



## Performance Measurement in Private HEIs: Performance Indicators, Data Collection and Analysis

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### Abstract

*Quality of HEIs has become a very important issue in the world. Quality in the developing countries has been influenced by many factors such as extended demand of students to higher education, weakness of preparing student to labor market, shortage of educational services, shortage of resources and limited public funding. This in turn has imparted some other problems. Some of HEIs in these countries might not have achieved a suitable level of students' expectations or the perceived teaching Quality. Therefore, they might be characterized by the lack of transparency and accountability.*

*In order to foster the quality of HEIs; a number of methods like quality assurance techniques, accreditation standards and performative evaluations have been implemented in this field. Therefore, HEIs in the Sultanate of Oman are required to monitor their performance, be more responsible and focus on transparency, accountability and quality assessment/assurance.*

*In order to monitor the performance of HEIs, goals need to be constructed and refined to have measurable objectives. Finally, a set of performance indicators should be identified, selected and aligned along with the objectives stated.*

*In this project, the goals, objectives and performance indicators are demonstrated. A set of quantitative indicators is applied. The data of the indicators are collected from 30 HEIs, the indicators are computed, and the performance is then studied.*

### 1. Introduction

At present, performance measurements in HEIs plays an essential base in internal and external audit of HEIs to provide a complete signal to the stakeholders in respect to the progress and outputs. In fact, HEIs use performance measurements for proper "decision- making" and future progression.

During the last 20 years, the development of performance measurements in HEIs has been carried out rapidly and dramatically. The performance monitoring in HEIs can be done by means of many approaches (Striteska and Spickova, 2012; Franceschini et al, 2008; Cave et al. ,1997 and Kaufman,1988 ), some of which are the following: Quality Assurance and Improved Program (QAIP); Program Assessment Movement (PAM); Balanced Scorecard (BS) and Statistical/Performance Indicators (PIs).

Although the above approaches have had their own share of criticism, if the method of performance indicators is based on methodological and logical bases and not ad hoc indicators, it faces less criticism (Bird, 2005; Al-Hemyari and Alsarmi, 2014 & 2013).

In order to provide significant signals about the performance of HEIs, stable, robust and sound performance indicators should be derived. In order to satisfy the above properties, the goals of HEIs need to be constructed on the bases of the policy and trends of the Government of Oman as well as the vision and mission of HEIs. They need to be refined to have measurable objectives. The performance indicators are proposed corresponding to each objective and then relied.

Due to international vision of HEIs and many national reasons, Ministry of Higher Education, Oman initiated the project of "Performance indicators for private HEIs" in academic year 2011-2012. In fact, this is the first comprehensive project of the Ministry of Higher Education, Oman to assess the performance of private HEIs and this is the first paper which contains some practical results regarding the private HEIs's performance indicators. It contains a set of qualitative and quantitative indicators.

Measuring the performance of private HEIs in Oman by good indicators has many advantages. Firstly, it is very essential for the strategic planning of the financial and human resources in HEIs. Secondly, it may allow controlling the inputs, drawing a line to the progress in outputs of each HEI, locating benchmarks, and performing national comparisons between HEIs. At the same time, it will detect then correct any deficiency/failure in any HEI on the bases of the computed indicators and discover

obstacles that preclude to achieve good performance (Akiyoshi and Kaiser, 2003; Chaney et al., 2007; Chalmers et al., 2008; Shun-Hsing et al. 2008 and Alsarmi and Al-Hemyari 2014 a, b & c).

It may be worth mentioning that the indicators, which are studied in this paper, have been applied in 30 HEIs and selected from a large set (150) of indicators that have been proposed and applied in this project.

## 2. Aims of the study

The aims of this paper are: to highlight the importance of performance indicators in monitoring HEIs; to demonstrate the numerical results of some performance indicators in private HEIs and to compare between the performance of private HEIs in Oman.

## 3. Research methodology

As it is mentioned earlier, to derive robust, sound and multi-dimensional performance indicators, the goals and objectives of HEIs need to be constructed accordingly to the Government of Oman policy makers. They need to reflect upon the trends of higher education sector as well as on the bases of the vision and mission of HEIs and refined to performance indicators.

After studying many international approaches regarding the problem of proposing goals and objectives, the proposed goal and objectives of private HEIs in Oman are identified and reviewed by a pool of reviewers from HEIs, tested and revised (see Alsarmi and Al-Hemyari 2014 a&b).

Next, some performance indicators for each objective were selected, and developed. An aggregate of 150 statistical indicators were then chosen, aligned with objectives, discussed with HEIs and tested (see Alsarmi and Al-Hemyari 2014 c). In this paper, the following 20 indicators are applied in 30 HEIs:

1. "Progression rate"; 2. "The percentage of students' participation in national internships"; 3. "The percentage of students' participation in career guidance programs"; 4. "Communicating vision and mission of the institution to academic staff"; 5. "Communicating goals and objectives of the college to academic staff"; 6. "Communicating core values, strengths, weakness, threats and opportunities of the" department to academic staff; 7. Average class size"; 8. "Student-Instructor ratio for undergraduate students"; 9. "students' expectations"; 10. "Graduate's satisfaction"; 11. "Students' satisfaction"; 12. The percentage of Ph.D. holders of academic staff (full-time/part time); 13. "The average of teaching load for undergraduate studies"; 14. "Academic staff turnover (attrition) rate"; 15. "Academic staff satisfaction"; 16. "The ratio of non-academic/ administrative staff (Omani and non-Omani) in relation to the total number of students; 17. "Research size"; 18. "Research ratio"; 19. "The total number of international conferences / workshops participated in by academic staff" ; 20. "The total number of graduates in relation to all students (batch)".

In order to apply the indicators, the data have to be collected from private HEIs. The forms of collecting the self-reported data were forwarded; academic staff, student and graduate surveys were designed, tested and implemented electronically. The population size of the electronically surveys was 42188 (40281 students and 1907 academic staff). The total sample size was 3689 students and 882 academic staff and it was divided into sub-samples (stratified samples) taken from each institution/college/program randomly and proportionally to 11% from each sub-population. In order to reduce the errors occurred in self-reported data and in surveys data, cross checking and many detecting and cleaning techniques were performed.

## 4. Practical results

The numerical results of the 20 indicators are given in this section. The actual performance and the average of each indicator of HEIs are given as numerical values in Tables 1 to 2, where the 20

indicators are denoted by  $PI_i$ ,  $i = 1, 2, \dots, 20$  and the 30 colleges are denoted by,

$HEI_i$ ,  $i = 1, 2, \dots, 30$ .

Table 1 : The numerical results of  $PI_i$ ,  $i = 1, 2, \dots, 10$ .

$HEI_i$	$PI_i$									
	1	2	3	4	5	6	7	8	9	10
1	0.9	0	0	4.2	4.2	4.323	13.2	7.9	51.875	28.941
2	0.811	0	0	3.1	3.2	3.01	23	68.72	39.786	20.185
3	0.890	0	0	3	3	3	20	29.06	37.213	21.487



4	0.914	0	0	3	2.5	2.5	24	62.96	38.939	22.332
5	0.84	0.65	0.98	4.235	4.118	3.806	18	21	48.595	26.997
6	0.925	0.04	0.015	3	3.046	3.773	34	27.017	45.351	18.205
7	0.75	0.05	0.9	3.96	3.9	3.8	27.5	20	44.722	22.180
8	0.403	0.8	0.465	3.857	3.429	3	17	36.325	46.639	22.950
9	0.436	0.84	0.656	3.857	4.01	3.571	17	30	45.643	24.321
10	0.694	0.87	0.84	3.238	3	3	17	30.935	45.608	24.014
11	0.468	0.94	0.56	4.25	3.9	4	17	25	48.125	26.201
12	0.145	1	0.243	3.273	3.030	2.969	18.74	15.15	45.467	23.547
13	0.761	1	0.278	3.25	3.25	3.125	18.85	28.28	45.478	24.771
14	0.460	1	0.311	3.25	3.25	3.125	19.83	40.65	47.976	22.917
15	0.416	0.192	0.546	3.982	3.722	3.685	26	11.049	44.5	24.088
16	0.69	0.948	0.731	3.55	3.2	3.01	15	5.8	45.413	22.473
17	0.92	0.34	0.38	3.634	3.346	3.219	39	39.65	44.404	22.090
18	0.958	0.95	0.5	3.5	3.375	3.063	18	24	44.351	24.236
19	0.135	0.477	1	3.776	3.845	3.586	23.03	35.3	45.419	23.139
20	0.805	0.756	0.8	4.093	4.021	4.004	28	22	45.462	23.154
21	0.98	1	1	4.308	4.308	3.923	17.5	25.5	47.644	23.142
22	0.829	1	0.8	3.977	3.955	3.864	39	18.2	45.132	25.107
23	0.873	1	0	3.773	3.636	3.591	16	14.59	50.647	26.014
24	0.4	1	0.72	3.381	3.095	3.333	35	31.667	46.209	20.440
25	0.9	0.91	0.6	3.533	3.6	3.533	22	5	46.029	23.561
26	0.854	0.631	0.85	4.25	4.125	3.969	15	17	47.963	26.432
27	0.77	0.16	1	3.313	3.438	3.313	18	29	47.945	25.906
28	0.591	0.599	0.72	3.704	3.704	3.593	18	22	45.017	21.919
29	0.138	0.576	1	4.128	3.949	3.941	23	35.3	47.915	25.926
30	0.97	0.84	0.53	3.898	3.674	3.551	33	13	45.135	23.264
Average	0.687	0.619	0.548	3.735	3.632	3.530	22.36	26.402	45.780	23.665

Table 2 : The numerical results of  $PI_i$ ,  $i = 10, 11, \dots, 20$ .

$HEI_i$	$PI_i$									
	11	12	13	14	15	16	17	18	19	20
1	28.541	0.54	15	0.016	29.552	0.077	13	0.65	20	0.3
2	20.785	0.102	9.55	0.14	24	0.15	1	0.103	11	0.3
3	21.687	0.102	8.2	0.14	23.5	0.15	1	0.103	15	0.3
4	22.632	0.045	8.47	0.14	24.5	0.15	1	0.103	18	0.3
5	26.797	0.182	14	0.1	29.353	0.035	6	0.11	8	0.83
6	19.155	0.195	18	0.38	23.546	0.1	4	0.111	2	0.925
7	22.180	0.228	22	0.12	26.04	0.031	5	0.142	12	0.99
8	22.450	0.6	14.2	0.267	25.571	0.039	11	0.67	21	0.403
9	23.001	0.27	15	0.133	25.428	0.039	9	0.53	18	0.436
10	23.424	0.63	17	0.183	25.428	0.039	10	0.15	69	0.694
11	25.241	0.62	15	0.158	27.583	0.039	30	1	29	0.468
12	23.847	0.681	12	0.059	22.606	0.078	10	0.21	2	0.383
13	24.804	0.5	12	0.059	22	0.079	6	0.33	1	0.383
14	22.377	0.35	12	0.059	22	0.079	9	0.45	3	0.396
15	24.088	0.246	21	0.148	27.463	0.106	15	0.245	15	0.634
16	22.673	0.2	15	0.08	25.625	0.06	0	0	6	0.96
17	22.290	0.31	20	0.02	23.463	0.024	5	0.08	15	0.85
18	23.756	0.48	16.4	0.116	24.468	0.056	8	0.308	3	0.97
19	22.589	0.155	17	0.254	25.431	0.027	11	0.1	6	0.65
20	22.974	0.34	18.1	0.135	28.857	0.060	13	0.394	24	0.709
21	23.432	0.07	20	0.02	26.923	0.053	0	0	11	0.867
22	24.037	0.66	5.7	0.214	26.954	0.135	23	0.506	24	0.669

23	25.764	0.333	16	0.05	27	0.066	4	0.23	4	0
24	20.850	0.33	18	0.33	25.095	0.07	2	0.08	1	0.99
25	23.828	0.008	18	0.108	22.666	0.103	4	0.07	0	0.64
26	25.952	0.303	12	0.11	28.171	0.043	11	0.105	23	0.848
27	25.726	0.37	18	0.31	28.218	0.022	13	0.236	28	0.77
28	21.619	0.15	17	0.2444	25.888	0.055	12	0.267	15	0.89
29	25.726	0.156	17	0.177	27.820	0.045	7	0.062	6	0.65
30	23.065	0.21	15	0.05	25.449	0.022	15	0.158	4	0.62
Average	23.510	0.312	15.221	0.1440	25.881	0.068	8.633	0.25	13.8	0.587

## 5. Discussion

The numerical results of the 20 indicators are studied in this section. The performance of the 30 HEIs to be grouped into three groups (below average, average and good) on the bases of numerical results of the indicators and elucidated by Table 3. In fact, Table 3 shows that most of private HEIs have accomplished either good or average performance on the bases of the computed values of indicators.

Table 3 : The Performance of HEIs

$PI_i$	Performance of HEIs		
	below average	average	good
1	8,9,11,12,14,15,19,24,29	10,16,28	1-7,13,17,18,20-23,25-27,30
2	1-4,6,7,15,17,19,27	5,26,28,29	8-14,16,18,20-25,30
3	1-4,6,8,12-14,17,23,	5,11,15,18,30	7,9,16,19-22,24-29
4	2-4,6,10,12-14,24,25,27	16-19,23,28	1,5,7-9,11,15,20-22,26,29,30
5	2-4,6,8,3,12-14,16-18,24,27	15,23,25,28,30	1,5,7,9,11,19-22,26,29
6	2-4,8-10,12-14,16-18,24,27	15,19,23,25,28,30	1,5,6-9,11,20-22,26,29
7	6,7,15,17,19,20,22,24,30	2,4,25,29	1,3,5,18,8-14,16,18,21,16,26,27,28,
8	1,5,7,12,15,16,20,22,23,25,26,28,30	11,18,21	2-4,6,8-10,13,14,17,19,24,27,29
9	2-4,	6,7,9,10,12,13,15,20,22,28,30	1,5,8,11,14,21,23-27,29
10	2,3,6,24,28	4,7,8,12,14,16,17,19-21,24,25,30	1,5,9,11,13,15,18,21,23,26,27,29
11	2,3,6,24,28	4,7-10,12,14,16,17,19,20,21,25,30	1,5,11,13,15,18,22,23,26,27,29
12	2-7,9,15,16,19,21,25,28-30	17,26	1,8,10-14,18,20,22,23,24,27
13	6,7,10,15,17,19,20,21,24,25,27,28	1,5,8,9,11,16,18,23,30	2-4,12,13,14,22,26,29
14	6,8,19,21,22,24,27	2-4,5,7,9,10,11,15,20,25,26,29	1,12-14,16-18,23,28,30
15	2,3,6,12,13,14,17,25	4,16,18,19,24,28,30	1,5,7-11,15,20-23,26,27,29
16	5,7-11,17,19,26,27,29,30	1,12-14,16,18,20,21,23,24,28	2-4,6,15,22,25,
17	2-4,5-7,13,16,17,21,23-25	18,29	1,8-12,14,15,19,20,22,26-28,30
18	2-7,10,16,17,19,21,24-26,29,30	12,15,23,27,28	1,8,9,11,13,14,18,20,22,
19	2,5,6,12-14,16,18,19,23-25,29,30	7	1,3,4,8-11,15,17,20-22,26-28,
20	1-4,8,9,12-14,23,	11	5-7,10,15-22,24-30



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