

A New Outcome based Education System in Engineering Colleges



Bhavani Marka, Joseph Anthony Prathap, S.Lavanya

Abstract: *This paper proposes a new Outcome Based Education and its benefits in the engineering colleges. The engineering education system has evolved in the past 10 years. The sustained innovation of ideas and products has produced a huge gap between the industry-academic interactions. The industries are well in advance of the technology taught in the curriculum. This mismatch of the academics and industries has created a change in the skills set requirement of the companies which are recruiting the young engineers in their field of interest. The main goal of the OBE is to reduce the distance between the industry-academic and provide versatile training that will be suitable and in demand for the current trend in the industries. This method will project on the importance of the OBE practiced in the engineering colleges so as to satisfy the skill set demand of the industries. This method is conducted with the students from the various departments of an engineering college. The result depicts that the 70% of the students are interested in the OBE and seems to be actively involved in the OBE practices.*

Keywords: *Outcome Based Education, Engineering, Education, Industry-Academic interaction.*

I. INTRODUCTION

The technical education in India has witnessed several changes in the development of the country. The main reason is the humongous number of engineering graduates successfully placed in most of the multinational companies from the early 2000. The trend of recruitment has seen the downfall from 2010 to till date. The main cause for this is the quality of education which was rendered is same for the past 15 years, whereas the research and development of the engineering domains have found dramatic evolution in real time application.

In order to overcome this, the Outcome Based Education (OBE) was introduced in the Indian education system by the National Board of Accreditation in order to access and enhance the student's skills in short span of time.

The OBE is a student centric learning procedure which has parameters such as clarity, flexibility, involvement and comparison. The quality of the engineering education as well as the quality of the engineering graduate, is enhanced by making use of the OBE [1].

For the past few years, many engineering colleges have initiated the process of the including the OBE in their curriculum. Some of the autonomous institutions have proposed and projected the role of OBE in their upgraded regulations. Also few surveys have been manipulated to comprehend the importance of the OBE in the engineering education system.

The students are interested in exploring technical education which is provided through the Outcome based education [2]. The students are able to identify the positive learning behaviors of the OBE practice [3]. The student's efforts and time invested throughout the semester have been accomplished by the use of OBE [4]. The OBE process, not only increases the technical skills of the students, but also the non-technical skills like communication and lifelong learning skills [5].

For the effective implementation of the OBE system, it is mandatory to pursue some educative efforts from the students and the teachers [6]. Apart from the fact that the use of the OBE as a student centric tool, not only improvises the students, but also the faculty fraternity of the institution. Although the teachers were finding at the initial to implement and cope with the OBE practice, the conduction of the Faculty Development Program by the funded agencies through the Ministry of Higher Education have solved the complications for the usage of OBE in real time training.

The teaching and assessing methods are closely related to the course intended learning outcomes as per the OBL successfully implemented [7]. The continuous change in the complicated higher education system can be compensated by the OBE methodology [8]. The OBE will be useful in assessing the teaching learning process of the organization and achieve the attainment in several courses of the PG students [9]. The fusing of OBE with the e-learning depicts the improved grade point average achievement with respect to academic performance than the traditional teaching-learning process [10]. The OBE model for the international students of the first year engineering course seems to be challenging and demanding [11]. In the field of medical education, the OBE can be a supersonic jet model [12]

This paper will present the report on the student's opinion on OBE practices in Engineering Colleges.

The 10 questionnaires were given to 150 students of pre final year in various engineering domains. The section II explains the questionnaires given in the method.

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The section III discusses the results of the OBE and its impact on the education system. The section IV concludes the importance of the OBE in engineering education.

II. A NEW METHODOLOGY ON OBE PRACTICES

The details of the questionnaires and their importance are explained in each preceding section.

A. Questionnaire 1:

The knowledge and awareness of the OBE should be familiar and known to the students. The importance of Activity based learning has to be trained in all the regular academic classes. In order to check the above two parameters, this questionnaire is given to test the students. The question given is

“Do you know what is meant by Outcome/Activity based education?”

B. Questionnaire 2:

If the learners are well aware of the OBE practices, then the methodologies by which the OBE is utilized in the classroom environment is important. The Indian education system would find this OBE practice absolutely novel and uneasy to adapt with the procedure. So as to exhibit the amount of interest of the faculty, student and their interaction with respect to the OBE the following question has been presented

“Have you practiced OBE in your college?”

C. Questionnaire 3:

The practices and commitments are not the only measurements for the efficient conduction of the OBE in the engineering colleges, whereas the person who is involved in these activities should be examined by the benefiter. Also the faculty need to get sufficient experience to satisfy the expectation of the students. For this purpose the question is produced as

“Do you believe that the faculty has sufficient knowledge about OBE practices?”

D. Questionnaire 4:

The faculty experience and the student's participation in the OBE are vital for the interaction and outcome of the knowledge transfer process. Although these constraints are satisfied, the facilities to support and enhance the OBE practice have to be provided by the college management and to be monitored by the affiliating organizations.

“Are you well equipped with facilities for OBE classes?”

E. Questionnaire 5:

The equality is the best solution for the opportunity to reach everybody in the classroom. The activities are to be easily accessible for the all students to participate, perform and accomplish. The duration of the activities is to be considered for the sustained participation of the physically weaker community say female. Thus this questionnaire is given as

“Do you find gender separation in OBE activities?”

F. Questionnaire 6:

The OBE activities are to be executed by the students and not the faculty or mentor. The activities are to be well coordinated in advance so as to avoid the domination of faculty or any officials in overwhelming the students. Also the higher cadre has to take responsibility to organize, monitor and execute these activities. Therefore the questionnaire is presented as

“Are OBE Activities students centric?”

G. Questionnaire 7:

The activities should be time bound for the students to get involved and interact. The organizer should take required steps to make sure that the events are conducted as per fixed schedule. In addition to this, the activities should be short and crisp, so as to complete within the time frame provided for the OBE activities. The questionnaire to justify this is presented as

“Do you have sufficient time to complete all OBE activities?”

H. Questionnaire 8:

If the students have to be included in the OBE with enthusiasm and interest, the curriculum has to be upgraded in such a way that the OBE activities directly constitute the evaluation and grades of the student. The management and academicians have to take necessary measures to ensure the OBE practices are related to the grades of the individual student and thus the questionnaire is given by

“Is it advantageous to go with OBE with respect to marks?”

I. Questionnaire 9:

The current trend in doing research is multidisciplinary. The OBE activities should trigger the interdisciplinary approach in the learning. The interdisciplinary approach can give way for more innovation in short span of time. The faculty and students are to be encouraged to participate in the inter-department OBE practices to enhance the knowledge of multi-disciplinary in the teaching-learning process. The questionnaire presented for this is

“Are you aware of multidisciplinary approach?”

J. Questionnaire 10:

The teaching-learning practice by the faculty and student interaction is not the only parameter to evaluate the success of the OBE practice; rather the parents need to be satisfied with the outcome of the OBE practice. The awareness of the parents in the OBE practice should be communicated and upgraded if any chances are required as per the curriculum. Thus the questionnaire is given as follows

“Do your parents have a positive opinion about your OBE practices?”

Table 1 depicts the results of the OBE practices in engineering education

Questionnaires		Yes (%)	No (%)
Q1	Do you know what is meant by Outcome/ Activity based education?	99.994	0.006
Q2	Have u practiced OBE in your college?	67.53	32.47
Q3	Do you believe that the faculty has sufficient knowledge about OBE practices?	64.94	34.06
Q4	Are you well equipped with facilities for OBE classes?	54.54	45.46
Q5	Do you find gender separation in OBE activities	37.01	62.99
Q6	Are Activities students centric?	45.4	54.5
Q7	Do you have sufficient time to complete all OBE activities?	20.78	79.22
Q8	Is it advantageous to go with OBE with respect to marks?	68.83	31.17
Q9	Are you aware of multidisciplinary approach?	49.35	50.65
Q10	Do your parents have a positive opinion about your OBE practices?	76.63	23.37

III. RESULTS AND DISCUSSION

From the responses to Q1, almost all the students were aware of the OBE practices and its importance in learning with flexibility and motivation. Q2 depicts that the only 67% have practiced the OBE in the classroom environment while 32.47% have opted for not using OBE.

This explicitly shows the inability of the faculty to involve in OBE practices. Furthermore Q3 ascertain that the faculty are lacking in knowledge of OBE practices as 34.06% have replied negatively for the faculty involved in OBE. The Q4 shows the facilities given by the organization are around 54.5%, which need to be improved in the years. Q5 presents that the activities are accessible and simple to cope with irrespective of the genders.

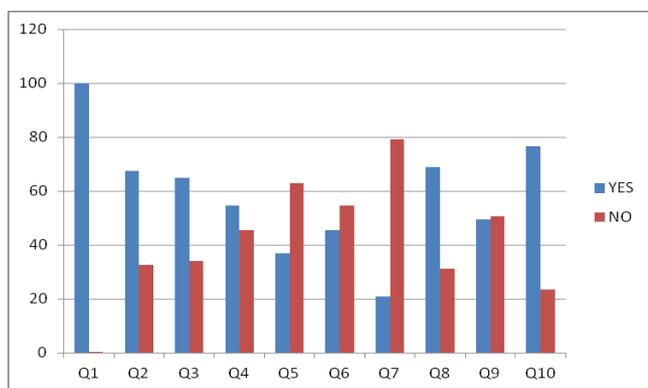


Fig.1 shows the response of the engineering students with 150 sample size

The most important aspect of OBE produced in Q6 is including students in the learning process which is not up to the marks as 45.4% have given that the activities are not students centric. That is, the students are not allowed to participate and time insufficiency for the activities to be completed. Q7 covers the time period in which 79.22% of the students have opted for insufficient time for conducting the activity. Another drawback in the OBE activities is that they are not inter-disciplined rather it is a constraint to the particular department as approximately 50% of the students have chosen as given in Q9.

The interest of the students with the OBE and academic is visible with the Q8. The Q10 gives an idea how the OBE practices are known to the parents and 76.6% have given a positive note on the OBE practices.

IV. CONCLUSION

The proposed method clearly depicts that the outcome based education is predominately practiced by the faculty and students in engineering colleges and technical universities. The student community feel that the OBE could prove to enhance their scope for scoring marks. This method can be extended with the enhanced evaluation methodology by implementing the fusion of both theoretical and practical classes . Future scope can be directed towards the mandatory practice of OBE in all education systems of India.

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Dr. Bhavani Marka is currently working as an Associate Professor in the Department of MBA at Vardhaman College of Engineering (Autonomous), Hyderabad, Telangana, India. She received the Ph.D. Degree in Management Science from Jawaharlal Nehru Technological University, Hyderabad, Telangana, India. MBA Degree in Human Resource Management from University Post graduate College, Kakatiya University, Warangal and B.Com. (Computers) Degree from New Science Degree College, Kakatiya University, Warangal, Andhra Pradesh, India. She has close to 7 years of experience in academics and 3.5 years in Industry and 3 years in Research. She has expertise in Human Resource Management, Strategic Management, Career Management, Management Science, Business Communication, and Entrepreneurship Development in Management Studies. She received NPTEL Certification in the Courses of Principles of Human Resource Management and Research Writing.



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