

PRODUCTIVITY MEASUREMENT IN EDUCATIONAL SECTOR
With special reference to TU

Prof. Dr. Sunity Shrestha
Faculty of Management, TU

Presented in NQPCN monthly meeting
December 4, 2005

Productivity

- Productivity is defined as the efficient use of resources - labour, capital, materials, energy, information, ... in the production of goods and services.
- It is the common thinking that the productivity concept is applied in manufacturing systems only. Now a days, the productivity is used in service sector as well as in manufacturing sector.
- The service sector in terms of industrial classification includes finance and insurance, real estate, transportation and communication services and electricity, gas and water supply services and educational institutions. The application of productivity concept is widely observed in the service sector these days, specially in the information related business.
- The service industry provides labor, benefits and specific knowledge in the form of services to individuals and business operations-repairs, entertainment, medical insurance, legal affairs, educational support and hotel services.
- Improving the productivity of an organization is essential to survival in the competitive world. The purpose of all productivity related endeavors is to bring about lasting improvements in the performance.

Objective

- The objective of this study is to explain the importance of productivity in educational sector of Nepal specially in Tribhuvan University, identify some indicators of productivity in educational sector, measure the indicators of the productivity and to assess the discrepancies if any.

Methodology

- To achieve the above objective, exploratory research design has been used.
- The educational system in Nepal can be classified as pre-primary schools, primary, lower secondary, secondary education under SLC Board, and higher secondary education under Higher Secondary Education Board (HSEB) and PCL, Bachelor and Masters degree education under various universities in Nepal. In addition to this the vocational institutions also lie under educational institutions in Nepal.
- Among these institutions, this study has focused only Tribhuvan University (TU). In Tribhuvan University, there are four faculties and five institutes.
- This study concentrates only on the Bachelor level programmes of TU
- The study has used various literatures to identify the indicators of productivity and has applied the productivity ratio method to measure the productivity.

Measurement of Productivity

- The most widely used measurement technique of productivity is the 'productivity ratio' method, i.e. the ratio of output to the input used.
- The specification and measurement of the output is very difficult in the measurement of the productivity in service sector and specially, the education sector.
- The basic issues in measuring output are
 - Identifying the output (intermediate or finished output ?)
 - Measuring output (quantity or cost ?)
 - Output homogeneity
 - Identifying or Matching the related inputs to the output
- Two broad approaches to productivity measurement are evident in practice: Process view and the stakeholders view.
- The process view focuses on the value chain that the organization develops to meet the requirements of its target customers and, ultimately, to achieve the primary objective.
- The stakeholders view focuses on the relationships that must be developed with the organizations' stakeholders in order for it to achieve its primary objective. Both approaches strive to identify the critical measures that the organization must monitor to evaluate and continuously revise in order to achieve its primary objective.

The Educational System

- The educational system is a set of interrelated parts aimed at improving the knowledge and skill of students and producing graduates with certain defined level of capability. The education system in University can be stated as the production system of any manufacturing set up.

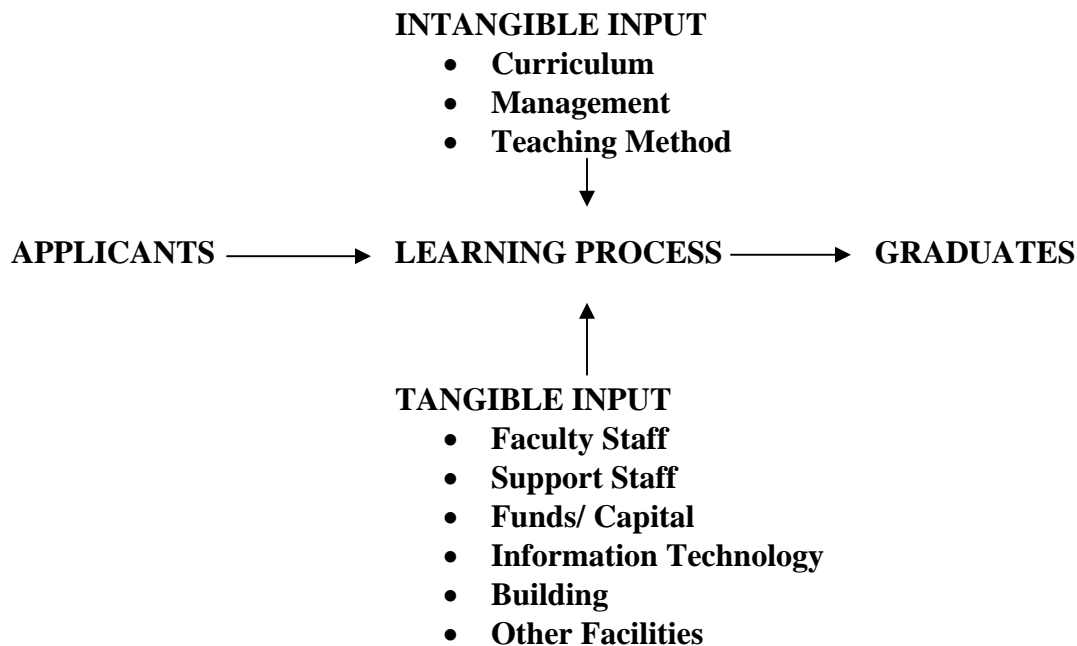


Figure 1 The Educational System

- Like any other value-adding system, the educational system also needs to be well managed, that is concerned with the productivity of the system, measuring and improving the productivity.
- To measure the performance of an educational institution one must know the objectives of the system, output of the system, how the services are produced and what the required resources are.

Objectives of Educational System

- Overall objective of the educational system is to promote welfare of the society by improving the quality of human resources.
- This is a long-term objective and its achievement cannot be judged in the short-term, therefore we need to find other short-term measures that are indicative of long-term results.
- In case of academic program of any universities, the measurement could be the graduates' average academic grade performance, waiting time for their first job, the salary, opportunity of higher studies, etc.

Input / Applicants

- Students are the subjects or input to the institutions. Therefore, the quality of students incoming reflects the quality of the output. That is, different quality of students can produce different quality of graduates.

Process

- The purpose of the educational process is to help students understand certain subjects and to develop the ability to approach real world problems effectively and efficiently.
- This might involve numerous approaches of teaching methods like, classroom learning, group discussion, out-of-class activities, internship, term papers writing and many more. The quality and standard of curriculum reflects the standard of that program.
- The supporting activities undertaken by the well trained staff, good and rich library, buildings, sports activities and other facilities create the atmosphere for the students.

Output

- The output of an educational institution can be measured quantitatively and qualitatively.
- In quantitative terms, producing number of graduates is the measure
- In qualitative terms, production of graduates that meets the need of the community is more preferred.

Productivity Measurement in Educational Institutions

- Most common approach to measure the productivity in an educational institution is to compare the output of the system, such as,
 - Number (percentage) of graduates per year
 - Ratio of applicants enrolled to the number of graduates
 - Number of students per instructor (teacher-student ratio)
 - Cost expenditure per student
- Measurement based on input and output may not be sufficient to portray the result of the educational system, because in such cases it will be difficult to know which part of the system really needs to be improved. Thus, for every part of the production process we can develop the performance indicators as below:

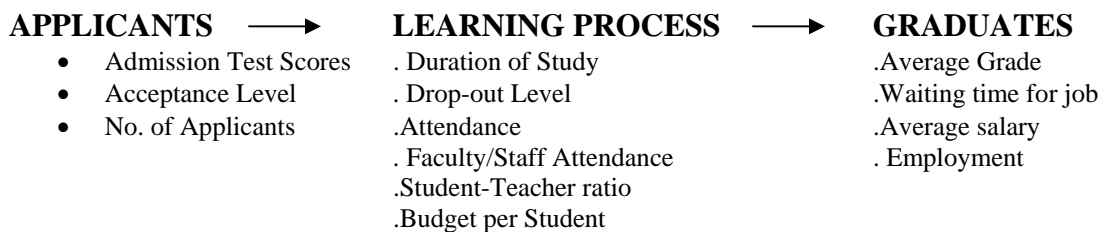


Figure 2 Production System in TU

Appendix I Universities in Nepal

Universities	Year of Establishment
Tribhuvan University	1959
Mahendra Sanskrit University	1986
Kathmandu University	1991
Purwanchal University	1996
Pokhara University	1998

- Source: University Grant Commission

Appendix II

Faculty/ Institutes of TU (Bachelor Level) 2061/2062

S. No.	Faculty / Institute	Student Enrollment
1	Faculty of Education	13,127
2	Faculty of Humanities	18,031
3	Faculty of Law	726
4	Faculty of Management	18,155
5	Institute of Science and Technology	5,551
6	Institute of Agriculture	522
7	Institute of Medicine	609
8	Institute of Forestry	240
9	Institute of Engineering	1,749
Total		58,710

Source: Statistical Bulletin, Research Division, TU, vol. 3, No. 1, Ashadh 2062

Appendix III
Description of BBS Students
2060

Part	Applicants	Appeared	Passed	Failed	Absent	FPA	Pass %
I st	33,043	29,711	6,296	15,232	3,332	8,085	21.19
II nd	23,095	20,683	4,955	10,472	2,412	5,208	23.96
III rd	14,577	13,227	5,070	5,551	1,359	2,586	38.33

Appendix IV
Percentage of Graduates in TU
(with respect to total appeared students)

Year	Management (BBS)	Science (B. Sc.)	Arts (BA)
2056	6,939 (28.54)	2,159 (43.09)	8,806 (31.37)
2057	9,796 (25.75)	2,718 (43.85)	9,281 (27.00)
2058	13,549 (24.80)	3,434 (37.60)	12,968 (22.88)
2059	15,473 (40.40)	4,346 (54.09)	14,464 (33.44)
2060	16,321(38.33)	3,498 (48.94)	14,933 (32.13)

Appendix V

Teacher- Student Ratio in TU

The Ratio of Teachers to the total Staffs in percentage) is 46 : 54

- Ratio of Teacher: Student = 24.0 (2058/059)
- Ratio of Teacher : Student = 23.5 (2059/060)

Appendix VI

Cost per Student in TU (Rs.)

S.N.	Institute/Faculty	2058/059	2059/060
1	Institute of Engineering	68,667	1,22,248
2	Institute of Agriculture and Animal Sciences	83,894	99,042
3	Institute of Medicines	1,93,332	1,93,332
4	Institute of Forestry	77,744	77,744
5	Institute of Science and Technology	16,221	16,221
6	Faculty of Law	12,607	24,755
7	Faculty of Management	2,778	3,172
8	Faculty of Education	3,764	4,548
9	Faculty of Humanities and Social Sciences	5,561	5,567

REFERENCES

- Parsons John, “Current Approaches to Measurement Within the Service Sector & Service Sector / White Collar Institutions” in Productivity Measurement in the Service Sector, APO, Tokyo, 2001
- Nasution, Yasmine, “ Case Study of Productivity Measurement in the Education Sector in Indonesia” in APO, Tokyo, 2001
- Propopenko, Joseph, Productivity Management, Oxford & IBH Publishing House Co. Pvt. Ltd. India 1999
- Khan, Mohammed Naeem, Productivity Measurement in the Service Sector, {Pakistan Country Paper), APO, Tokyo, 2001
- Research Division, TU, Statistical Bulletin, 2003, 2004, 2005