediate Improvement may cater in the field of teaching pedagogy. Using *innovative teaching pedagogy* by faculty may help to develop more interest of students in the subject, improve their understanding of the topic, provide practical insight of the field which may result in skilled and practically improvised graduates.

Many students are unaware about the purpose of the course content they are learning. They are under presumption that it is worthless to learn those things and the practical world would be totally different. For this reason, universities, institutions and faculty should link the *relevance of the curriculum to the practical life* of the students and make them understand its ultimate goal. Students should learn more things on field than just on paper. This practical knowledge will help them adjust, settle and grow in the industry. It is the responsibility of the universities and institutions to plan such *extra-curricular and co-curricular activities inculcating practical aspects* to the students. It may include live projects, entrepreneurial activities, industry visits, spending a day with CEO/Manager of a company, research assignments, on field projects, internship, etc. Quality can also be imparted by providing more practical knowledge to the students and ultimately to faculty. For this purpose, *practical trainings should be given to faculty* as well. When faculty will come out of their comfort zone and learn current trends in the industry by actually being on the field, they can provide more practical insights to the students via their own experience.

A strong *Feedback system* may help improving quality in many aspects of the higher education in institutions. As end users of the service students should have right to give feedback for teachers and the teaching methodology used by them. Feedback should be taken from students and importantly from industry experts regarding the curriculum and evaluation pattern of the students. Faculty should also have right to comment on the learning interest and participation of students in the learning process. The outcomes from these feedbacks can be used to improvise the overall education system.

Extensive Long-Term Reforms are much needed in India to improve the quality of education. To serve the purpose of improving quality, *more funds* should be infused for infrastructure and research by government in the area of higher education. Universities should try to *retain well qualified faculty* by providing them *performance-based perks* and at the same time should *attract new talent*. Instead of hiring ad-hoc, underpaid and unprepared faculty, universities should invest in their time, *job security and training*. Universities should *update curriculum* as per local industry needs. Also, *industry engagement* should be increased in curriculum designing. For increasing inclusiveness, *education opportunities should be made available to everyone* in rural area, small towns and even remote areas of country. This can be achieved by providing *distance and open education forums* in these parts of the country.

1.3 Quality Education Model:

The Oregon Quality Education Model (QEM) is referred by the author for this study. Indian Quality Education Model also exists but the reason for referring the Oregon model is that researcher wanted to make use of the quality indicators of education for the purpose of data collection which are clearly defined in the Oregon Quality Education Model. (Commission, 2016) The Oregon Quality Education Model developed in 1999, is a research and data driven tool which was originally designed for the evaluation of current educational practices and also to predict the amount of funds needed to function an effective school system. So basically, this model is developed for maintaining education quality of Oregon schools. This model is based on information about best practices and cost of implementing these best practices. Using national research, this model helps to indorse informed dialogue between policy makers, education

providers, general people and certain stakeholders. The Quality Education Commission of Oregon make sure that the model is updated and improved as per the changes in education environment so as to maintain its usefulness to the policy makers. The commission itself conducts ongoing research for the same whereas some valuable researches have been conducted by many public and private entities.

The recent version of Quality Education Model is an extensive “Costing Model” component which is designed by using past 15 years of detailed financial data and other important data collected by Oregon Department of Education. Along with this, the model also has a “Student Achievement Model” component which predicts the influence of different initiatives and programs implemented by schools on the performance of the students. Hence collectively costing model and student achievement model are able to identify both, cost and student outcomes for a particular initiative.

The Costing Model

In this component of the model, for evaluating the cost, the schools are considered as unit of analysis. In order to predict the cost effect of a particular policy, it is essential to understand the impact the policy will have on the operations of that school. So, by considering school as a unit of analysis, the model has prototype elementary, middle, and high schools. Every prototype school replicates the resources required for implementing best practices related with high-performing schools and work as an instrument to predict the resource and cost requirements of proposed education policy.

The Student Achievement Model

In Quality Education Model when this component and costing component are combined together, it provides a powerful tool to evaluate the given strategy when there are limited resources available. Over many years, Quality Education Commission along with the Department of Education have worked on more detailed data collected to estimate relationship between resources spent by schools and student achievement. It has been measured by standardized tests scores and high school graduation rates. (Commission, 2016) “These models estimate student performance as a function of per-student spending and other variables that capture cost differences of educating students with different needs. In the current version of the Student Achievement Model, student-level data is utilized to identify and isolate the quantitative impacts of various factors on high school graduation.”

Quality Indicators

Quality Indicators are the factors indicating the efficiency and effectiveness of functioning which the selected prototype schools are supposed to possess. There are 13 quality indicators in total created with the help of research of effective schools. They act as indications of whether the schools implement best practices and make effective utilization of available resources. There are 4 broad categories of these Quality Indicators viz school-level, teacher-related, classroom-focused, and student-centered and few sub indicators under each category which are given in the table below. From Oregon Quality Education Model, researcher has referred these quality indicators as the determinants of education quality. A structured questionnaire has been designed by considering these quality indicators as a base. Oregon Quality Education Model is all about the education quality of schools but as this research paper focuses on higher education in particular, researcher has made slight changes in the sub indicators by keeping the 4 broad categories same.

Quality Indicators
Schools
<input type="checkbox"/> Leadership that facilitates student learning
<input type="checkbox"/> Parental/community involvement
<input type="checkbox"/> Organizational adaptability
<input type="checkbox"/> Safe and orderly learning environment
<input type="checkbox"/> District policies to support learning
Teachers
<input type="checkbox"/> Teacher and teaching quality
<input type="checkbox"/> Teacher collaboration
<input type="checkbox"/> Professional development program
<input type="checkbox"/> Teacher efficacy
Classrooms
<input type="checkbox"/> Effective instructional programs and methods
<input type="checkbox"/> School database collection and analysis to improve instructional programs
Students
<input type="checkbox"/> Readiness to learn
<input type="checkbox"/> Connectedness to school and engagement in academics and extra-curricular programs

Table 1: – Quality Indicators, Oregon Quality Education Model, *Source:* (Commission, 2016)

1.4 Public Vs Private Universities:

According to the University Grants Commission (UGC) Act, 1956, “University means a university established or incorporated by or under a Central Act, a Provincial Act or a State Act, and includes any such institution as may, in consultation with the University concerned, be recognized by the Commission in accordance with the regulations made in this behalf under this Act.” (AISHE, 2018-19)

State University –“A University established or incorporated by a Provincial Act or by a State Act is called State University.” As per its name, state public universities are established, operated and financially backed up by the

government of the particular state. According to the consolidated list on UGC portal dated May 2021, there are 426 state universities in India. State Universities are entitled to grant degrees to the students. These universities even follow their own process for admission, evaluation and design their own syllabus.

State Public Universities in Maharashtra

As per the consolidated list of UGC dated May 2021, there are 24 State Public Universities in Maharashtra are given below:

1	Dr. Babasaheb Ambedkar Marathwada University
2	Dr. Babasaheb Ambedkar Technological University
3	Dr. Homi Bhabha State University
4	Dr. Punjabrao Deshmukh Krishi Vidyapeeth
5	Gondwana University
6	Kavayitri Bahinabai Chaudhari North Maharashtra University
7	Kavi Kulguru Kalidas Sanskrit Vishwavidyalaya
8	Konkan Krishi Vidyapeeth
9	Maharashtra University of Health Sciences
10	Maharashtra Animal & Fishery Sciences University
11	Maharashtra National Law University
12	Maharashtra National Law University
13	Maharashtra National Law University
14	Mahatma Phule Krishi Vidyapeeth
15	Marathwada Agricultural University
16	Mumbai University
17	Sant Gadge Baba Amravati University
18	Savitribai Phule Pune University
19	Shivaji University
20	Smt. Nathibai Damodar Thackersey Women's University
21	Punyashlok Ahilyadevi Holkar Solapur University
22	Swami Ramanand Teerth Marathwada University
23	The Rashtrasant Tukadoji Maharaj Nagpur University
24	Yashwant Rao Chavan Maharashtra Open University

Table 2: – State Public Universities in Maharashtra

Private University –“A University established through a State/ Central Act by a sponsoring body viz. a Society registered under the Societies Registration Act 1860, or any other corresponding law for the time being in force in a State or a Public Trust or a Company registered under Section 25 of the Companies Act, 1956 is a Private University.”

As the name suggests, private universities are privately run and are not funded by central or state government but they need to adhere to UGC rules and regulations for operations. They can grant degrees but cannot have off-campus colleges or affiliate an institution. On the other hand, private universities can have off-campus centre within the particular State after that university has existence of 5 years with prior approval of the UGC. According to the consolidated list on UGC portal dated May 2021, there are 376 private universities in India.

State Private Universities in Maharashtra

As per the consolidated list of UGC dated May 2021, there are 18 State Private Universities in Maharashtra are given below:

1	Ajeenkya D.Y. Patil University
2	Amity University
3	Chhatrapati Shivaji Maharaj University
4	D Y Patil International University
5	D. Y. Patil University
6	Dr. Vishwanath Karad MIT World Peace University
7	Flame University
8	G.H.Raisoni University
9	MGM University
10	MIT Art Design and Technology University
11	Sandip University
12	Sanjay Ghodawat University
13	Somaiya Vidyavihar University
14	Spicer Adventist University
15	Sri Balaji University
16	Symbiosis Skills and Professional University

17	Vijaybhoomi University
18	Vishwakarma University

Table 3: – State Private Universities in Maharashtra

2. LITERATURE REVIEW

(Elumalai, 2020), has done this research with the aim of studying relationship of various factors on quality of e-learning of Higher Education in the period of COVID pandemic. Also, the study seeks to analyze the moderating impact of gender and level of the course on the quality of e-learning. The independent variables assumed for the study are “administrative support, course content, course design, instructor characteristics, learner characteristics, social support, and technical support”. For doing so, researchers have conducted an inferential statistics cross-sectional study for higher education institutions in India and the Kingdom of Saudi Arabia. Data is collected with the help of questionnaire and analysed to study the relationship by using Structural Equation Modelling. The study concludes that, all these seven variables have positive relationship with the quality of e-learning and there is a significant difference in perception of students between gender, level of the course, and quality in the higher education during the pandemic. Finally, researchers suggested that the higher education institutions should improve their actions in all above seven criteria to improve the quality of education.

(Mesfin, 2020), conducted the research with the purpose of examining the factors affecting education quality in higher education institution and for understanding the cause-effect relationship to assure quality education. The later part is based on the comments of teachers and students in institutes. Whereas for studying former part, researcher designed a semi-structured questionnaire to collect the data and made use of structured and unstructured interview method as well. After analysing the data, research concluded that the main reasons for institutions not able to provide quality education are “lack of teachers motivation, poor salary and allowance package, political based research inputs and outputs, shortage of financial and lack of managerial capacity, availability of corruption, political intervention, less educational qualification of Instructors”. Hence researchers recommended that the related authorities must free the institutes from politics and they should try to create conducive environment for teachers.

(Rashida G. Gabdrakhmanova, 2019), has initiated the study to discover the association between ‘academic outcomes of students in university’ and ‘quality of education they received in school, i.e., before entering university. For the study, 2nd & 3rd year students of Institute of Physics at Kazan Federal University are taken as sample. Researchers used correlation mining and structural analysis of the data matrix as an analysis technique. The study concluded that there is no such relationship as assumed by the researchers and students’ training results and type of school they graduated from are not related.

(Madani, 2019), in this study, attempted to analyse the quality of education based on the goal of education for all policy. For this study, researchers conducted a brief literature review to search the studies that analyse the educational quality from 1990 to 2010. These research papers are then divided into sub-themes as “analysis of supervision and support, evaluation of study policies, and outcomes”. From this literature synthesis, it is found that “there is a critical relationship between students’ educational outcomes and quality of environment, content, and process of the educational journey the learners experienced” It is also concluded that students’ annual assessment in academic performance and their outcomes are crucially important as it guides faculty to measure and design alternate teaching methodologies to improve teaching quality. Hence the study concluded that there cannot be treated as one size fits all endeavours because educational conditions are not same in all countries. So educational policies should be flexible as per every country’s political, economic, social, and cultural backgrounds. As per the study, the education quality is reflected by a range of indicators, like “government spending on education, student/teacher ratios, teacher qualifications, test scores, and the length of time students spend in school”. That’s why, to assure ultimate quality of the education, providers must evaluate each investment made in education against how well it serves these different aspects.

(Ayele, 2018), investigated the key factors which affect the quality of education. For this, both a qualitative and quantitative data is collected from the students, teachers and coordinators of faculty of social science in particular. Data collection is done with questionnaire and interview techniques by simple random and stratified random sampling. Whereas to analyse the same, tables and statistical tools such as means and percentages are used. The study concluded that the lecture methodology for teaching is dominant over other teaching methodologies for the selected samples. For maintaining the quality of education, it is important to maintain integrated communication and also proper distribution and control of educational resources. If we want to progress towards standard educational level, it essential to accept and apply current technology and educational transformations readily and systematically. Educational institutions also need to promote research by funding and rewarding the faculty and students who engage themselves in quality research.

(Hossain, 2016), conducted this research with an aim to identify whether students’ demographic characteristics and background influence/differentiate their perception about quality of higher education. To serve the purpose, researcher collected data from students of top 5 private universities of Bangladesh. To analyse the data, multinomial regression analysis was conducted and it is found that, “status of students for scholarship, extracurricular activities, parents’ education, age, previous result, and university they study in have a significant influence on perception about quality of higher education. Part-time job status has moderate influence on the students’ perception. Also, the environment created by higher education institutions influences the students’ perception of quality”.

(N.Mythili, 2012), This report talks about Indian Quality Education Model. The team started this work to comprehend how the education system in whole has an impact on quality education. This model was developed for Azim Premji Foundation in Karnataka. With this report the creators tried to help practitioners in understanding quality education by building a system approach and by studying the challenges of system in holistic way. By this mean they tried to arrive at workable solutions for achieving quality education. This model building was done in 4 stages: In the 1st stage, researchers considered open systems theory as base for study. In 2nd stage, they described the how the factors used in model construction are selected. In 3rd stage factor mapping exercise is discussed in detail. This step defines relationship between factors and rationale behind grouping of factors. In the 4th stage, sub-factors are identified for each factor. The QEM built in this way provides an overall view of entire school education system in India specially in the field of public education. The model focuses on both, the individual student outcomes and systemic outcomes.

(Maryam Yaghoubi, 2018), The study was done to identify the determinants of teaching quality. It is secondary data based systematically conducted literature review for which research work from 2000 to 2014 was collected, studied and compared. For which researchers used a data extraction form to collect data. Through this research, it is concluded that in teaching process – teacher’s experiences, educational status, scientific views, overall personality which creates learning transformation in learners, apt learning resources, proper expression, appropriate lesson plans, etc. are essential to improve teaching quality.

(Maria Tsinidou, 2010), in this research paper, aimed to determine the factors affecting quality of education services provided by HEIs in Greece. Researcher further tried to measure the relative importance of these determinants from the view point of students as well. Data collection is done with the help of a questionnaire designed by Hellenic Quality Assurance Agency for Higher Education. For assessing the relative importance affecting satisfaction of students, researchers used multi-criteria decision-making methodology. They used analytical hierarchical process (AHP) for measuring relative weight of each factor of quality. The major findings from the research implies that the factors which are of high importance to the students are – “training to improve communication skills of teaching personnel, evaluation of their communication and interaction skills in the classroom, availability of textbooks and journals in library, curriculum providing practical/hands on experience which is in direct connections with market demand, quality of infrastructure, subsidised catering and accommodation services, a strengthen its links between HEIs, businesses and society with a twofold purpose: to attract new students and to provide graduates with better career prospects.”

(Angeline M. Barrett, 2006), to understand the quality of education in low-income countries, researchers have reviewed some key documents influencing the quality. In this research article, researcher identified 5 dimensions of quality - effectiveness, efficiency, equality, relevance and sustainability which can serve as a basis to analyse the quality of education. This research also summarised a 7-point agenda and action priorities, mainly suited to countries with resource unavailability. These include – “reforms to teacher training and school management, pedagogically sound language policy, Investment in teachers, Quality and availability of learning materials, Greater autonomy for schools, exploiting relationships among different parts and aspects of the education sector to help improve quality and investments in services, networks and structures. The article further talks about 2 broad approaches to understand quality, 1st is progressive approach and 2nd is economist approach. Former approach focuses on whole child and human development or social change while later achievement of learning outcomes at reasonable cost

(McComb, 2004), This article talks about background of Quality Education Model, which prototype schools are considered for model building, Key Quality Indicators considered in QEM and Best Practices assumed for model. It also discusses about linking the model to student performance, criticisms of the model and funding. It mainly focuses on financial aspects of the model. Article says that The Quality Education Model (QEM) identifies components of quality education, then estimates the cost of those components. The model is based on prototypical schools, encompasses the goals and requirements of the Oregon Education Act, and includes “key quality indicators.” The commission meets monthly to refine the model, and changes are reflected in the biennial report. Effort is made to track school district salaries and other expenses to make estimates as accurate as possible. The key indicators mentioned are – “Leadership that facilitates student learning, community involvement, organizational adaptability, safe and orderly environment, district with aligned curriculum and maximum allocation of resources to the classroom, effective teachers, student connectedness to school

(Commission U. G., 2003), In this report committee has discussed about many things about Management and Reorientation of Higher Education. Under Quality Assurance in Higher Education part, there are two sub-sections namely - Sustaining Quality and Assessment and Accreditation. For sustaining quality, committee recommended integrated approach in which experts from different fields can be involved who will share their experiences in a holistic framework and discussions can be held at different levels like core committee level, sub-committee level, etc. Also, university should develop multidisciplinary curriculum which will fulfil needs and expectations of all stakeholders like students, parents, employers and society. Researcher especially opine that, “Augmentation of Cognitive capital through the University curriculum will be the indicator of quality education.” For this, while designing the curriculum, universities must adopt scientific and technological developments as core components. Context specificity and global developments must be visualised with a holistic perspective.

In 2nd sub-section that is Assessment and Accreditation, committee Recommended that, “India being a country of the sub-continental size with a population above 1 billion, the quantitative expansion of education is of

paramount importance to mitigate disparities across regions, gender and social strata in the field of education. This should be given due consideration.” Also, along with quantitative expansion it is essential to increase quality of higher education. For this it is essential to find efficient ways & strategies to accelerate the accreditation of HEI by NAAC within specified time frame at the same time HEIs should keep in mind that quality is not one-time phenomenon rather it is a continuous process. Hence post-accreditation universities/institutes must set a mechanism for self-regulation.

(Picus, 2003), has written this article to describe Oregon Quality Education model. When policy makers were trying to determine the money Oregon’s schools will require to satisfy the state education reform motto and deliver quality education, the political and economic realities they faced are also explored in this article along with rationale behind the steps in development of model. According to this article, it is the adequacy funding model which tries to link the resources given to schools along with the learning outcomes that are expected. This model connects various key aspects of state education policy like funding, enhancement of schools, performance of system and accountability. The model can be described as:

Quality education goals + Elements and components of prototype schools +
 Quality indicators + Predicted performance = Quality Education model

Model employs the essentials and cost of quality education and specifies quality indicators that determine the effective way in which prototype schools supposed to be working. These are the aspects which take into consideration the quality of the education program and the organization and culture of the school.

3. RESEARCH METHODOLOGY

3.1 OBJECTIVES

- To identify the factors affecting quality of higher education
- To analyze the extent to which these factors affect quality of higher education
- To determine and compare the current positions of public & private universities for providing quality education.

3.2 HYPOTHESIS:

Hypothesis 1 -

H₀: There is no significant impact of Quality indicators on the quality of higher education

H₁: There is a significant impact of Quality indicators on the quality of higher education.

Hypothesis 2 –

H₀: There is no significance difference between average responses of quality parameters of Private Universities and Public (State) Universities.

H₁: The average responses of quality parameters of Private Universities are greater than Public (State) Universities.

3.3 RESEARCH DESIGN:

In this Exploratory type of research, researchers have used Convenience sampling as a sampling technique as data collection was based on respondents’ availability and willingness to take part in the research.

Population

As per UGC consolidated list May 2021, there are 24 State Public Universities and 18 State Private Universities in Maharashtra. As this research pertains to the study of public and private universities in Maharashtra, these universities are considered as population for the study. Apart from this there are other private universities present in the state but researchers have limited the scope of the study to the public and private universities under UGC only.

Sample Size

For entire population, questionnaire has been sent to the registrar of universities, HODs and faculty of all department via whom it was forwarded to students. As mentioned above, data collection is done as per respondents’ (faculty and students) willingness. All those universities whose faculty and students responded to the questionnaire were considered as sample for the study. Out of total 24 State Public Universities, 11 have replied (Table -5) whereas out of 18 State Private Universities, researchers received responses from 9 universities (Table -6) which are mentioned below.

Universities in Maharashtra	Population (Total No. of Universities)	Sample Size (Universities under study)	Respondents Size (Faculty+Students)
Public	24	11 (46%)	513
Private	18	09 (50%)	257

Table 4: – Population and Sample Size of Study

Total 770 responses were collected from both public and private universities. Total 513 responses are collected from public universities out of which faculty responses are 142 and student responses are 371. Whereas total 257 responses are collected from private universities out of which faculty responses are 80 and student responses are 177.

State Public Universities Selected for Study	
1	Dr. Babasaheb Ambedkar Marathwada University
2	Gondwana University
3	Kavayitri Bahinabai Chaudhari North Maharashtra University
4	Mahatma Phule Krishi Vidyapeeth
5	Mumbai University
6	Sant Gadge Baba Amravati University

7	Savitribai Phule Pune University
8	Shivaji University
9	Punyashlok Ahilyadevi Holkar Solapur University
10	Swami Ramanand Teerth Marathwada University
11	The Rashtrasant Tukadoji Maharaj Nagpur University

Table 5: - State Public Universities Selected for Study

State Private Universities Selected for Study	
1	Ajeenkya D.Y. Patil University
2	Amity University
3	D. Y. Patil University
4	Dr. Vishwanath Karad MIT World Peace University
5	MGM University
6	MIT Art Design and Technology University
7	Sandip University
8	Symbiosis Skills and Professional University
9	Vishwakarma University

Table 6: - State Private Universities Selected for Study

➤ **Departments Participated in Research:**

From the above mentioned public and private universities (sample size), respondents from many departments falling under higher education have responded to the questionnaire which are mentioned below (Figure-1). Certain departments have sub-streams or branches from which responses were received in particular, which are:

- Management (Business Administration, Computer Application, Hotel Management)
- Engineering (IT, Computer, Civil, Chemical)
- Science (Physics, Chemistry, Mathematics, Statistics, Computational Science, Environment Science, Life Science, Computer science, Social Sciences, Biotechnology, Zoology, Geology, Entomology, Microbiology)
- Arts & Humanities (History, Geography, Political science, Psychology, Sociology, Economics, Home Science)

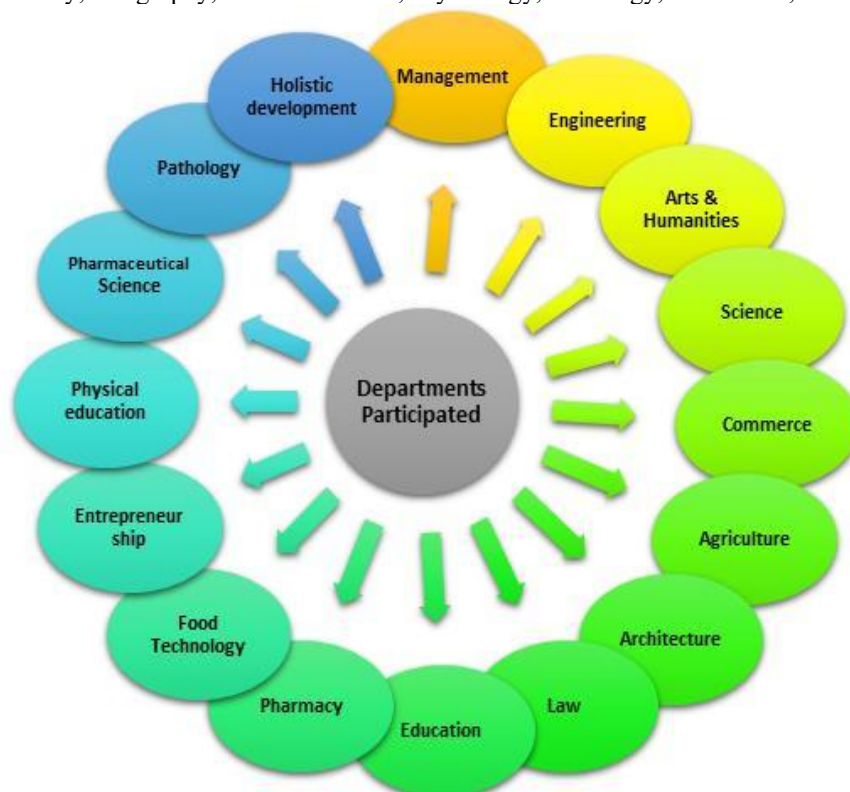


Figure 1: – Departments Participated in Research

Data Collection

For this study, primary data, mainly qualitative type of data seeking opinions of the respondents regarding underlying variables, is collected. This Primary Data is collected with the help of structured questionnaire which is designed on the basis of Quality Indicators from Oregon Quality Education Model. Also, secondary data is collected for literature

synthesis and other information regarding higher education. This data is collected from previous research papers, conference proceedings, books and reports from various authorities.

The questionnaire is divided in three parts. In first part, general information of respondents like name, gender, university type, university name, department, etc. is collected. In second part there are questions regarding different variables defining the quality of higher education which acts as a dependent variable. Whereas in third part there are questions related to the determinants of quality of higher education which will be considered as independent variables.

➤ **Dependent Variable**

A total of 7 questions related to the quality of higher education like placement record, academic record, research and publication, teaching and administrative staff, co-curricular and extra-curricular activities, industry connect, curriculum, etc. are set in the questionnaire based on which quality of higher education can be evaluated. The responses are collected on 5-point Likert scale which is considered as dependent variable under study.

➤ **Independent Variable**

In third part of questionnaire, a total of 16 questions are set which are divided in four broader categories viz Institute-Level Factors, Teacher-Related Factors, Classroom-Focused Factors, Students-Centred Factors. These variables are nothing but the factors/determinants affecting quality of higher education which are framed based on Quality Indicators from Oregon Quality Education Model. The responses are collected on 5-point Likert scale and are these 4 variables are considered as independent variable under study.

The collected primary data is entered in SPSS Version 2.5 software and data cleaning is done under which data is checked for errors if any and corrected values were entered at the places required. Also, the qualitative data is converted into number form by assigning numeric values to them and the data is made analysis ready.

Data Analysis

Demographic data such as gender, university type, category (Faculty/students) of respondents is analyzed with help of basic tools as tables, frequency, percentage and graphs. For hypothesis testing, statistical techniques like descriptive statistics, Analysis of Variance (ANOVA), T-test are used.

4. DATA ANALYSIS AND FINDINGS:

4.1 Demographic Profile:

Gender-

Gender	Number of Respondents	Percentage
Male	369	48
Female	401	52

Table 7: – Gender of Respondents

There are 770 number of respondents in all, out of which 48% are male and 52% are female.



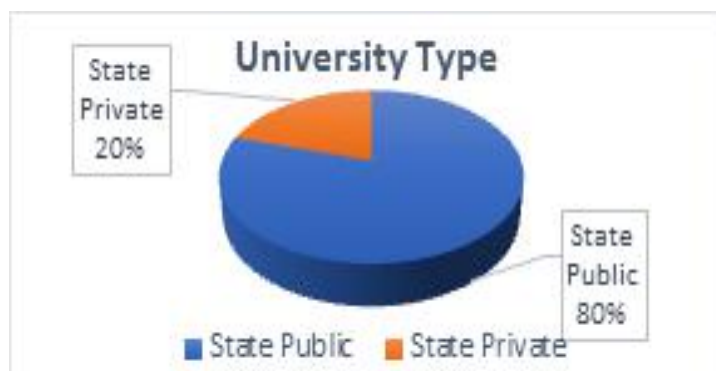
Graph 1: – Gender of Respondents

University Type-

University Type	Number of Respondents	Percentage
State Public	528	69
State Private	242	31

Table 8: – University Type of Respondents

Out of total 770 respondents, 69% are from State Public Universities and 31% are from



Graph 2: – University Type of Respondents

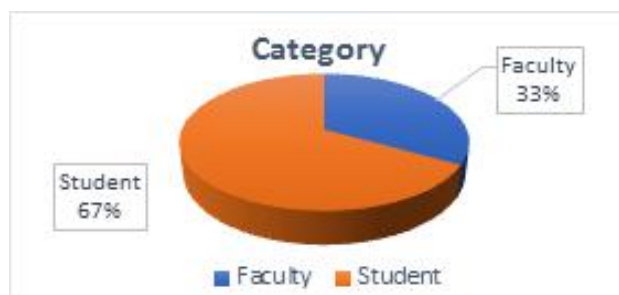
State Private Universities. This huge gap is due to hesitation of private university respondents to provide their opinion.

Category-

Category	Number of Respondents	Percentage
Faculty	226	29
Student	544	71

Table 9: – Category of Respondents

Out of total 600 number of respondents there are 29% faculty and 71% students. This difference is obvious due to pupil-teacher ratio.



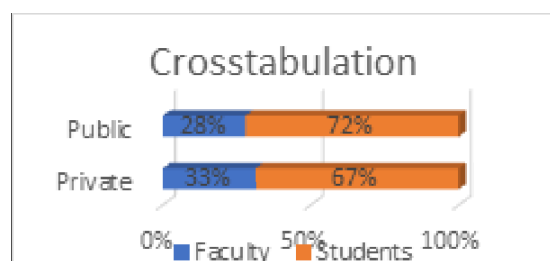
Graph 3: – Category of Respondents

Crosstabulation

University Type ↓ / Category →	Faculty	Students	Total
Public	147	381	528
Private	79	163	242
Total	226	544	770

Table 10: – Crosstab for University Type & Category

Out of total responses, 69% responses are from public universities and 31% responses are from private universities. In public universities, 28% are faculty and 72% are student responses whereas in private universities, 33% are faculty and 67% are student responses



Graph 4: – Crosstab for University Type & Category

4.2 VARIABLES AND MEASUREMENTS:

Independent Variable: Quality Indicators

Four Quality Indicators: Institute Level Factors, Teacher-Related Factors, Classroom-Focused Factors, Students-Centred Factors are considered as independent variables. The following quality indicator certain attributes are offered to the respondents and respondents were requested to pursue each attribute on the quality of higher education using a Likert scale (1 = strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = strongly agree)

Institute Level Factors a) Leadership that facilitates student learning b) Industry involvement for various activities c) Status of the Institute d) Infrastructure & learning resources availability e) Government policies to support learning	Teacher-Related Factors a) Teacher’s qualification and teaching quality b) Teacher collaboration with research & industry c) Professional development program for teachers d) Teacher’s relationship with students e) Teacher’s subject knowledge and presentation skills
Classroom-Focused Factors a) Effective teaching methodology b) Classroom Feedback system c) Continuous analysis to improve teaching methods	Students-Centred Factors a) Readiness to learn b) Participation of student in research activities c) Engagement in academic & extra-curricular activities

Table 11: – Quality Indicator Attributes

Dependent Variable: Quality of Higher education

Quality of Higher education was originally a multiple item scale measured using six attributes. The responses for the same are also collected using Likert scale. The items scale is converted into single item scale (Summated Scale) for the sake of stepwise regression.

4.3 HYPOTHESIS TESTING

Hypothesis 1 -

H0: There is a no significant impact of Quality indicators on the quality of higher education

H1: There is a significant impact of Quality indicators on the quality of higher education.

Level of significance: $\alpha = 0.05$

Descriptive Statistics

	Mean	S.D.	N
My department/university has good placement record	4.213	0.554	770
My department/university has good academic record	4.260	0.867	770
High quality research & publication is done in my department/university	4.190	0.854	770
My dept/university has supporting academic and administrative staff	4.267	0.861	770
My dept/uni has effective co-curricular & extra-curricular activities	4.240	0.857	770
My department/university has high industry connect	4.520	0.851	770
My department/university has relevant curriculum	4.190	0.869	770

Table 12: – Descriptive Statistics of the attributes of quality higher education.

From the above descriptive table, it can be seen that all the attributes of quality higher education have the mean value is more than 4. Which indicates that quality of higher education is affected and most of the respondent agree on good quality

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.741	0.549	0.540	0.823

Table 13: – Model summary of regression analysis.

Predictors: (Constant), Student Engagement In Academic & Extra-Curricular Activities, Industry Involvement For Various Activities, Status of The Institute, Teacher’s Relationship With Students, Government Policies To Support Learning, Participation of Student In Research Activities, Leadership That Facilitates Student Learning, Teacher Collaboration With Research & Industry, Continuous Analysis To Improve Teaching Methods, Infrastructure & Learning Resources Availability, Classroom Feedback System, Professional Development Program For Teachers, Students' Readiness To Learn, Teacher’s Qualification And Teaching Quality, Effective Teaching Methodology, Teacher’s Subject Knowledge And Presentation Skills

Dependent Variable: Quality of Higher education

Adjusted $R^2 = 0.540$. Hence all the 16 attributes of independent variables (quality indicators, can explain 54.0% of variance of the dependent variable of quality indicators.

Coefficients and Collinearity Statistics

Model	Coefficients		t	Sig.	Collinearity Statistics		
	B	Std. Error			Sig.	Tolerance	VIF
(Constant)	0.191	0.142	1.349	0.0171	0		
Leadership That Facilitates Student Learning	.154	.046	3.347	.001	0.00	.473	2.113
Industry Involvement for Various Activities	.401	.040	10.061	.000	0.00	.548	1.826
Status of The Institute	.159	.045	3.562	.000	0.00	.532	1.879
Infrastructure & Learning Resources Availability	.139	.047	2.981	.003	0.00	.573	1.744

Government Policies to Support Learning	.013	.046	.291	.771*	0.00	.511	1.957
Teacher’s Qualification and Teaching Quality	-.151	.059	-2.563	.011	0.00	.562	1.781
Teacher Collaboration with Research & Industry	.048	.049	.984	.325*	0.00	.473	2.113
Professional Development Program for Teachers	.081	.051	1.583	0.014	0.00	.548	1.826
Teacher’s Relationship with Students	0.045	.057	0.796	0.000	0.00	.532	1.879
Teacher’s Subject Knowledge and Presentation Skills	-.086	.065	-1.328	.185*	0.00	.573	1.744
Effective Teaching Methodology	0.073	.062	-1.176	0.000	0.00	.511	1.957
Classroom Feedback System	.217	.054	3.994	.000	0.00	.562	1.781
Continuous Analysis to Improve Teaching Methods	-.047	.052	-.901	.368*	0.00	.473	2.113
Students' Readiness to Learn	.026	.052	.496	.620*	0.00	.548	1.526
Participation of Student in Research Activities	.010	.045	.226	0.00	0.00	.532	1.979
Student Engagement in Academic & Extra-Curricular Activities	.068	.050	1.363	0.000	0.00	.568	1.689

Table 14: – Coefficient and Collinearity Statistics of independent (predictor) variables in regression equation.

FINDINGS

From the above Coefficients and Collinearity Statistics it can be seen that

1. Leadership that facilitates student learning has a positive impact on higher education (B = 0.154, p = 0.001) significant.
2. Industry involvement for various activities has a positive impact on higher education (B = 0.401, p = 0.000) is significant.
3. Status of the Institute has a positive impact on higher education (B = 0.159, p = 0.000) is significant.
4. Infrastructure & learning resources availability has a positive impact on higher education (B = 0.139, p = 0.003) is significant.
5. Professional development program for teachers has a positive impact on higher education (B = 0.08, p = 0.014) is significant.
6. Teacher’s relationship with students has a positive impact on higher education (B = 0.045, p = 0.000) is significant.
7. Effective teaching methodology has a positive impact on higher education (B = 0.073, p = 0.000) is significant.
8. Classroom Feedback system has a positive impact on higher education (B = 0.217, p = 0.000) is significant.
9. Participation of student in research activities has a positive impact on higher education (B = 0.10, p = 0.000) is significant.
10. Students Engagement in academic & extra-curricular activities has a positive impact on higher education (B = 0.068, p = 0.000) is significant.
11. Multicollinearity is not a problem. Since tolerance is more than 0.1 and VIF is less than 10. Hence the hypothesis “There is a significant positive impact of Quality indicators on the quality of higher education” is proved.

DISCUSSION

The factors which affect the quality of higher education are Leadership, Industry involvement, Status of the Institute, Infrastructure & learning resources, Professional development program for Teacher, Teacher’s relationship with students, Effective teaching methodology, Classroom Feedback system, Participation of student in research activities, and Students Engagement in academic & extra-curricular activities

The above factors have positive significant impact on quality of higher education.

HYPOTHESIS 2 –

H₀: There is no significance difference between average responses of quality parameters of Private Universities and Public (State) Universities.

H₁: The average responses of quality parameters of Private Universities are greater than Public (State) Universities.

Two-Sample T-Test

	University Type	N	Mean	S.D.	T-Test of difference = 0 (vs >) P-Value	
Good Placement Record	Private University	257	4.13	.833	0.000	Reject H ₀
	Public (State) University	513	3.45	1.316		
Good Academic Record	Private University	257	4.35	.724	0.000	Reject H ₀
	Public (State) University	513	3.96	1.176		

High Quality Research & Publication	Private University	257	3.85	.945	0.070	Accept H_0
	Public (State) University	513	3.73	1.209		
Supporting Academic & Administrative Staff	Private University	257	4.25	.837	0.000	Reject H_0
	Public (State) University	513	3.83	1.214		
Effective Extra & Co-curricular Activities	Private University	257	4.34	.804	0.000	Reject H_0
	Public (State) University	513	3.79	1.204		
High Industry Connect	Private University	257	4.11	.831	0.000	Reject H_0
	Public (State) University	513	3.28	1.279		
Relevant Curriculum	Private University	257	4.32	.820	0.000	Reject H_0
	Public (State) University	513	3.79	1.157		

Table 15: – Two-Sample T-Test of quality parameters.

From the above Two-sample test table, it can be seen that all the average responses of quality indicators of private universities are greater than public (state) universities except High quality Research & Publication indicator.

From above result we concluded that private universities are providing more quality education as compare to public (state) universities.

5. SUGGESTIONS

(Geiger, 1988)“Has identified three patterns worldwide in the distribution of private and public sectors of quality of higher education: mass private with limited public sectors; comprehensive public with peripheral private; and parallel public and private. What is a reasonable balance between state and nonstate funding and number of institutions is context based, and depends on the historical development of quality of higher education and current needs and resources in specific country”Both, public and private education sectors have pros and cons. Private universities have more funds to provide world class infrastructure, eminent faculty, and upgraded study material. These universities implement innovative teaching methodology. It has better industry connect because when students pay high fees for education, obviously they demand better quality and career opportunities from their institutions. But on other hand, public universities ensure that higher education provides equal opportunity and suitable access to all students irrespective of socioeconomic background and locality. It ensures to provide free or low-cost tuition, subsidies, scholarships and loans, while private universities are less inclined towards such activities. Sometimes due to the robust financial moto, private universities may focus on maximizing resource efficiency even at the cost of education quality e.g., large size of classroom with more number of students, inefficiently paid faculty who mostly engage in moonlighting, etc (Kinser, 2010) though it is not the case in all private institutions. Hence, as said earlier, both public and private sectors have pros and cons. Negative aspect of one can be neutralized with positive aspect of other and vice a versa. As per researcher’s opinion, in India, public and private sectors should work together hand-in-hand to improve the efficiency and quality of higher education and to develop highly skilled, industry ready manpower. When such manpower will migrate from universities to businesses, industry and economy will grow. So, a liberal modern education system is required in India which can adapt itself to changing environment of society, economy and world.

6. CONCLUSION

In this research paper, a comparative study of State Public and State Private Universities is done to identify the factors affecting quality of Quality of higher education and the extent to which these factors affect quality. The paper has identified the determinants of quality using The Oregon Quality Education Model which is used as a base for designing research instrument. Four Quality Indicators: Institute Level Factors, Teacher-Related Factors, Classroom-Focused Factors, Students-Centred Factors are considered as independent variables which are further defined by certain attributes. Similarly, Quality of Quality of higher education is considered as dependent variable which is a multiple item scale measured using six attributes. These attributes of both dependent and independent variables were offered to the respondents to rate on five-point Likert Scale. The data collected is analysed using tables, graphs, frequency, percentage, descriptive statistic, ANOVA and T-test. Based on the analysis the research concludes that, Industry involvement, Classroom Feedback, Status of Institute, Leadership that facilitates student, Infrastructure/learning resources, Teacher’s Professional development program, teaching methodology, Students Engagement in academic & extra-curricular activities, Teacher’s Research & Industry Collaboration, Participation of students in research activities are the determinants of quality of higher education. As far as the quality is concern, Private Universities offer more quality education than Public Universities.

This could be due to the fact that investment made by universities in both sectors varies tremendously and both have altogether different motives which affects the education quality. (Srisruthi KM, 2018)Private universities are profit oriented and encompasses huge investment hence tends to provide advanced physical and technological infrastructure, upgraded study material for providing quality education. Also, it is seen that private education sector is more

responsive, flexible, adaptive to change, innovative, market need oriented and don't rely much on traditions. (Kwiek, 2008) "They are more likely to have better control over expenses and cost reduction measures—hence making them more efficient."

On the other hand, public universities work for society welfare purpose still due to limited investment these universities have limitations in providing all above things as upgraded as private universities hence comparatively lower quality of education than private universities. A study (Agarwal, 2006), states that, "only a few public quality of higher education institutions are reasonably funded, most of them face a severe financial constraint, which is reflected in their sloppy standards. In several cases the public funds are not optimally utilised and the mechanism promotes inefficiencies. In most cases, public quality of higher education institutions has no incentives for internal resource generation." Hence more financial support should be provided by State and Central governments in order to achieve minimum quality standards in public universities and also public universities should reduce its dependency on government funding and start pooling resources from other possible sources.

India has a unique opportunity to utilize its excess population as human capital to strengthen its economy. This is possible only by creating competitive environment, innovation and responsiveness by both public and private quality of higher education universities. A transformation is needed in education module of both sectors to fetch quality output from all other sectors of Indian economy. This transformation can be achieved by defining strong vision, understanding new realities and taking bold decisions in order to fulfil these requirements. Hence to shift from developing economy to developed economy, we need to nurture the talent by implementing progressive policies in quality of higher education.

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