

How to Cite:

Divyaranjani, R., Shanthi, H. J., Charith, B., & Saravanan, M. (2022). An analysis on quality between biopharmaceuticals and traditional pharmaceuticals in training institutes. *International Journal of Health Sciences*, 6(S2), 11806–11818.
<https://doi.org/10.53730/ijhs.v6nS2.8169>

An analysis on quality between biopharmaceuticals and traditional pharmaceuticals in training institutes

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Abstract---Communication Skills, Academic Performance, Generic Skills, Learning Skills, Social Responsibility. Employment Competence and Academic Preparedness are found as the factors for the criteria for the quality of students. Presentation Skills, Academic Competence, Interpersonal Skills and Team Bonding Skills are found as the factors for the criteria for the quality of faculty. The need of the hour, therefore, is to improve employability quality of manpower; it may not be fair to fully transfer this responsibility to the Industry Leaders. This responsibility has to shared equally between industry and academic responsibility. The object of this study is to study the training and development provided between the Academic Leaders, the Professors and Industry Leaders on Criteria for Quality of Higher Education in General and Quality of Students and Faculty in particular. A standard questionnaire with criteria for the quality of Students and criteria for the quality of faculty was designed. The validated and redesigned questionnaire was administered to 200 faculties from 10 different biopharmaceuticals and traditional pharmaceuticals training institutes. The questionnaire was also mailed to 250 Institute persons and received 100 responses.

Keywords---presentation skills, academic competence, interpersonal skills, team bonding skills.

Introduction

Within a context of Higher Education gaining an international dimension, Universities and Higher Education Institutions are expected to be sensitive to local, National and Global expectations, In short, students and faculty members of biopharmaceuticals and traditional pharmaceuticals Institutions are expected to play a very different, dynamic, role than other Universities. UGC grants many Higher Education Institutions the status of Deemed Universities. Universities and Deemed Universities are increasing student intake, course offerings, partnerships, non-traditional modes of learning, flexible lifelong learning initiatives etc. In the case of affiliating Universities, their role in promoting the concept of academic leadership for Quality enhancement is being emphasized.

The various dimensions of changing conditions and emerging trends discussed above- starting from mass higher education of comparable quality to new models of management and performance evaluation have brought both quality and standards of higher education to the forefront. The need to move from ensuring minimum Quality & Standards towards assuring higher Quality & Standards is apparent. Today, performance evaluation, accountability and higher standards have become watchwords in any discussion on revamping quality medicines. India's problem is a talent pool which is world class in terms of quality of education and employability in medical industry. Industry Leaders often lament that only 15% of people coming out of Indian pharmaceuticals colleges are employable. The need of the hour, therefore, is to improve employability quality of manpower; it may not be fair to fully transfer this responsibility to the Medical Industry Leaders. This responsibility has to share equally between biopharmaceuticals and traditional pharmaceuticals responsibility.

Perceptions of the role of the biopharmaceuticals and traditional pharmaceuticals had also changed by then. It is expected that biopharmaceuticals be directly involved in enhancement of Quality of medicines and the transformation of society and its economic development through partnership activities and Institute-Industry linkages. In the academic world Quality assessment has traditionally assumed two apparently contradictory objectives: Quality improvement and accountability. The institutes have focused on quality improvement and the governments have focused on accountability. Quality has thus become the defining element of biopharmaceuticals in the 21st Century.

At this juncture, the study of perceptual difference between biopharmaceuticals and traditional pharmaceuticals on the Quality of medicines is highly relevant and significant. Hence it is our objective to study the Perception Gap between the Medical Academic Leaders, the Professors and Medical Industry Leaders on Criteria for Quality of Higher Education in medicine and Quality of Students and Faculty in particular.

Literature Survey

Quality Assessment in Higher Education is of global interest; government and public demand for accountability from higher education institutions has steadily increased over the past decade^[1]. The need for ensuring the validity and utility of

the assessment process has also increased. To be useful, the assessment must meet the needs of the people whom it is intended to benefit and aid the evaluated institution to make improvements. One observes that most of the time the educational institutions undertake quality assessment basically to comply with the requirements of some external bodies. If the quality assessment were too be beneficial the administrators, faculty and students need to understand the importance of each criteria and view the assessment as a guiding tool for improvement in the overall functioning of the organization.

This paper reviews existing literatures on the analysis of performance appraisal (PA) and focusing special attention on those factors which influences and motivates the employees in a positive ways. Sample size for this study is 100. Questionnaire is used to collect data from the sample size of 100. This small piece of study analysis the data and gives suggestion to improve the PA and motivates the employees in a positive ways^[1]. Diana Green defined the Quality of Higher Education as "Producing Graduates to meet the Human Resources needs of an Organization in the Business, Industrial and Services Sectors". Quality of the product or service is measured in terms of its conformation to the specification. The definition of Quality adopted by most analysts and policy makers in Higher Education is that of Fitness for Purpose. Definition of Quality varies, and to some extent, reflects different perspectives of the individual and society. Moreover, it is observed that different stakeholders assign different values to each criterion. This happens because the stakeholders have differing perspectives about each criterion.

The career development practice being implemented involving selective practices on the advice and guidance, one-on-one discussions which supports the employee to identify the career needs like mentoring, counseling, coaching and feedback^[2]. In order to foster growth and development in today's competitive environment it is essential to create a working environment that can be accomplished by implementing career development practices. He aims to develop an in-depth understanding between the psychological contract and employment relationship amongst the employees with special reference to the contributions of HR Practices towards employee career development in biopharmaceuticals and traditional pharmaceuticals industry in Chennai, India. HR practices are considered as a bridge between employee behaviour and organizational effectiveness. And it is understood that employees actively manage the exchange relationship by the psychological contract and the relationship between the HR practices and employee loyalty and employee commitment is established beyond doubts through Psychological contract

Several researchers have investigated the criteria for quality of Higher Education based on the perceptions of stakeholders namely Public, administration, faculty, or student. The public wants students to graduate with general abilities and emphasizes criteria such as communication skills^[3]. University administration is obliged to show that they use the resources efficiently and effectively. The prime concern of the university authorities would always be completion of program requirements by students. Faculty believe that the primary obligation of the university toward the students to be the development of intellectual independence^[4] and hence they focus on criteria such as the ability to think

critically^[5]. Since the students are more concerned about their own careers they are found to put higher value to the criteria such as the ability to get job.

The most common approaches to quality assessment are based on reputation and resources ^[1]. Reputation is a global assessment of the perceived status or excellence of an institution or program. This is measured by outside experts to rate the institution or program^[6]. The resource approach to quality uses input measures of faculty and student quality and physical and fiscal resources endowments, per-student expenditures, One of the popular resource approach to quality is to measure the academic ability of students at entry to college or university. Other popular approach makes use of performance indicators measure things like how many students in a institution go on to complete the degree or program to which they had enrolled or how many of graduate students take up graduate education and so on, The flaw in these approaches is that they do not suggest how improvements in quality could be made^[7].

The students are the major stake holders in higher education and therefore focus should be on students in all assessments of educational quality^[8]. Therefore, the educational institutions should be assessed based on their ability to impact the students and faculty. Astin suggests that quality assessment should be used as a tool for talent development. The students and their perceptions of quality criteria need to be incorporated into the assessment process^[9]. Higher Education Institutes with the greatest educational impact are those with clear and consistent educational goals that are shared by faculty and students^{[10][11]}. Higher Education Institutions with the greatest educational impact are those with clear and consistent educational goals that are shared by faculty and students.

The academic institutions need to be very responsive to tectonic shifts that are occurring in higher education by undertaking strategic planning on an ongoing basis similar to the way that is done by the business world^[12]. The educational institutions be it colleges or universities have been very slow in adopting to social change^[13]. The academia should involve industries right from the stage of framing the syllabus to absorbing the trained students. This will reduce the time required for orienting the fresh graduates before they are inducted into the shop floor^[14]. The fresh graduates require six months to two years to start contributing to the organization^[15]. Moreover, they observed that many leave the organization before they start showing results. The author attributes this to the gap between theory and practice.

The academia trails the business in understanding the business trends^[16]. They suggest that academia need to be aware of the trends rather than the fads in business, if it has to be relevant in order to turning out graduates who are employable. The perception gap between academia and industry needs to be bridged in order to improve the quality of education and thereby improving the employability of students^[17]. To date, the perceptions of the major stakeholders "Industry" on the quality criteria of students (output) and faculty (input) is ignored and left unaddressed. Hence we sought to determine the perception of Faculty and Industry in the criteria for both the Quality of Students and faculty. The perception Gap between Academic Leaders and Industry Leaders is sought to be identified on criteria/ factors for quality of students such as communication

skills, academic performance, generic skills, learning skills, social responsibility, employment competence and academic preparedness. It is also sought to determine the perception gap between faculty and industry on criteria/factors for quality of faculty such as presentation skills, academic competence, interpersonal skills and team bonding skills. We sought to determine the effects of gender, Marital status Education and Experience on Industry perceptions on students quality.

Methodology

Sample

A sample of 100 persons from industry and 200 persons from biopharmaceuticals and traditional pharmaceuticals institutions were chosen for the study. 65% of medical Industry persons and 35% from Non-medical Industries. Male and female form 80% and 20% respectively. 52% of the Industrial Respondents had less than 5 years of Experience and the remaining 48% had more than 5 years of Experience in the medical Industry. Married people were 45% and the unmarried people from the medical Industry were 55%. Among the 200 Faculty members, 50% were male and 50% were Female. 20% of faculty was from senior positions and 80% were from Junior positions. 60% of Faculty was married and 40% were unmarried.

Procedure

A questionnaire with 25 criteria for the quality of Students and faculty was designed based on the recent research articles to examine the perception of criteria for the quality of Students and Faculty. The questionnaire was administered to 40 faculty members and 15 Medical Industry persons as a pilot study. After conducting the validity test and the factor analysis, the questionnaire had been redesigned with 23 criteria for the quality of Students and 18 criteria for the quality of faculty. The validated and redesigned questionnaire was administered to 200 faculties from 10 different biopharmaceuticals and traditional pharmaceuticals institutions. The questionnaire was also mailed to 250 Industrial persons and received 100 responses from both biopharmaceuticals and traditional pharmaceuticals. Faculty and Industry people were informed that their participation was being solicited to achieve a better understanding of the perception of the Industry and Faculty on Quality of Students and faculty and to improve the Quality of biopharmaceuticals and traditional pharmaceuticals Institutions. In one section of the questionnaire, the questionnaire were asked to use a 5-point response scale (1=not at all important, 2= somewhat important, 3= important, 4= quite important, 5= extremely important) to indicate how important they felt each criteria was for evaluating the quality of a student and faculty. Factor analysis was conducted on the collected data and tabulated (See Appendix -Table1-4).

Analysis & Results

Table : 1
Criteria for Quality of Students according to Industry Perception
Reliability Test: Alpha = 0.812 KMO = 0.725

FACTOR ANALYSIS						
S.No	Questionnaire	Factor	Loading	Alpha	Mean	Variance
20	Written Communication Skills	I	0.789 R	0.781	4.13	0.723
21	Presentation skills	I	0.742 R			
22	Oral Communication skills	I	0.818 R			
ACADEMIC PERFORMANCE						
7	Openness and Flexibility	II	0.573R	0.606	0.37	0.85
12	Completion of Program requirements	II	0.712R			
13	Expertise at the end of the program	II	0.714R			
GENERIC SKILLS						
3	Basic Mathematical Competency	III	0.684R	0.594	4.017	0.778
6	Sense of Responsibility	III	0.757R			
8	Ability to interact with others	III	0.635R			
LEARNING SKILLS						
9	Effective study skills & habits	IV	0.487R	0.62	3.86	0.881
10	Moral & Ethical Reasoning	IV	0.555R			
16	Commitment to lifelong learning	IV	0.686R			
19	Ability to apply knowledge	IV	0.795R			
SOCIAL RESPONSIBILITY						
17	Commitment to Physical Fitness	V	0.618R	0.515	3.41	0.980
23	Commitment to Social Concerns	V	0.763R			
EMPLOYMENT COMPETENCE						
11	Personal Student Development	VI	0.411R	0.687	4.00	0.725
14	Ability to get a job	VI	0.846R			
15	Performance on the job	VI	0.722			
ACADEMIC PREPAREDNESS						
01	Secondary School Preparation	VII	0.806R	0.313	3.44	1.159
02	Preparedness for a specific program	VII	0.675			

18	Leadership Skills	VII	0.407			
INTELLIGENCE						
04	Intelligence	VIII	0.576 R	0.542	4.01	0.80
05	Commitment to Learning	VIII	0.447R			

TABLE : 2
Criteria for Quality of Faculty according to Industry Perception
Reliability Test: Alpha = 0.855 KMO = 0.815

FACTOR ANALYSIS

FACTOR ANALYSIS						
S.No	Questionnaire	Factor	Loading	Alpha	Mean	Variance
4	Presentation Skills	I	0.559	0.676	4.128	0.703
5	Approachable by Students	I	0.663			
9	Leadership Skills	I	0.572R			
15	Friendliness with Students	I	0.847R			
SOCIAL RESPONSIBILITY						
12	Commitment to social Concerns	II	0.688R	0.732	3.5	1.066
16	Temperament	II	0.645R			
17	Sense of Humour	II	0.488R			
18	Commitment to Research	II	0.745R			
ACADEMIC PERFORMANCE						
1	Ability to Explain Clearly	III	0.643R	0.714	4.308	0.542
3	Depth of Knowledge	III	0.754R			
8	Problem Solving Skills	III	0.549R			
10	Commitment to Knowledge Updation	III	0.641R			
INTERPERSONAL SKILLS						
2	Ability to Encourage the students	IV	0.757R	0.666	4.193	0.67
11	Commitment to Ethical Values	IV	0.477R			
14	Confidence	IV	0.593R			
13	Enthusiasm	IV	0.536R			
TEAM BONDING SKILLS						
06	Ability to use Computer & Technology	V	0.758R	0.594	3.81	0.815
07	Ability to work as a Team Member	V	0.735R			

Table: 3
Criteria for Quality of Students According to Faculty Perception Reliability Test:
Alpha+ 0.865 KMO= 0.870

FACTOR ANALYSIS						
S.No	Questionnaire	Factor	Loading	Alpha	Mean	Variance
ACADEMIC PERFORMANCE						
5	Commitment to Learning	I	0.500 R	0.744	3.766	0.964
11	Personal Student Development	I	0.666 R			
12	Completion of Program Requirements	I	0.763 R			
13	Expertise at the end of the Program	I	0.673 R			
SOCIAL RESPONSIBILITY						
16	Commitment to Life Long Learning	II	0.654 R	0.622	3.641	1.115
17	Commitment to Physical Fitness	II	0.581 R			
18	Leadership Skills	II	0.508 R			
23	Commitment to Social Concerns	II	0.657 R			
COMMUNICATION SKILLS						
20	Written Communication Skills	III	0.799 R	0.704	4.0	0.890
21	Presentation Skills	III	0.653 R			
22	Oral Communication Skills	III	0.752 R			
LEARNING SKILLS						
4	Intelligence	IV	0.394 R	0.7	3.69	0.986
7	Openness and Flexibility	IV	0.561 R			
8	Ability to Interact with Others	IV	0.740 R			
9	Effective study skills & habits	IV	0.560 R			
10	Moral & Ethical Reasoning	IV	0.529 R			
ACADEMIC PREPAREDNESS						
2	Preparedness for a Specific Program	V	0.717 R	0.577	3.862	0.832
6	Sense of Responsibility	V	0.718 R			
19	Ability to apply Knowledge	V	0.504 R			
EMPLOYMENT COMPETENCE						
14	Ability to get a Job	VI	0.761 R	0.590	4.125	0.995

15	Performance on the job	VI	0.632 R			
GENERIC SKILLS						
1	Secondary School Preparation	VII	0.757 R	0.475	3.652	1.152
3	Basic Mathematical Competency	VII	0.689 R			

Table: 4
Criteria for Quality of Staff According to Faculty Perception
Reliability Test: Alpha+ 0.882 KMO= 0.866

FACTOR ANALYSIS

INFORMATION						
S.No	Questionnaire	Factor	Loading	Alpha	Mean	Variance
1	Ability to Explain Clearly	I	0.717 R	0.796	4.151	0.830
3	Depth of Knowledge	I	0.662 R			
4	Presentation Skills	I	0.698 R			
6	Ability to use Computer & Technology	I	0.512 R			
10	Commitment to Knowledge updation	I	0.574 R			
14	Confidence	I	0.548 R			
18	Commitment to Research	I	0.575 R			
TEAM BONDING SKILLS						
7	Ability to work as a Team Member	II	0.614 R	0.795	3.79	1.015
8	Problem Solving Skills	II	0.541 R			
9	Leadership Skills	II	0.415 R			
11	Commitment to Ethical Values	II	0.672 R			
12	Commitment to Social Concerns	II	0.769 R			
INTERPERSONAL SKILLS						
2	Ability to Encourage the Students	III	0.521 R	0.678	3.9	0.8
5	Approachable by Students	III	0.775 R			
13	Enthusiasm	III	0.620 R			
PRESENTATION SKILLS						
15	Friendliness with Students	IV	0.759 R	0.649	3.244	1.174
16	Temperament	IV	0.609 R			
17	Sense of Humor	IV	0.739 R			

Table: 5
Perceptions of Industry and Faculty on Criteria for Quality of Students

Factors	Perceptions of Industry	Deviation (D)	Relationship Coefficient ®	Faculty
Communication Skills	82.8667	79.9005	2.96617	0.42522 P value = 0.342
Academic Performance	74	75.3234	1.32338	
Generic Skills	80.3333	73.0348	7.29851	
Learning Skills	77.2	73.7512	3.44876	
Social Responsibility	68.1	72.8109	4.71095	
Employment Competence	80	83.0348	3.03483	
Academic Preparedness	68.7333	77.2471	8.51376	

Table: 6
Perceptions of Industry and Faculty on Criteria for Quality of Faculty

Factors	Perceptions of Industry	Deviation (D)	Relationship Coefficient ®	Faculty
Presentation Skills	82.55	64.87562	17.67438	0.286258 P value = 0.714
Academic Competence	86.15	83.0135	3.136496	
Interpersonal Skills	83.85	77.77778	6.072222	
Team Bonding Skills	76.2	75.801	0.399005	

Communication Skills, Academic Performance, Generic Skills, Learning Skills, Social Responsibility, Employment Competence and Academic Preparedness are found as the factors for the criteria for the quality of students. The Loading of the perceptions of Industry and faculty on the criteria for the quality of the Students were calculated and tabulated. The relationship coefficient was determined ($r = 0.435$ & $p = 0.345$) and it was found that there is no relationship between the perceptions of the Industry and Faculty. The Deviation between the Industry and Faculty was found to be very high on Generic Skills by 7% ($p < 0.01$ & $t = 21.346$).

The major criterion is the Basic Mathematical Competency. Perceptions of Industry Leaders were higher than the Academic Leaders. The gap needs to be bridged to improve the employing of students. There is no gap between the perceptions Faculty and Industry on Communication Skills. However the perception of Faculty on Academic Preparedness is higher than the Industry by 8% ($p < 0.01$, $t = 5.128$). The perception gap between Industry and Faculty was on two factors Generic Skills and Academic Preparedness. (Table 5 & Figure 1).

Presentation Skills, Academic Competence, Interpersonal Skills and Team Bonding Skills are found as the factors for the criteria for the quality of faculty.

The loading of the quality of faculty were calculated and tabulated. The relationship coefficient was determined and it was found that there is no relationship between the perceptions of the Industry and Faculty ($r=0.0.312$, $p=0.702$). The Deviation between the Industry and faculty on Presentation Skills was found to be very high by 18% ($p < 0.01$, $t = 22.536$). It was also observed that on all factors the perceptions of Industry on criteria for quality of Staff were than the faculty. The gap between them was considerably higher on Interpersonal Skills by 6% ($p < 0.01$, $t = 19.256$). (Table 6 & Figure 2). Regression Analysis was also conducted and it was observed that the perceptions on factor “ Academic Performance” differed with age, gender, educational qualifications and experience of the Industry respondents. It was also observed that the Perceptions on factor “Intelligence” varied with age, year of passing and experience. The perceptions on “Learning Skills” were different for the industry respondents with different educational qualifications.

Limitations

The Samples were taken mostly from Engineering and Management Institutions and IT Industries. Extending the Samples to Arts and Science Colleges, Leading Research Institutions and Other professional colleges may yield better insight.

Further Research

The results of this study suggest several avenues for further research. The study may be extended to Arts and Science colleges and leading research organizations. Differences in the perceptions of Industry on criteria for Quality of Faculty and students signifies the need for further exploration as they are the input and output for higher education. The study on Perceptual gap between Students and Industry & Alumni and Industry would be a great boon to improve the Quality of the Higher Education.

Conclusion

The study reveals that there was wide gap between the perceptions of Industry and Faculty on criteria for Quality of students especially on Generic Skills and Academic preparedness in biopharmaceuticals and traditional pharmaceuticals institutions. The Gap was even wider on the criteria for Quality of Faculty especially on Presentation skills of the faculty. The perception Gap between Industry and Faculty must be bridged to improve the employability of the students and enhance the Quality of Higher Education in medical field.

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