Chemik International
ISSN: 0009-2886
Volume: 2020, **Issue:** 2| **Pages:** 199 - 214

Impact of Outcome based Education (OBE) on Teaching Effectiveness of Faculty Members of Professional Program

Dr. Vaishali Rahate, Associate Professor,Datta Meghe Institute of Management Studies, Nagpur
Dr. Sujit Metre, Principal, Shree Binzani City College, Nagpur
Dr. Ranjit Ambad Associate Professor Dept. of BiochemistryDatta Meghe Medical College, Shalinitai Meghe Hospital And research Centre, Nagpur
Dr. Swapnil Bhirange Assistant Professor Dept. of Physiology Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi (Meghe), Wardha

Address for Correspondence
Dr. Ranjit Ambad
Datta Meghe Medical College, Shalinitai Meghe Hospital And research Centre, Nagpur, Email.id. ambad.sawan@gmail.com Mob No. 09890959395

Abstract: The growth and development of a country relies heavily on the Higher education which powers the supply of skilled and technologically advanced manpower.
Outcome based education is potentially successful curricular innovation for educational institutions as it not only overcomes the lacuna of traditional learning process but also it has the advantage of being future driven.OBE aims at assessing the learners on understanding, critical thinking, reasoning, reflection and action. It aims at ensuring that the students have an integration of knowledge and learning relevant and connected to real-life situations. Looking at the growing importance of Outcome based Education(OBE), This study is conducted to find the OBE literacy quotient of the faculty members in Management & Engineering colleges. A preview is generated with respect to the acceptance and/or reluctance of faculty members towards implementing OBE practices. The study also postulates the relationship between OBE knowledge and teaching effectiveness.
The data is analyzed through descriptive and inferential statistics.
The outcome of the research would be significant for the policy makers and administrators in determining the means to improve quality of education by proper implementation of OBE practices.

Key words: Outcome based Education (OBE), OBE literacy quotient, teaching effectiveness

1. Introduction

Looking at thefast changing global environment,it has become imperative to make changes accordingly in the teaching learning process. The regulatory bodies in India had proposed the outcome based education format earlier for the Engineering and Medical Institutions and now have percolated the policies in all the educational institutions.

It is a task to change the mindset of the teachers who have been following the traditional classroom instructional pedagogy for years together. Thus there is a necessity to create awareness, train the faculty members, motivate them to design activities which targets towards the outcomes. The role of the teacher has to be changed from merely a instructor to a facilitator. Active learning rather than passive learning is the need of the hour for the students to sustain in the competitive world.

According to Pretorius (1998) and Genis (1997) OBE is a system that is relevant and appropriate to address future needs in a better manner compared to traditional approach. It also intend to implement the changes in technology and work environment more effectively.

OBE implies a paradigm shift toward supporting high levels of learning for all students. It focuses on what students can do and how do students relate to teaching (Biggs and Tang 2007).

That is, the instructor should provide guidance for students to achieve their outcomes by choreographing specific learning activities and assessment tasks (Van Schalkwyk 2007). Considering the above the most important aspect of OBE is to determine the learning outcomes.

“Pretorius (1998) has also laid down several characteristics of OBE:

- It is a learner-centered approach based on the philosophical assumption that all learners are achievers if allowed sufficient time to do so.
- There is freedom and flexibility for self-motivated learners to engage in enriching activities in order to attain the required outcome.
- Learners are focused on what is expected of them since they are exposed to the outcome right from the onset.
- Learners become accountable for their own learning when having to attain outcomes.
- An opportunity for flexible teaching strategies is offered to teachers since the emphasis is not only on whether the learner attains the selected outcome, but also on procedure.

- Learner success is established purely on whether the learner has attained the required outcome or not – and not in terms of the achievements of other learners.
- A variety of opportunities are offered to learners to demonstrate whether the outcome has been attained.
- Learner progression is based on demonstrated achievements.
- It is a long-term commitment based on the premise of continuous improvement.
- The notion of "great expectations for all to succeed", is emphasized.
- It focusses on the future and is able to address the changing needs of the community more readily.
- Community requirements tend to be addressed more directly because, in determining the required outcomes, there is the involvement of an extensive range of stakeholders such as parents, teachers and business leaders.
- The focus is on skills needed in everyday living and the requirements of the career environment, rather than on memorizing factual knowledge**"**

2. Rationale

There are very few studies related to OBE in Indian context with respect to analyzing the awareness, understanding ,the reluctance and implementation of OBE practices in professional educational institutions.

Unemployment statistics of Indian youth especially in the days of reaping benefits of demographic dividend, has put forward a need to restructure the educational scenario.

This study makes a modest effort to give a visualization of the current scenario in educational sector by providing results about OBE quotient amongst faculty members,their perspective on application of the OBE and the effectiveness of OBE.

3. Literature review

In a study conducted by Botha(2002) , the research concluded that OBE is concerned with what students have learnt and how well they have learnt rather than what they were supposed to learn.

The shift in focus from teacher to student has led to constructivism in higher education (Ertmer and Newby 1993) where constructivism emerges from philosophy, psychology,

sociology and education (Carlson 2003). It lays emphasis on knowledge as a social endeavor (Otting 2000).
In OBE teachers are stimulators of meaningful knowledge rather than mere transmitters of existing knowledge (Harris and Alexander 1998 in Kember 1997).
Black and Wiliam (2009) argue that every instruction is aimed at achieving some goals such as improving learning skills.

Transmission approach to knowledge delivery leads to superficial learning while an approach focused on students leads to in-depth learning. It is thus important to use appropriate method to transform superficial learning to in-depth learning (Trigwell et al. (1999).

Ebrahim (2010) and Allawneh and Mallah (2008) highlighted in their study that administrators incorporated the outcome based education concept in their system without adequate training to the members of faculty on how to execute these concepts and render student centric learning. This leads to inability of the members of faculty to develop and enhance their teaching skills.

Further to this (McAlpine et al., 2006) stated that there was a lack of alignment between course goals, plans and classroom activities may be due to the lack of understanding of OBE by the administrators similar to the members of faculty.

Recent trends in higher education industry reflect that for assurance of quality in education focus should be on identification of outcomes of the course or program to be taught and alignment of these learning outcomes with the teaching pedagogy and assessment strategy in a manner to maximize the achievement of these outcomes. It's a process that begins with identification of outcomes i.e. what the students should be able to do at the end of the program, then organizing the curriculum accordingly, defining instruction and pedagogy and finally the assessment to ascertain that the intended learning has actually taken place. (Baron &Boschee, 1996; Deneen, 2009; Spady, 1994; Webb, 2009).

Laguador, J. M., &Dotong, C. I. (2014) in this study found out that faculty members may possess appropriate knowledge in certain area of the OBE implementation but not being practiced. Continuous participation of the faculty members in training and seminars is highly encouraged to provide them updates of the OBE process. Faculty members with high level of knowledge and understanding on the implementation of OBE have also higher possibility to contribute in the realization of the objectives of OBE through practice.

4. Research Methodology

Questionnaire Design

Structured close ended questionnaire has been used to collect data for the research. The questionnaire was developed based on literature review and objectives of the research. It takes into account the major components of OBE i.e. PO, CO, Pedagogy and Assessment.

The data is analyzed using both descriptive & inferential statistics

The study uses Convenience sampling method for data collection and data was collected based on the availability and willingness of the respondents.

Objectives

Objective 1: To assess the knowledge of OBE amongst the faculties (Mgt&Engg)

Objective 2: To understand if OBE quotient differs with Gender and Age.

Objective 3: To understand the relationship between knowledge of OBE and acceptance/Reluctance of Teachers towards implementing/practice of OBE

Objective 4: To analyse the impact of OBE on teaching effectiveness of Faculty members.

Prominent Variables used in the research:

OBE literacy quotient: OBE literacy quotient is the extent of knowledge pertaining to OBE concept and practices.

Items related to assess the OBE Quotient:

1. I have the conceptual knowledge of OBE.
2. I have gained the knowledge of OBE through the Seminars/Workshops/Self study
3. I understand how the Program Outcomes and Program Educational Outcomes of the College were formulated
4. I am aware of the process to formulate Course Outcomes using Bloom's Taxonomy
5. I understand the relationship between Course outcomes and Program outcomes.
6. I have clear understanding on how to do the OBE assessment
7. I understand the use of the direct assessment techniques in assessing the course outcomes.
8. I can assess the students by using Activities, Exercises, Projects, assignments to attain the course outcomes.
9. I understand the principle of making and using the rubrics for assessment.
10. I am ready to apply the OBE curriculum in the delivery of my instructions
11. I have used different techniques related to OBE in the delivery of my instructions

12. I was involved in implementing OBE at my college/institute.
13. I understand the difference between PO, PSO, PE and GA
14. I can comfortably map COs with POs.
15. I can measure attainment of my course.

Teaching effectiveness: Teaching Effectiveness is the result of the application of OBE practices and getting a positive evident learning outcomes.

Items related to Teaching Effectiveness:

I find the students more engaged.

The students are able to think out of box.

The Teaching-Learning has become two way interactive process.

Higher order thinking skills of the students have improved

Clear teaching objectives and predefined expectations have inspired students to become creative and innovative thinkers.

Students understand WHY they are learning.

Increased student involvement allows students to feel responsible for their own learning

Students gained real world experience

Students are able to recall and implement/execute the concept.

Students are inspired and motivated about the subject

Hypothesis 1:

Context:

The concept of OBE was first adopted in Engineering Colleges in India soon after India became a signatory member of Washington accord and later percolated to the various programs. So the researchers found it imperative to find if there was any difference in the OBE knowledge of the faculties in Management and Engineering colleges.

Ho1: There is no significant difference between the OBE Literacy Quotient of Various faculties of technical education (Engineering, Management)

Ha1: There is a significant difference between the OBE Literacy Quotient of Various faculties of technical education (Engineering, Management)

Hypothesis 2:

Context:

It is well established from the Literature review that OBE knowledge is the need of the hour. But merely having knowledge will not suffice. So it was essential to explore the relationship between OBE quotient and acceptance of the faculties/teachers to implement the OBE practices in their classroom.

Ho2: There is no significant relationship between knowledge and acceptance of Teachers towards implementing/practice of OBE

Ha2: There is significant relationship between knowledge and acceptance of Teachers towards implementing/practice of OBE

Hypothesis 3:

Context:

The employability of the students will enhance only if the teaching is effective especially if the students are able to apply the concepts taught by the teachers. Thus it was necessary to explore whether there exists any relationship between OBE literacy quotient and teaching effectiveness.

Ho3: Teaching effectiveness is independent of OBE literacy quotient.

Ha3: Teaching effectiveness is dependent on OBE literacy quotient.

Sample size:

75 faculty members of Engineering & Management institutions (across Maharashtra).

5. Data Analysis & Interpretation

Descriptive and interferential statistics have been used, by applying SPSS 21 software package. Descriptive statistics have been used for summarizing the data to draw a meaning from the data.

Mean & Standard Deviation were computed to describe all the variables and Cronbach's Alpha test was performed to check the reliability of the data.

Reliability Statistics

Cronbach's Alpha	N of items
.960	45

Inferential statistics have been used for testing the hypothesis and drawing conclusions. T-Test was used to generalize the results of the sample for the complete population.

Analysis 1:

Test of normality

Shapiro-Wilk Test of Normality

To assess whether the data is normally distributed, Shapiro-Wilk Test of Normality is used for both data collected from Members of Faculty. The test reveals whether sample data are drawn from a normally distributed population or not.

Applying Shapiro-Wilk test of normality to mean values determined and results obtained have been given in following Table

Tests of Normality

	Teaching in	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
OBE quotient	MBA	.150	47	.010	.947	47	.033
	ENGG.	.144	25	.195	.949	25	.235

The statistical value (p value) for the data is .235. Assumed level of significance is .05. Since the *p* value is greater than .05 (p>.05) the results are significant which means that the data is normally distributed.

Analysis 2:

OBE Quotient

The OBE quotient was calculated and the mean score was found as under:

OBE Quotient

Faculty	Mean	N	Std. Deviation
Management	3.7951	47	.58815
Engineering	3.9048	25	.48254
Total	3.8332	72	.55280

Group Statistics					
	gender	N	Mean	Std. Deviation	Std. Error Mean
OBE literacyQuotient	MALE	49	3.8812	.59549	.08507
	FEMALE	26	3.8185	.48580	.09527

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
OBE literacy Quotient	Equal variances assumed	.614	.436	.462	73	.646	.06276	.13596	-.20820	.33372
	Equal variances not assumed			.491	60.670	.625	.06276	.12772	-.19267	.31819

The significance value is greater than .05, which means that the null hypothesis is accepted. There is no significant difference between the OBE Literacy Quotient of Various faculties of technical education (Engineering, Management)

Analysis 3:

Understanding of OBE differs by gender

Independent Sample T-test was used to study the difference in the understanding of OBE by gender &Age of Members of Faculty(Teachers)

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
OBE literacy Quotient	MALE	49	3.8812	.59549	.08507
	FEMALE	26	3.8185	.48580	.09527

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
OBE literacy Quotient	Equal variances assumed	.614	.436	.462	73	.646	.06276	.13596	-.20820	.33372
	Equal variances not assumed			.491	60.670	.625	.06276	.12772	-.19267	.31819

Independent sample test was conducted to generalize the results of the sample for the population. The results show that understanding of male members of faculty (3.88) did not show statistically significant difference to the understanding of female members of faculty (3.81), t (75) =.462, p = .646

Results are significant when calculated p value is less than assumed p value. Since p > 0.05, the null hypothesis is accepted &hence we conclude that understanding of OBE does not differ by gender of members of faculty.

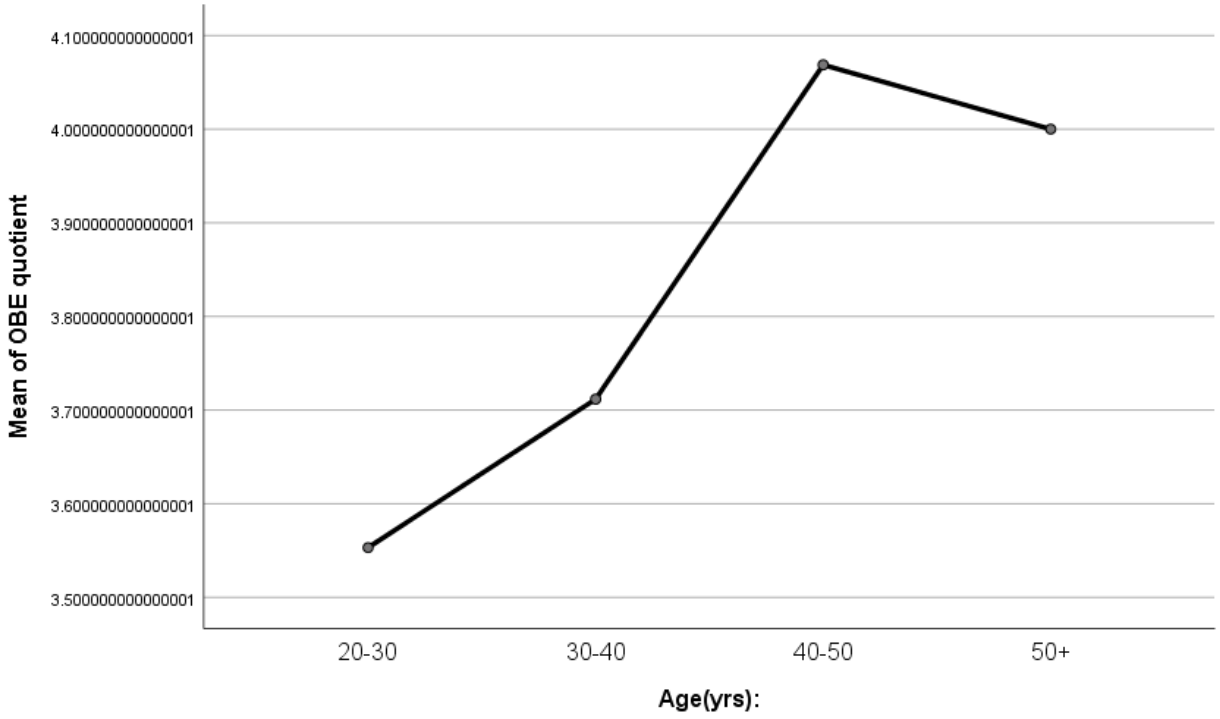
Analysis 4:

Different age groups shows different levels of OBE understanding.

Descriptives
OBE quotient

	N	Mean	Std. Deviation	Std. Error
20-30	8	3.55	.5574	.19710
30-40	31	3.711	.5857	.1052
40-50	27	4.068	.4878	.0938
50+	9	4.000	.4386	.14620
Total	75	3.8578	.5573	.0643

A Turkey Post hoc test revealed that the group with experience of 40-50 years showed higher level of understanding compared to 20-30 years & 30-40 & 50 above groups.



The graph clearly shows that members of faculty with experience between 40-50 years shows higher level of understanding of OBE compared to other members of faculty from the other two groups.

Analysis 5:

Relationship between knowledge(OBEliteracy quotient) and acceptance of Teachers towards implementing/practice of OBE

Correlations			
		OBE quotient	Acceptance for practice of OBE
OBE literacy quotient	Pearson Correlation	1	.293*
	Sig. (2-tailed)		.011
	N	75	75
Acceptance for practice of OBE	Pearson Correlation	.293*	1
	Sig. (2-tailed)	.011	
	N	75	75
*. Correlation is significant at the 0.05 level (2-tailed).			

The p value is 0.011)which is less than 0.05, it means that we reject the null hypothesis and the correlation is significant and looking at the correlation quotient (r=0.293) the value of r is positive which means that there is a positive correlation between OBE Quotient and Acceptance of the Teachers to implement OBE practices.

Analysis 6:

Relation between Understanding OBE and reluctance of the teachers to implement OBE practices.

Correlations			
		OBE quotient	Reluctance
OBE literacy quotient	Pearson Correlation	1	-.187
	Sig. (2-tailed)		.109
	N	75	75
Reluctance	Pearson Correlation	-.187	1
	Sig. (2-tailed)	.109	

	N	75	75

The p value is 0.109 which is more than 0.05, it means that we accept the null hypothesis and the correlation is insignificant and looking at the correlation quotient (r=-0.187) the value of r is negative with means that this is a negative correlation between OBE quotient and Reluctance of teachers to implement OBE practices. This means that low knowledge of OBE leads to reluctance of implementation of OBE.

Analysis 7:

OBE QUOTIENT AND TEACHING EFFECTIVENESS

Descriptive Statistics

	Mean	Std. Deviation	N
OBE Quotient	3.8595	.55736	75
Teaching effectiveness	3.6320	.99351	75

Correlations

		OBE Quotient	Teaching effectiveness
OBE Quotient	Pearson Correlation	1	.345**
	Sig. (2-tailed)		.002
	N	75	75
Teaching effectiveness	Pearson Correlation	.345**	1
	Sig. (2-tailed)	.002	
	N	75	75

**. Correlation is significant at the 0.01 level (2-tailed).

We have used Pearsons correlation to find relation between OBE quotient and Teaching effectiveness. The p value is 0.002(p=0.002)which is less than 0.05, it means that we reject the null hypothesis and the correlation is significant and looking at the correlation quotient (r=0.347) the value of r is positive which means that there is a positive correlation between OBE knowledge and Teaching effectiveness.

Analysis 8:

Relation between OBE literacy quotient, Teaching effectiveness and Acceptance of the teachers to implement OBE practices.

Descriptive Statistics			
	Mean	Std. Deviation	N
OBE Quotient	3.8595	.55736	75
Teaching effectiveness	3.6320	.99351	75
Acceptance	3.7720	.95387	75

Correlations

		OBE Quotient	Teaching effectiveness	Acceptance
OBE literacy Quotient	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	75		
Teaching effectiveness	Pearson Correlation	.345**	1	
	Sig. (2-tailed)	.002		
	N	75	75	
Acceptance	Pearson Correlation	.249*	.715**	1
	Sig. (2-tailed)	.031	.000	
	N	75	75	75

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

There is a significant correlation between Acceptance of teachers for OBE implementation and Teaching effectiveness. Thus , to increase the teaching effectiveness, knowledge and implementation of OBE practices is required.

Interpretation

	Alternate Hypothesis	**Statistical Tool**	**Interpretation**

Ha1	There is a significant difference between the OBE Literacy Quotient of Various faculties of technical education (Engineering, Management)	**T-test**	The null hypothesis is accepted. There is no significant difference between the OBE Literacy Quotient of Various faculties of technical education (Engineering, Management)
Ha2	There is significant relationship between knowledge and acceptance of Teachers towards implementing/practice of OBE	**Bi Variate Correlation**	**The alternate hypothesis is accepted**
Ha3	Teaching effectiveness is dependent on OBE literacy quotient.	**Bi Variate Correlation**	**The alternate hypothesis is accepted**

6. Conclusion

The findings have demonstrated that some of the faculties lack the understanding of OBE which leads to monotonous teaching and less teaching effectiveness. It is a well-established fact that OBE is the need of the hour considering the fact that traditional education system is yielding unemployable youth due to a wide gap between the theory taught & practical knowledge required. Members of faculty have also depicted low level of understanding of OBE which in turn leads to inadequate application of the concept in the education system and reluctance to implement OBE. The findings of the study also suggests that there is a clear linkage between Understanding the concept of OBE,Implementation of OBE in classroom teaching and Effectiveness in teaching. Proper training programs should be organized for the teachers in all technical programs.

REFERENCES:

1. Acharya C., (2003). Outcome- based Education (OBE): A New Paradigm for Learning, available online: http://www.cdtl.nus.sg/Link/nov2003/obe.htm,
2. Sobrino, J. J., & Ryan, N. (2010). Quality Assurance and Learning Outcomes. ENQA Workshop Report
3. Aggarwal, J.C. 1993. Landmarks in the History of Modern Indian Education. Vikas Publishing House Pvt. Ltd. New Delhi.

4. Baron, M. A., &Boschee, F. (1996). Dispelling the myths surrounding OBE. Phi Delta Kappan, 77(8), 574–576.
5. Biggs, J.; & Tang, C. (2007). Teaching for Quality Learning at University: What the Student Does. Michigan: McGraw-Hill.
6. Havnes, A. (2004), "Examination and learning: an activity-theoretical analysis of the relationship between assessment and educational practices", Assessment and Evaluation in Higher
7. MCNEIR, G. (1993) Outcome-based Education: Tools for Restructuring. Oregon School Study Council Bulletin (Eugene, Oregon School Study Council).