

“Effective Management of organizations Using PEMS Model”

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Abstract

In this study, Process Effectiveness Measurement System (PEMS) model is used for improving the performance of students and the institution. With this model, the management and staff will get better control, the way education is imparted and also every student will get opportunity to perform better. In this system, measurement of student performance is carried out with continuous monitoring and later by applying PEMS model, student performance is re-evaluated/corrected, which eventually shows positive results. Thus, from the obtained results, it is evident that use of PEMS model will enhance the organizational productivity in an efficient manner leading to effective management of organizations

Keywords; PEMS Model, Service organization, effectiveness measurement, student performance

I. INTRODUCTION

There are two ways educational institutions can function. One is by identifying weak students from their results and then follow-up these weak students. Efforts are put to improve their performance. In this case each weak student is closely tracked till they stay in the institution or their performance is improved. This approach can be termed as Product Approach, where emphasize on individual product is done, if their performance is unsatisfactorily. On the otherhand, Process Approach emphasizes on improving the process itself through which students are developed. This approach is well adopted in manufacturing and also in industries such as, oil and gas sector, airlines etc. Education industry being a process-based industry provides opportunity to use this PEMS model methodology. However, changing the business operation of an institution from Product Approach to Process Approach is not an easy task. The PEMS model, which has been conceptualized by Mr.

Hasnain Haider, and applied in Oil & Gas sector, provides a simple, yet effective solution to develop Process approach culture in an institution.

II. WHAT IS PEMS

PEMS is Process Effectiveness Measurement System i.e. a system to measure and improve the effectiveness of the processes in any business organization.

Note: Effectiveness can be defined as the degree or measure with which something is complied. If law of a country is fully complied then we will call the law of that country is very effective. Similarly, if a process produces what it is intended to produce then that process will be called very effective.

III. BASIS OF PEMS MODEL

Two most important principles of management on which this PEMS Model is based are:

First principle: “Effective process gives good quality output”. Output is either product/or services. Raw

materials i.e. inputs pass through several processes, to get transformed into output. So, if processes are effective, good quality output is obtained. This is the first principle. Second principle: “What you measure, you can improve”. It is taken from Lord Kelvin’s quotes. In other words, for improving anything, you need to do measurement to know what and how much you need to improve. For example, if a doctor does not measure the blood sugar of his patient, how will he be sure that the patient is diabetic or not? Similarly, without Measurement of the process, its effectiveness cannot be understood and improved. Then from first principle, you will get better quality of outputs. Hence, if these two management principles are fulfilled in any business operation then by the output i.e. the products/or services will be always be of good quality. This is what Peter Drucker advocated in his MBO concept.

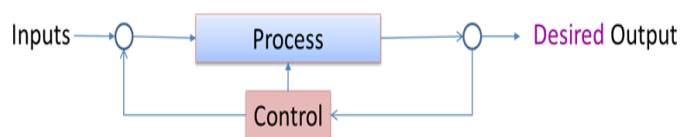
IV. HOW DOES PEMS WORK?

There may be several processes in a business operation which are required to deliver an output which can be a product or service. A process can be represented in a way, where “input” is passed through “process” in such a manner so as to obtain an “output” which is a product or service. It can be shown as below:



However, in normal circumstances, the output, may or may not possess the desired quality. Desired quality of output can be ensured from a) first management principle discussed above, it is understood that an effective process produces good quality output, and b) second principle says, what is measured can be improved. Using these two principles a control on the process is built, and make the process more effective to obtain the desired quality of output from the business operation itself, rather than repairing the undesired quality of output, as shown in Fig. 1.1.

Fig 1.1-Implementation of PEMS model in education system



The whole system can be divided into semester wise processes (i.e.6 processes which are in-fact 6 classes of 6 month duration each).

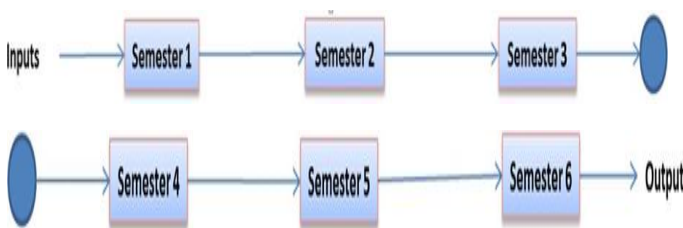


Fig.1.2 Working nature of processes of PEMS model

However, majority of the students coming out from the schools which are output in this case, are mediocre (average performers), not only in academics, but even in their field of interest also, such as sports or any other skills. This concern is from customer’s point of view. Even from organization’s view point also the owners/management face formidable challenges in delivering good quality of output what they promise in their advertisements, some of which are discussed.

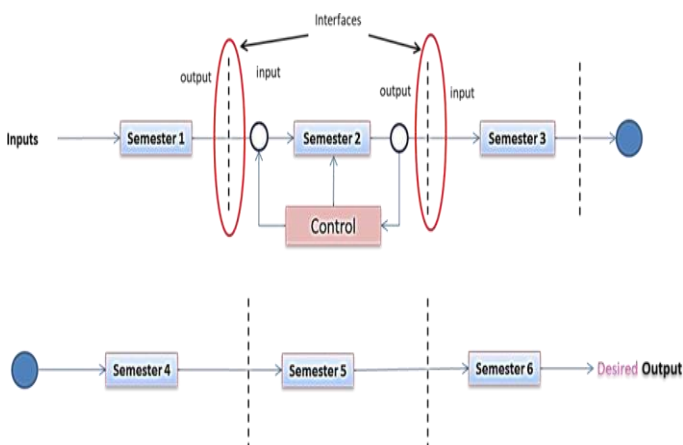


Fig 1.3 System with interface in between 2 semesters.

Fig.1.3 shows that output of process one is input source for the process two and also the output of process two is input for succeeding process. There is always an interface between two consecutive processes where output of one process becomes the inputs for succeeding process. In educational service sector these interfaces between two consecutive academic semesters are very much noticeable because one process mostly uses different academic resources. For an illustration after first semester students may get admitted to second semester with different academic resources (Study materials).

V. FOCUS AREAS

The quality parameters of the student that are mainly observed after the completion of the graduation can be broadly categorized into following 3 focused areas are as stated below.

1. Academics: This is the most important focus area every school has to work on.
2. English as a communication medium: Where English is not the mother tongue of student.
3. Personality Development: This is also an important aspect which needs attention.

3 Steps of PEMS Model used in establishing the controls over 3 focused areas.

Step No. 1: Defining the processes

Step No. 2: Measure effectiveness of the processes

Step No. 3: Corrective measures are initiated on ineffective processes

i. Step No. 1: Defining the processes

A. Handling of academics: Fig.1.4 emphasizes the handling of academic processes and the different aspects in order to attain our set objectives. Faculties of the institute have made the process flow diagram (PFD) and acted according to it, and this is started by preparing the lesson plan and taught as per the plan. After that students are required to undergo internal assessment tests, where they are assessed. Targets are fixed and the obtained marks are

tabulated below in Table 4. If student has attained the target then the student continues with the academics and moves to the next higher level and those who have not met the target are subjected for extra coaching classes and faculties assess the students very carefully and finally the process of academic handling has come up with great success and is as shown .

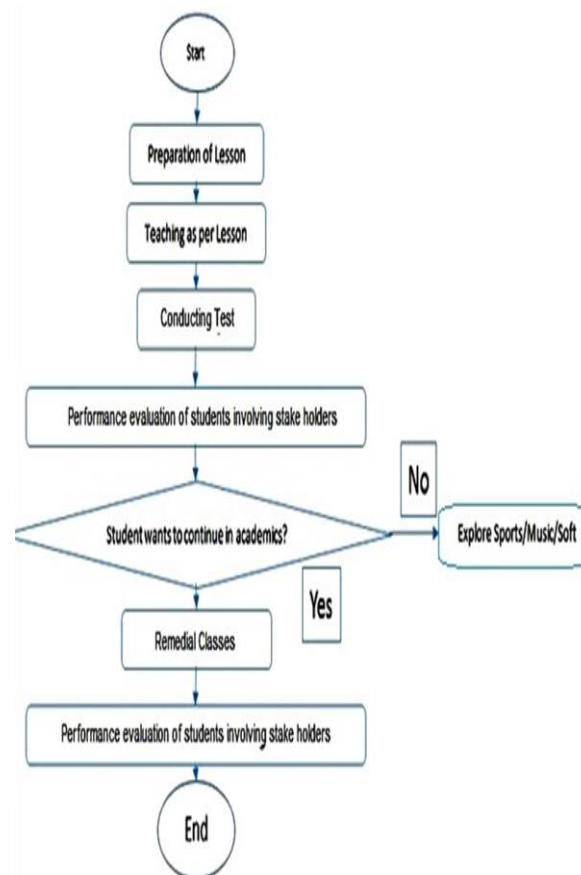


Fig.1.4 Process Flow diagram

Table.1 Showing Focus area, criteria and the targets for Academics.

DESIRED CHARACTERISTICS IN STUDENTS OF A SEMESTER			
Criteria#	Focus Area	Criteria Title	Target
1	ACADEMIC	Minimum percent marks in subject of interest	≥90 %
2		Minimum percent marks in important subject	≥75 %
3		Minimum percent marks in a subject	≥60 %

B .Handling of English as a communication medium:

After successful execution of the academic process handling method, the next stage is the process of handling English as a communication medium. It is found that due to lack of exposure to English language, students fail to get placed in campus recruitment drives of top MNC companies. For tackling this problem the same PFD of academics is adopted for this focus area also. In this area, the students are given opportunity to read, write, listen, and speak English after delivering a lecture. Later students are subjected for assessment test where they are assessed by fixing the target values or band and the observations are tabulated in Table-4. If student has attained the set target, he moves ahead to the next higher level and if the student fails to attain the target, he/she undergoes coaching classes and this continues till the student does fairly well in English communication.

Table.2 showing Focus areas, criteria and the targets for English

DESIRED CHARACTERISTICS IN STUDENTS OF SEMESTER 2			
Criteria#	Focus Area	Criteria Title	Target
1	English as a communication medium	Reading skill	Good
2		Writing skill	Good
3		Listening skill	Good
4		Speaking skill	Good

C. Process Handling of Personality Development:

As soon as the process handling of English as a communication is succeeded, further attentive care over process of handling personality development is taken. Here the students are checked for the moral and ethical values that they have. If after becoming an engineer, if he indulges in mal practices then it will be unfair on the part of the profession. Hence he will be tested for this criteria. The second criteria on personality development would be the interview facing skills. Here the student will be subjected for mock interviews and checked for various parameters like, group discussions, analytical skills and

aptitude. As for the previous criteria, here also targets are set and the students are evaluated and the observations are tabulated as shown in Table-4. If the students are meeting the targets, they move ahead and if not, corrective measures are taken to see that the students acquire the required skills. This was done by setting up a group of praise worthy committee. Students were tested and most of the students have attained the target as shown in below Table-4

Table.3 showing Focus areas,criteria and the targets for personality development.

DESIRED CHARACTERISTICS IN STUDENTS OF SEMESTER 2			
Criteria#	Focus Area	Criteria Title	Target
1	Personality Development	Professional ethics	Good
2		Interview facing skill	Good

ii)STEP: 2MEASURE EFFECTIVENESS OF THE PROCESSES

Table 4- Recording actual observations

Desired Characteristics in Students of				Std#1	Std#2	Std#3	Std#4	Std#5
Criteria #	Focus Area	Criteria Title	Target	Actual observations				
1	Academics	Minimum percent marks in subject of interest	≥90%	91	75	91	65	96
2		Minimum percent marks in important subject	≥75%	76	66	70	71	35
3		Minimum percent marks in a subject	≥60%	75	54	80	44	61
4	English as a communication medium	Reading skill	Good	poor	Poor	Good	Poor	Good
5		Listening skill	Good	Good	Poor	Excellent	Poor	Excellent
6		Writing skill	Good	excellent	Poor	Good	Poor	Good
7		Speaking skill	Good	poor	Poor	Excellent	Poor	Excellent
8	Personality Development	Professional ethics	Good	Good	Poor	Excellent	Poor	Good
9		Interview facing skill	Good	Good	Poor	Excellent	Poor	Good

After making use of the table values, the next step is to measure the effectiveness of the process. It is measured and checked to know weather the process is in control or not. A separate Table-5 is prepared,

in which all the data related to student attainment level have been incorporated and the overall effectiveness is calculated and also

Table.5- Conversion of actual results into binary values and calculating effectiveness

Desired Characteristics in Students of semester 2				Std #1	Std #2	Std# 3	Std# 4	Std# 5	Effectiveness (E)
Criteria#	Focus Area	Criteria Title	Target	Actual observations (after first trial)					
1	Academics	Minimum percent marks in subject of interest	≥90%	1	0	1	0	1	60%
2		Minimum percent marks in important subject	≥75%	1	0	0	0	0	20%
3		Minimum percent marks in a subject	≥60%	1	0	1	0	1	60%
4	English as a communication medium	Reading skill	Good	0	0	1	0	1	40%
5		Listening skill	Good	1	0	1	0	1	60%
6		Writing skill	Good	1	0	1	0	1	60%
7		Speaking skill	Good	0	0	1	0	1	40%
8	Personality Development	Professional ethics	Good	1	0	1	0	1	60%
9		Interview facing skill	Good	1	0	1	0	1	60%
total effectiveness									51%

Effectiveness is calculated as : a) $E = \sum (an/pn) * 100$
an is the actual binary values, pn is the sample size
b) Total Effectiveness = $\sum \text{individual Effectiveness} / \text{no of observed values}$.

Step No. 3: Corrective measures are initiated on ineffective processes

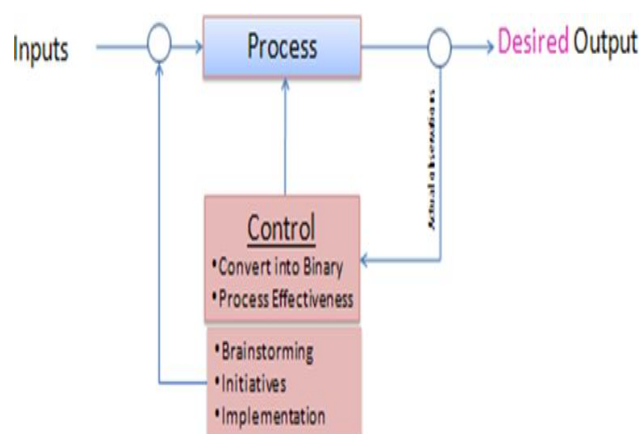


Fig.1.6 Periodic Actions on Ineffective Process

After effectiveness is calculated, necessary steps are taken to see that the desired results are obtained. If the desired results are not obtained then brain storming sessions are conducted with all the stakeholders viz. students, parents, faculty and management and the PFD is refined and implemented again and the complete process is repeated till the desired results are obtained.

VI. RESULTS AND DISCUSSIONS

Continuously capturing the actuals and taking steps to improve the processes, would gradually lead to perfection of processes in other worlds, process effectiveness will start rising towards 100%, thus the journey of business operation will be towards excellence. Generally speaking a service sector organization has nearly 40% to 50% process effectiveness in their business operations in the beginning, when they enter into Stage 3. As the organization pays attention towards process effectiveness and exerts concerted efforts in its improvement, then gradually this effectiveness rises @5% to 10% per trial. This will lead the organizations to reach upto 80% to 90% effectiveness in 5-6 trials. Normally a trial is made once in a year, so it takes 5-6 years to reach 80% to 90% effectiveness.

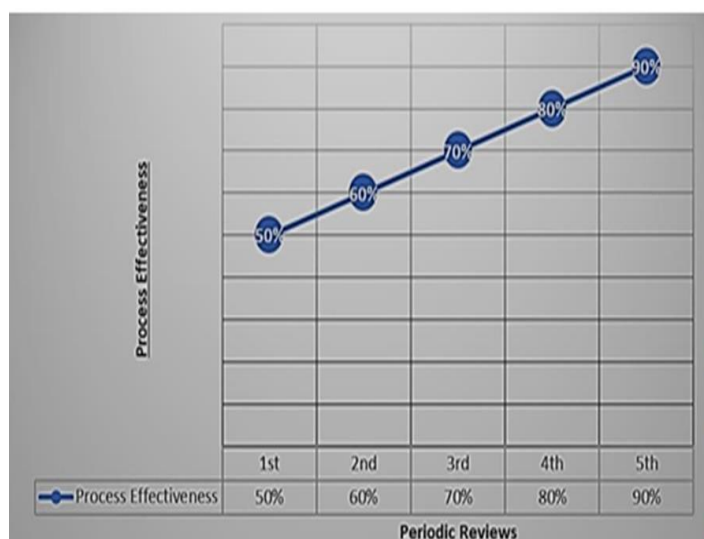


Fig-1.7 Variation of process effectiveness with different periods

From Fig.1.7 one can notice that initially the process effectiveness in first semester is only 51%, later in second trial it gets increased to 60% and it is seen that after very trial period the effectiveness is growing, this shows that the approach of PEMS model in education sector will have a larger impact and create history by enhancing the student skills into very knowledgeable and ethical graduates.

VII. CONCLUSION

After validating the PEMS model in education sector the following conclusions are drawn:

1. In house implementation has been achieved .
2. Existing structure intact .
3. Tool for Management- Crystal ball .
4. Capability Building.
5. In accordance with ISO/Six Sigma/ Kaizen.
6. Created team building and uniformity .

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