

# Importance-Performance Analysis of Service Quality in Higher Education: a Case Study

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*This study evaluates service quality perceptions of two groups of students engaged in management education. It identifies the most influential characteristics as quality of lectures, quality of seminars, knowledge and experience of academic staff and career services. The least influential characteristics are: willingness of the academic staff to provide individual attention and physical appearance of the institution. Importance-Performance Matrix of the first year recognizes all 24 characteristics as areas to maintain while that of the final year indicates the quality of seminars, social opportunities, careers service, internal student feedback system, etc. as areas to be improved. Overall, the study clearly notices declining quality from preceding year to succeeding year on several fronts.*

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## Introduction

Any country's social and economic development largely depends on the status and quality of its higher education system (HES). Having around 21000 institutions, the Indian HES has emerged as the largest in the world (FICCI, 2009). However, the system is beset by issues of quality in many of its institutions: a chronic shortage of faculty, poor quality teaching, outdated and rigid curricula and pedagogy, lack of accountability and quality assurance and separation of research and teaching (Lynne, 2014). Former Prime Minister Manmohan Singh also said (2007): "Our university system is in a state of disrepair. Almost two-thirds of our universities and 90 percent of our colleges are rated as below average on quality parameters..... in many states university appointments, including that of vice-chancellors, have been politicized and have become subject to caste and communal considerations. There are complaints of favoritism and corruption." Recently, NASSCOM-McKinsey's report (2015) identified low employability of existing talent

with only 10-15 percent employable graduates in business services and 26 percent of employable engineers in technology services which continues to be a major challenge facing Indian HES. Although much emphasis was laid in the recent past on the quantitative expansion, there is also a growing concern for quality considerations in the HES.

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### **Review of Literature**

For inclusive innovation in HE, a conceptual study emphasized the linkage between HES and national innovation system through various initiatives like incubation labs, innovative pedagogies, assessment of innovative efforts, intellectual property protection, student publications, research towards social problems, etc. (Ravi Shankar & Vijay Kumar, 2015). An empirical study which developed SQM-HEI model revealed that the quality of education depends on the best faculty, excellent physical resources, and a wide range of disciplines and employability of the graduates (Senthilkumar & Arulraj, 2011). Another research aimed at scale development observed that service quality in HE setting comprises seven dimensions viz. input quality, curriculum, academic facilities, industry interaction, interaction quality, support facilities and non-academic processes (Rajani, Sangeeta & Gautam, 2013). Subrahmanyam and Rajasekhar (2012) developed an instru-

ment called HiEdQUAL and explored dimensions viz. teaching and course content, administrative services, academic facilities, campus infrastructure and support services towards evaluating the HES quality. Another research study employed SERVQUAL methodology to identify gaps between student's expectations and perceptions of the actual service received by them and then identified a set of quality components that meet their needs (Sangeeta, Banwet & Karunes, 2004). Further, Ashish and Arun (2006) observed that IT based knowledge management interventions cast an impact on institutional planning, curriculum development, R&D, etc. and enhance quality of HES. Two recently conducted studies observed that the interpretive structural modeling technique helps an institution prioritize the strategic issues in quality assessment and enhancement (Sangeeta, Banwet & Karunes, 2010; Neena & Nagendra, 2012). The existing literature on HES is mostly conceptual in nature. Besides, the research was confined to scale development only and there was no consensus among Indian researchers about the application of a particular tool or technique for measurement of HES quality. The present study employs IPA matrix which is a pioneering and easy to implement technique towards assessment of HES quality thus expected to accelerate research in India.

### **Objectives of the Study**

The basic intent of this study is to evaluate service quality perceptions of students engaged in business education.

Thus, the study seeks to accomplish the following specific objectives:

- i) To analyze rank-wise importance and performance of HES characteristics
- ii) To conduct importance-performance analysis (IPA) of HES characteristics
- iii) To compare the HES quality perceptions of first and final year students
- iv) To discuss the implications of the results.

### Sample Unit & Respondents

A survey was conducted during the month of October, 2015 among the final year and first year MBA students of the autonomous engineering college in Andhra Pradesh, where the author is also a part of the system. The permitted intake of this department is 120 pupils, each year. Out of the actually admitted 200 (91 in 2014 and 109 in 2015), responses were obtained from a total of 100 students (65 of 2014 batch and 35 of 2015 batch). In case of first year students, the selection was based on their performance in the first internal exam and attendance regularity, because they fundamentally lack experience and awareness of academics unlike their seniors.

### Hypotheses of the Study

The following hypotheses were formulated to facilitate differential analysis. It was assumed that there was no significant difference between the perceptions held by final and first year MBA students as regards the performance of: teaching (H1<sub>0</sub>), academic staff (H2<sub>0</sub>), course structure and academic facilities (H3<sub>0</sub>), administrative staff (H4<sub>0</sub>), personal development (H5<sub>0</sub>) and other aspects (H6<sub>0</sub>). The study employs independent t-tests to test these hypotheses statistically, at 5 per cent common significance level.

### The Survey Instrument

The questionnaire (appendix) contains 24 items corresponding to six dimensions viz. teaching; academic staff; course structure and academic facilities; administrative staff; personal development; and other aspects. The 'importance' scale ranges from 'very important-5' to 'unimportant-1' and 'performance' scale ranges from 'excellent performance-5' to 'poor performance-1'. Cronbach's coefficient alpha was computed (Table 1) which indicated good internal consistency and reliability of the instrument as per the thumb rule "alpha >0.9 – excellent, >0.8 – good, >0.7 – acceptable, >0.6 – questionable, >0.5 –

**Table 1 Cronbach Alpha for Reliability Analysis of the Scale**

Sl.No.	Year	Scale	Items	Cronbach Alpha
1	Final	Importance	All	0.896
2	Final	Performance	All	0.866
3	First	Importance	All	0.885
4	First	Performance	All	0.848

**Table 2 PA Reports on Construct Validity Based on Final Year Performance Data**

Eigenvalue	Observed	Percentile 95.0	Observed	Percentile 95.0
		Teaching		Academic staff
1	1.95122	1.47323	2.03958	1.44990
2	0.98778	1.15797	0.76635	1.16017
3	0.62113	1.00180	0.65559	0.99026
4	0.43986	0.87302	0.53847	0.86820
		Course Structure and Academic Facilities		Admin Staff
1	2.09233	1.46049	2.52245	1.48989
2	0.77340	1.18287	0.86141	1.17148
3	0.65618	0.99257	0.32753	1.00443
4	0.47809	0.88190	0.28861	0.84412
		Personal development		Others
1	2.37407	1.42055	1.81371	1.39861
2	0.74985	1.17476	0.98415	1.15355
3	0.58061	0.99874	0.78229	1.00273
4	0.29547	0.86273	0.41985	0.87728

**Table 3 PA Reports on Construct Validity Based on First Year Performance Data**

Eigenvalue	Observed	Percentile 95.0	Observed	Percentile 95.0
		Teaching		Academic staff
1	2.01825	1.62564	1.90753	1.68275
2	0.97782	1.20313	0.91494	1.25080
3	0.64311	1.00393	0.63052	0.99753
4	0.36082	0.78891	0.54701	0.79986
		Course Structure and Academic Facilities		Admin Staff
1	1.88135	1.64021	1.97174	1.64337
2	0.93201	1.19894	1.05727	1.21603
3	0.70710	0.98811	0.63471	0.98707
4	0.47954	0.81440	0.33628	0.78689
		Personal development		Others
1	2.12082	1.63199	2.38621	1.60974
2	1.14045	1.23889	0.71084	1.23782
3	0.55479	0.98548	0.55761	1.00036
4	0.18394	0.82779	0.34535	0.78993

poor, and <0.5 unacceptable” (George & Mallery, 2003). Next, dimensionality of each sub-scale was assessed by employing Horn’s (1965) Parallel Analysis (PA)

in ViSta (Young, 1996) software. In all the assessments made (Tables 2 and 3), the first eigenvalue extracted from the actual data is larger than the correspond-

ing 95th percentile random data eigenvalue indicating the possibility of extracting one factor (Cota et al., 1993; Glorfeld, 1995). This shows unidimensionality of each sub-scale measuring single construct only.

### Data Collection & Analyses

The study uses the 24-item questionnaire developed by Beaumont (2012) but with Likert's five-point scale instead of the 10-point scale originally employed. To achieve the set objectives, the study conducts Ranking Analysis, Importance-Performance

Analysis and Differential Analysis using computed mean values. To ascertain the robustness and reliability of findings the study computed effect sizes (0.20=small, 0.50=medium, 0.80=large (Cohen, 1992)) and the achieved statistical power (Faul et al., 2007), as well. For further interpretations, mean values (Table 5) were converted into Percentage Scores (Table 6) using the formula  $((\text{Mean value}-1) * 25)$ . Normally, scores above 75 percent indicate excellent performance, scores below 60 percent indicate scope for improvement, and scores below 50 percent indicate weak areas (Rao, 2008).

**Table 4 Year-wise Importance and Performance Rankings of HES Characteristics**

Rank	Importance				Performance			
	Final Year		1st Year		Final Year		1st Year	
	Mean	Item	Mean	Item	Mean	Item	Mean	Item
1	4.77	A	4.89	A	3.66	V	4.17	U
2	4.68	B	4.71	W	3.60	U	4.14	W
3	4.62	E	4.69	E	3.58	A	4.11	V
4	4.62	O	4.66	B	3.51	W	4.03	F
5	4.54	R	4.66	R	3.38	E	4.00	E
6	4.52	K	4.63	U	3.37	F	3.94	A
7	4.46	M	4.57	O	3.31	G	3.83	I
8	4.46	X	4.54	I	3.25	L	3.80	K
9	4.45	C	4.54	X	3.23	I	3.77	C
10	4.40	I	4.49	K	3.20	K	3.74	J
11	4.40	J	4.46	Q	3.14	C	3.74	N
12	4.40	S	4.37	C	3.14	N	3.71	B
13	4.38	L	4.37	F	3.11	M	3.66	L
14	4.38	W	4.31	D	2.95	J	3.63	H
15	4.29	P	4.31	N	2.91	D	3.57	R
16	4.28	N	4.31	S	2.89	H	3.54	M
17	4.25	U	4.29	H	2.83	X	3.49	X
18	4.23	F	4.29	L	2.82	B	3.43	S
19	4.22	Q	4.29	T	2.74	Q	3.40	G
20	4.00	D	4.29	V	2.71	P	3.40	P
21	4.00	V	4.26	G	2.69	O	3.29	T
22	3.97	T	4.26	J	2.69	T	3.23	D
23	3.85	H	4.23	M	2.65	S	3.20	O
24	3.83	G	4.23	P	2.45	R	3.20	Q

**Table 5 Dimension-wise Mean Values of HES Characteristics**

Relev- antite- m no.	D1		D2		D3		D4		D5		D6	
	IYear	IYear	IIYear	IYear	IIYear	IYear	IIYear	IYear	IIYear	IYear	IIYear	IYear
1	3.58	3.94	3.38	4.00	3.23	3.83	3.11	3.54	2.74	3.20	3.60	4.17
2	2.82	3.71	3.37	4.03	2.95	3.74	3.14	3.74	2.45	3.57	3.66	4.11
3	3.14	3.77	3.31	3.40	3.20	3.80	2.69	3.20	2.65	3.43	3.51	4.14
4	2.91	3.23	2.89	3.63	3.25	3.66	2.71	3.40	2.69	3.29	2.83	3.49
Ove- rall	3.11	3.66	3.24	3.76	3.16	3.76	2.91	3.47	2.63	3.37	3.40	3.98

**Table 6 Dimension-wise Percentage Scores of HES Characteristics**

Relev- antite- m no.	D1		D2		D3		D4		D5		D6	
	IYear	IYear	IIYear	IYear	IIYear	IYear	IIYear	IYear	IIYear	IYear	IIYear	IYear
1	64.50	73.50	59.50	75.00	55.75	70.75	52.75	63.50	43.50	55.00	65.00	79.25
2	45.50	67.75	59.25	75.75	48.75	68.50	53.50	68.50	36.25	64.25	66.50	77.75
3	53.50	69.25	57.75	60.00	55.00	70.00	42.25	55.00	41.25	60.75	62.75	78.50
4	47.75	55.75	47.25	65.75	56.25	66.50	42.75	60.00	42.25	57.25	45.75	62.25
Ove- rall	52.75	66.50	56.00	69.00	54.00	69.00	47.75	61.75	40.75	59.25	60.00	74.50

### Most Influential HES Characteristics

- *Common to both groups:* Quality of lectures (A), quality of seminars (B), knowledge and experience of academic staff (E) and careers service (R).
- *Particularly for final year students:* Ability of the administrative staff to understand student needs.
- *Particularly for first year students:* Reputation of the institution (W).

Generally, students and their parents while exercising the choice of an educational institution consider mainly the qualifications and experiences of the faculty members also the placement history and

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ensure the worth of their investment in higher education. Reputed educational institutions are expected to have these features and thus have been the most preferred destinations.

### Least Influential HES Characteristics

- *Common to both groups:* Willingness of the academic staff to provide

individual attention (G) and physical appearance of the institution (V).

- *Particularly for final year students:* Relevancy of course material (D), provision of facilities and services for personal development (T) and prompt and efficient feedback on work (H).
- *Particularly for first year students:* Course flexibility (J), knowledge of administrative staff (M) and their ability to deal with student queries promptly and efficiently (P).

Perhaps, senior students might not be getting individual attention, appropriate course material, performance feedback and support for their personal development which might have upset them.

#### **Highly Performing HES Characteristics**

- *Common to both groups:* Quality of lectures (A), knowledge and experience of academic staff (E) and their availability for student consultation (F), campus location and layout (U), physical appearance of the institution (V) and its reputation (W).

#### **Poorly Performing HES Characteristics**

- *Common to both groups:* The ability of the administrative staff to understand student needs (O) and deal with student queries promptly and efficiently (P), social opportunities (Q) and provision of other facilities and services for their personal development (T).

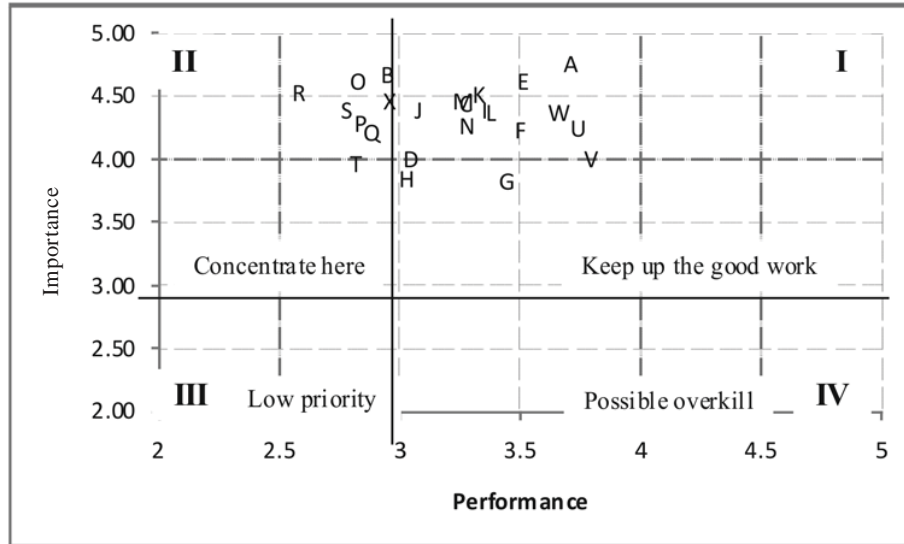
- *Particularly, for final year students:* Careers service (R) and student welfare (S).

- *Particularly, for first year students:* Relevance of course material (D) and willingness of teachers to provide individual attention (G).

#### **Importance-Performance Analysis (IPA)**

IPA methodology, first introduced by Martilla and James (1977), recognizes which service characteristic a firm should focus on, to enhance customer satisfaction. The IPA matrix contains four quadrants, each require different nature of management attention. For instance, 'keep up the good work' (both importance and performance are high) implies major strengths to be maintained; 'concentrate here' (importance is high, but performance is low) implies major weaknesses which require immediate attention; 'low priority' (both importance and performance are low) implies minor weaknesses which do not require additional effort; 'possible overkill' (importance is low but performance is high) implies unnecessarily using excess resources which should be deployed elsewhere. In this study, the 'Importance' and 'Performance' mean values were used to construct the IPA matrices. The coordinate points on the graph (alphabets, representing the 24 HES characteristics) were obtained by plotting the 'Importance' mean values on y-axis and 'Performance' mean values on x-axis. The coordinates (3, 3) divides the graph into four quadrants I, II, III and IV, which is the midpoint on the measurement scale employed.

Fig. 1 Importance-Performance Matrix of Final Year Students



**Final Year IPA**

- *Quadrant I, Major strengths* - 16 HES characteristics
- *Quadrant II, Major weaknesses* – 8 HES characteristics, namely: Quality of seminars (B); Ability of the administrative staff to understand student needs (O) and deal with their queries promptly and efficiently (P); Social opportunities (Q), careers service (R), student welfare (S) and provision of other facilities and services (T) which contribute towards their personal development; and internal student feedback system (X).
- *Quadrant III, Minor weaknesses* - Nil
- *Quadrant IV, Unnecessary spending of resources* – Nil

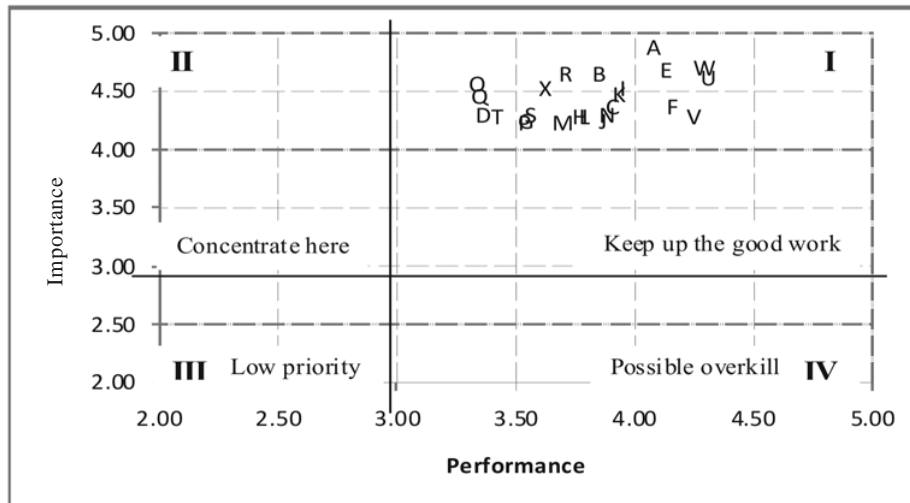
**The final year students are deprived of accomplishing their personal and professional needs.**

The HES characteristics positioned in the Quadrant II clarify that the final year students are deprived of accomplishing their personal and professional needs.

**First Year IPA**

- *Quadrant I, Major strengths* - All 24 HES characteristics
- *Quadrant II, Major weaknesses* - Nil
- *Quadrant III, Minor weaknesses* - Nil
- *Quadrant IV, Unnecessary spending of resources* - Nil

Fig. 2 Importance-Performance Matrix of First Year Students



When compared with the final year IPA matrix it can be stated that the tendency of considering all 24 HES characteristics as major strengths by first year students, might be attributed

to their innocence as they might have entered into the present system with little academic awareness or knowledge and are also relatively less experienced.

Table 7 Results of Hypotheses Testing Based on Performance Data

Dimension	t Stat	P	Cohen's d	Statistical Power	Null Hypothesis
1	2.402	0.053	—	—	No evidence to reject
2	2.747	0.033*	1.921 <sup>#</sup>	1.00	Rejected
3	7.651	0.000*	5.418 <sup>#</sup>	1.00	Rejected
4	3.340	0.015*	2.363 <sup>#</sup>	1.00	Rejected
5	7.124	0.000*	5.035 <sup>#</sup>	1.00	Rejected
6	2.284	0.062	—	—	No evidence to reject

\*Significant @  $\alpha=0.05$ ; <sup>#</sup>Differences are meaningful since, effect sizes are large ( $d>0.80$ ).

### Differential Analysis

Differences were significant between the performance data of first year and final year students with regard to the HES dimensions, namely: academic staff (D2), course structure and academic facilities (D3), administration staff (D4) and personal development (D5) and thereby con-

firmed rejection of null hypotheses  $H_{2_0}$ ,  $H_{3_0}$ ,  $H_{4_0}$  and  $H_{5_0}$ . Regarding the dimensions teaching (D1) and other aspects (D6) the tests did not provide any evidence to reject  $H_{1_0}$  and  $H_{6_0}$ . Thus, by looking at the corresponding percentage scores (Table 5) it can be commented that the performance data of the final year students were critical on several dimensions/

HES characteristics which can be recognized as Performance Improvement Areas (PIA) based on Rao's (2008) assumptions, as follows:

#### **PIA Concerning Academic Staff**

- Knowledge and experience of faculty (59.50)
- Availability of faculty for student consultation (59.25)
- Faculty readiness for providing individual attention to students (57.75)
- Prompt and efficient feedback by faculty on student work (47.25)

**Students are not getting feedback and guidance to improve their performances.**

In private educational institutions exploitation of human resources is a natural phenomenon. Disregarding UGC guidelines, faculty are given excessive workload which may cause both mental and physical strain and later induce reluctance towards student concerns. Obviously, the present study notices that students are not getting feedback and guidance to improve their performances. Hence, it needs to be examined whether the system is restraining faculty to provide this or the faculty themselves are keeping away from this.

#### **PIA Concerning Course Structure & Academic Facilities**

- Organization and management of the course (55.75)

- Quality of academic facilities and learning resources (55.00)
- Access towards academic facilities and learning resources (56.25)
- Course flexibility (48.75)

The researcher remembers that this disappointment of seniors may be attributed to an episode that in the beginning of this academic year when majority opted for two specializations viz. Banking and Systems, the Department as part of the autonomous system was unable to offer them owing to lack of adequate/suitable faculty members who could deal with these specializations.

#### **PIA Concerning Administrative Staff**

- Knowledge of staff (52.75)
- Availability of staff to attend student needs (53.50)
- Ability of staff to understand student needs (42.25)
- Ability of staff to deal with student queries promptly and efficiently (D4-4: 42.75)

There were instances where students complained about the delay in attending class work due to the improper and slow attention paid by the administrative staff particularly in scholarships section.

#### **PIA Concerning Personal Development of the Students**

- Creating social opportunities (43.50)

- Providing career oriented service (36.25)
- Looking after their welfare (41.25)
- Provision of other facilities and services (42.25)

The researcher came across a few instances where students shared their displeasure about the inadequacy of: industrial tours; industry-institute interaction; case-study learning; and participation in 'management events'. They often highlight the failure of the placement cell in bringing core companies to the campus for their exclusive hiring. In recent times, however, a few industrial visits as well as guest lectures have been arranged by the department and students are also being encouraged to participate in various management events organized by neighboring institutes.

### Conclusion

The present study identifies the declining quality of HES year by year on various fronts in the institute investigated. For instance, students are mainly apprehensive about the poor quality of seminars; lack of: social opportunities, career based assistance, personalized attention, welfare, performance feedback, which are essential in any student's life for his/her personal growth. Reasons for this may be lack of commitment, skills, knowledge and experience of the faculty members. Many private higher educational institutions hire teachers without emphasizing quality standards. They just meet quantitative norms to get recognition

**Many private higher educational institutions hire teachers without emphasizing quality standards.**

from government and its various agencies. In 2009, the UGC has introduced the Performance Based Appraisal System (PBAS) to ensure quality in research and teaching. But, this seems to be over motivating academicians in universities and their affiliated colleges, as they are producing more number of poor quality PhDs for increasing their API (Academic Performance Indicators) scores. This has been contributing negatively towards the skills and knowledge of the academic staff in affiliated colleges thereby undermining the quality of HES. UGC chairman recently commented that 'some sub-standard' teachers have been roped in at the college level (Ved Prakash, 2013). To promote the quality of PhD theses evenly throughout the country, UGC may set up an independent body (at NAAC level) comprising eminent professors and direct all universities to send the scholar-submitted theses to this organization which can take care of the adjudication task by keeping the whole process highly confidential. This will not only restrain scholars from bribing the adjudicators, but also control the mushrooming growth of fake PhDs in our country. This move may impede autonomy of universities, but essential to uphold the grandeur of the Indian higher education system.

Further, UGC may ask higher educational institutions in our country to set up Faculty Development Cells (FDC),

which could focus primarily on scientific selection, training and development, performance appraisals, mentoring by senior professors, faculty exchange programs, etc. of prospective faculty members. Institutions should bear in mind that quantity cannot enhance quality.

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### Appendix: Questionnaire

#### STUDENTS’ VIEWS ON QUALITY IN HIGHER EDUCATION SERVICE

**Scale 1: ‘IMPORTANCE’ MEASUREMENT:** Very Important (5) - Important (4) - Moderately Important (3) - Little Important (2) – Unimportant (1)

**Scale 2: ‘PERFORMANCE’ MEASUREMENT:** Excellent Performance (5) - Good Performance (4) - Mediocre Performance (3) - Low Performance (2) - Poor or Unsatisfactory Performance (1)

Dimension	Item	Characteristic	S1	S2
1 Teaching	A	Quality of lectures		
	B	Quality of seminars		
	C	Range of teaching methods		
	D	Relevance of course material		
2 Academic Staff	E	Knowledge and experience of academic staff		
	F	Availability of academic staff		
	G	Willingness to provide individual attention		
	H	Prompt and efficient feedback on work		
3 Course Structure and Academic Facilities	I	Organisation and management of course		
	J	Course flexibility		
	K	Quality of academic facilities and learning resources		
4 Admin Staff	L	Access to academic facilities and learning resources		
	M	Knowledge of administrative staff		
	N	Availability of administrative staff		
	O	Ability to understand student needs		
5 Personal Development	P	Ability to deal with queries promptly and efficiently		
	Q	Social opportunities		
	R	Careers service		
	S	Student welfare		
6 Other	T	Provision of other facilities and services		
	U	Campus location and layout		
	V	Physical appearance of Institution		
	W	The reputation of the Institution		
	X	Internal student feedback systems		