New Attributes for a Role Based Performance Measurement of a Teacher in Engineering College

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Abstract: A role of a teacher is very important in shaping the career of students and making them industry ready. It is quite obvious in every organization, as a part of their governance strategy, to measure the performance of a teacher to know how well he or she is performing and data collected may be used to fine tune the academic culture. Teacher is expected to play different role in the institution at different time on the time line. Recent introduction of outcome based education (OBE) has made the role of a teacher more important in teaching learning process. Current practice of collecting feedback or a self-appraisal may fall short in terms of expected attributes of OBE.

Author of this paper proposes a new strategy to measure a performance of a teacher looking in to the additional role given to a teacher in the institution rather than having a common yard stick for all, which is being practiced in most of the cases.

Keywords: Teacher, Performance, Autonomous Institution, OBE, Self-appraisal.

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1. Introduction.

Engineering education has become a main attraction, contributing to the global industry revolution and in particular to Indian economy.

The exponential growth in technical education has, however, not translated into any significant growth in the number of quality graduates acceptable to industry, due to insufficient availability of qualified faculty, teaching methodology, evaluation techniques and processes. Few major matters of concerns about functioning of higher education as reported in the reference paper [1-5] are listed below as it is.

Matter of Concern -1: Many students passing out from Institutions without obtaining right kind of competency they really need to work in a real-world environment.

Matter of Concern-2: Drastic variations in teaching methodology, learning contents, quality of question papers and assessment process leading to entrenchment of student's lack of ability to examine and understand real world, thereby making students not ready for the Industry requirements.

Matter of Concern-3: Lopsided emphasis on evaluation of students through examinations.

Matter of Concern-4: Methods of teaching and evaluation used are not conducive to improving the ability of students for abstract thinking.

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Recent change in education policy in terms of autonomous status for the institution and accreditation policy based on outcome based education (OBE) has made each one of us to workout clearly a process that will help us in making progress truly. The true understanding of OBE and tuning the current functioning of an educational institution is necessary for the success of higher educational policies of this country. The matter of concerns listed above are the serious for functioning of any autonomous institution.

Outcome-based education (OBE) is an educational theory focusing on following core principles [3]:

1. All students should emerge from the system as genuinely successful learners.

2. All students can learn and succeed, but not on the same day in the same way.

3. Successful learning promotes even more successful learning.

4. Stating clearly the competence and performance of learners in terms of observable and measurable outcomes that are essential to carry out the role effectively by learners.

5. Incorporating active action oriented words that reflect critical or higher order thinking into learning outcome statements.

6. Defining the style of teaching and assessment by teachers to help the students to achieve the specified outcomes.

7. Focusing on WHAT is to be learned and WHETHER it is learned well or not?

8. Viewing curriculum, instruction, and assessment as flexible and alterable means for accomplishing clearly defined learning "ends".

9. Encouraging the teachers to explore better ways of designing and delivering instruction, especially in light of differences in student learning rates and styles.

10. Using pencil grading rather than pen grading i.e. opportunity for students to truly catch up and erase the records of earlier mistakes.

Under such existing circumstances, it is necessary to come out with a clear evaluation strategies. One of such strategy being proposed in this paper is performance measurement of a teacher, as a teacher is mainly responsible in bringing a change in the learning environment.

2. Proposed Model.

A role of a teacher is very important in shaping the career of students and making them industry ready. It is quite obvious in every organization, as a part of their governance strategy, to measure the performance of a teacher to know how well he or she is performing and data collected may be used to fine tune the academic culture.

There are mainly two approaches being followed in most of the Institution and are listed below.

1. Students' feedback on teacher performance.

2. Common self-appraisal for all faculty members.

These two approaches are not appropriate in today's context as, a teacher is expected to do duties as shown the figure-1. Students' feedback is purely based on attributes of a teacher and do not really reflect the true learning by the students indicated by outcomes defined for a course. A common self-appraisal do not accommodate the dynamism shown in the figure-1, i.e. a role an individual can play at different time based on their interest. Everyone is expected to do mandatory functionality and extended functionality based on the roles assigned during some stipulated period. A teacher may play a role (some combination of features X, Y & Z) as a part of extended duties over and above mandatory duties (30 %) as indicated in figure-1. These roles (extended- 70 %) with varying weightage ($X + Y + Z = 70 \%$) over a time period, as decided by an individual teacher are listed below.

1. A teacher. (X %)

2. A researcher. (Y %)

3. An administrator. (Z %)

Under such scenario, a uniform performance measurement strategy will not really work. Hence, there is a need to measure the performance based on the role played by each individual and any additional

targets assigned to individual teachers. Various attributes and the procedure to calculate the performance of an individual is shown below.
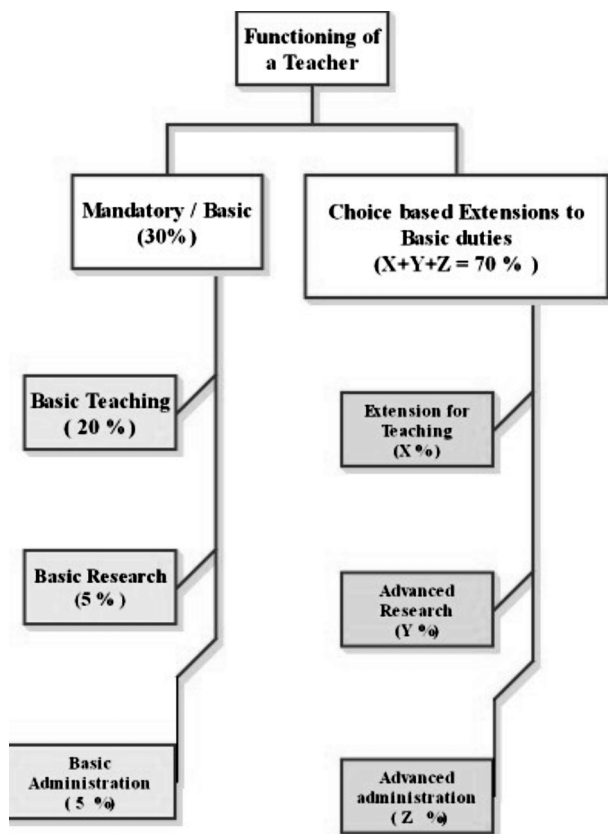

Fig-1: Typical functioning of a Teacher in an Engineering College.

Details of each attributes to be considered during the performance measurement is shown below.

1. Mandatory Expectations: ME (30 Marks)

    1.1 Teaching: (20 Marks)

1.1.1:Compliance of assessment tool with outcomes defined. (4 Marks)

1.1.2: Attainment of Outcomes. (5 Marks)

1.1.3: Best / Innovative practices. (4 Marks)

1.1.4: Course Exit Surveys. (5 Marks)

1.1.5: Students' feedback. (2 Marks)

    1.2 Research: (5 Marks)

1.2.1:Publication based on students' project at UG/PG level. (5 Marks)

    1.3 Administration: (5 Marks)

1.3.1: Completion of task assigned at Department level and at Institution level.

    (5 Marks X [Number of task completed / Number

Of task Assigned])

2. Choice Based Extensions: CBE (70 Marks)

    (XX Marks to be decided by an individual teacher based on role he /She Wish to perform or assigned by the institution.

    Is valid for the duration of one academic year.

    This to be declared at the beginning of the academic year.)

    2.1 Teaching: (XX Marks)

2.1.1:Conduction of Training program for students.

    (Minimum -1)

2.1.2: Conduction of training program for staff.

2.1.3: Innovation in teaching & learning process or implementation of activity based learning to enhance outcomes. (Minimum -1)

2.1.4: Publication of paper based on 2.1.3

    2.2 Research: (XX Marks)

2.2.1:Obtaining Patents.

2.2.2:Research publication in journals.

    (Minimum -1 per two years)

2.2.3: Research publication in conferences.

    (Minimum -1 per year)

2.2.4:Conduction of seminar/workshops based on research themes.

2.2.5:Consultancy to the industries and Technological transfer.

2.2.6:FDPs based on research themes and organizing talks based on research themes.

    (Minimum -1 per year)

2.2.7:Networking of Institutions for collaborative research.

2.2.8:Completion of PhD degree by the candidates registered under a teacher.

    2.3 Administration: (XX Marks)

2.3.1:Creation of Innovative / new processes, effective implementation and its sustenance towards realization of goals (vision) through strategic plan/ missions. (Minimum -2)

2.3.2:Revision of existing process. (Minimum -2)

2.3.3:Publication of paper based on 2.3.1 and 2.3.2.

2.3.4:Conduction of training programs.

    (Minimum -2)

2.3.5:Organization of training programs.

    (Minimum -2)

2.3.6:Networking of Institutions.

Performance Measurement (PM) is calculated for 100 marks as a sum of mandatory expectations (ME: out of 30 marks) and choice based expectations (CBE: out of 70 marks).

$$PM = ME + CBE$$

Table-1: Classification of Performance and Grading

Classification	Tag/ Grades	Marks Range
Performer (A, B, C & D Grades)	Excellent- A	PM >= 90
	Good- B	70 <= PM <=89
	Acceptable- C	60<= PM <= 69
	Matter of Concern - D	50<= PM <= 59
Non Performer	Poor- E	PM < 50

Based on the marks scored out of 100 under the heading 'PM', the grades are assigned to individual faculty members as shown in the table-1.The proposed model allows a faculty member to function at different levels of contributions in the academics as shown in the figure-2 and Table-2. Based on these attributes and guidelines, every institution must develop a template for performance measurement suitable for their environment.
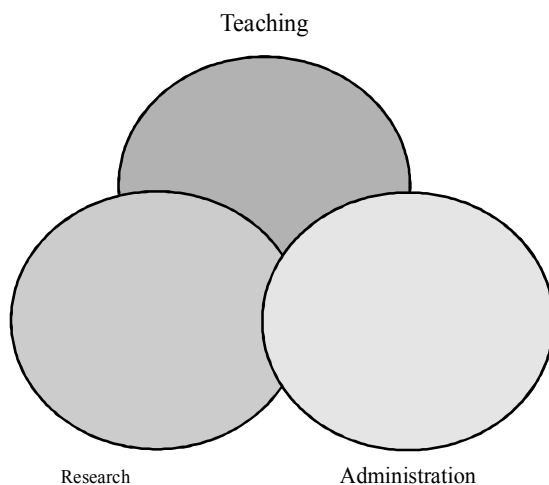

Teaching

Research   Administration

Fig-2: Different levels of contributions in an Academics.

Few choices for a faculty members to get evaluated for performance are shown in the table-2. Work load specified by AICTE is to be aligned w.r.t the role the faculty is performing.

Table-2: Sample choices for a faculty and corresponding weightages.

Choices	BASIC / MANDATORY (30 Marks)			CHOICE BASED EXTENSIONS (x + y + z = 70 Marks) Note: x, y & z are to be decided by individual teacher		
	Teaching 20 marks	Research 5 marks	Adm in 5 mark s	Extension for Teaching X	Advanced Research Y	Advanced Admin Z
Choice-1	Mandatory for all choices			70	0	0
Choice-2				0	70	0
Choice-3				0	0	70
Choice-4				20	10	40

3. Conclusions

Measurement of the performance based on the role played by each individual and any additional targets assigned to individual teachers will motivate the teachers to pursue their interest and contribute more to the development of the system.

Acknowledgement

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