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Outcome Based Education and Its Modifications to Suit Eastern Countries

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Abstract

A higher education strategy known as "outcome-based education" (OBE) is centered on assessing the effects and consequences of learning. It has been widely adopted and followed in several countries particularly in vocational and professional education. In this research, the state of outcome-based education—which combines traditional and content-based learning methods—in educational institutions is examined. Assuring that students obtain a top-notch education that equips them for success in their future occupations is made possible in large part by examining the status of OBE in educational institutions. A systematic structure for education, a particular approach to instructional practice, and an educational theory are the three main ways that OBE differs from standard education methods. It arranges the whole educational system around the things that are thought to be necessary for students to be able to do well when they finish their studies. OBE is proven to improve the quality of teaching and learning, competitiveness among graduates and English language proficiency of the students. The purpose of this schooling was to give the younger students access to the knowledge and abilities of an older generation while also creating a conducive learning atmosphere. The curriculum is decided upon by outcome-based education based on the competencies that students should exhibit at the conclusion of their program. As a result, the course offered, the educational environment, the teaching strategies, the content and organization of the curriculum, and the assessment techniques are all determined by the outcomes or competencies. Traditional teaching methods were output based and it is changing to outcome-based education. Education with an outcome focus is here to stay. Student-centric learning has replaced teacher-centric learning. This review paper examines outcome-based education in detail and compares the changes taking place in society in line with outcome based education.

Keywords: Outcome Based Education, Design-Down Approach, Learner Experience, Attainment, Course Outcomes, Outcome Based Education, Program Outcomes, Program Evaluation, Student Evaluation.

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INTRODUCTION

The term "outcome" is a little ambiguous and might have several meanings depending on the situation. In the educational sector, the development of the student is the outcome. The student joins college with a particular skill set, which then improves over the period of study, and he is supposed to pass out of college with an improved skill set and/or additional skill sets. Technical, communication, managerial, and marketing talents are some examples of these other skill sets. Instead of measuring what the teacher has taught, outcome-based education has been used to gauge what the students have learned. In the modern world, it is necessary to have metrics to measure any outcome,

be it in Engineering, Technical Education, State of the economy or the quality of a college. Metrics such as Program Outcome, Course Outcome, and Program Specific Outcome have been established.

LITERATURE REVIEW

Vijayakumar has discussed the effects of outcome-based learning [1]. Mahbubul Sayeed et al. have defined the outcome-based education process [2]. A thorough analysis of the new education policy's impact on outcome-based learning has been published. There is also discussion over the effectiveness of OBE on engineering college education [3, 4].

Standard OBE pyramid is given below in Figure 1. New practices, principles, premises and purpose lead to a paradigm shift in education. Education becomes more student oriented. Learning goals and objectives are clearly defined beforehand and communicated to the stakeholders. Stakeholders include students and parents as well. Feedback is taken from Alumni and Industries in which Alumni work and syllabus is constantly updated and upgraded. Below is a typical OBE pyramid.

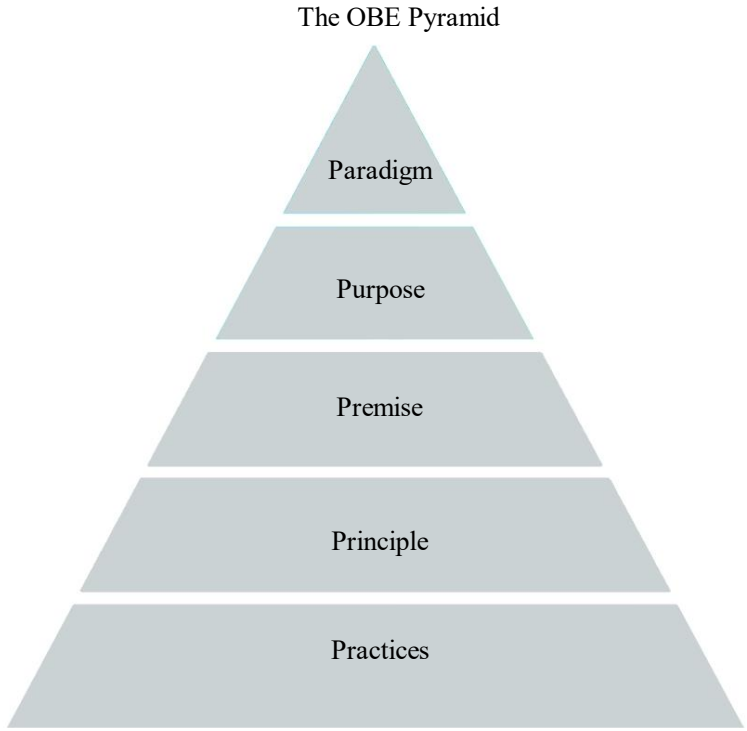

Figure 1. Shows the OBE Pyramid.

Important aspects of Outcome Based Education

1. Any theory, practical, or theory and practical subject studied throughout a semester is referred to as a course. For example, engineering mathematics.
2. Course outcomes are assertions that students can reliably show they have learnt in a significant and necessary way by the end of the course. Generally speaking, depending on each course's weight, three or more course outcomes may be listed.
3. A program is a degree's area of focus or discipline. It is the coordinated design of coursework, co-curricular activities, and extracurriculars to achieve preset goals that culminate in the granting of a degree. As an illustration: Marine Engineering B.E.
4. Program Outcomes (POs) More specific statements describing what students should be able to perform by graduation are called program outcomes. Graduate Attributes and POs are supposed to be tightly connected.
5. Instructional Goals for the Program (PEOs) A program's program educational objectives are statements that outline the expected outcomes for graduates in their professional lives, with a

focus on what those graduates should accomplish in the initial years following graduation.

6. Program-Specific Outcomes (PSO) The skills that students should possess in relation to a particular discipline at graduation are known as program specific outcomes. A program normally includes two to four PSOs.
7. *Graduate Attributes (GA):* There are twelve graduate attributes, which serve as models for the qualities that graduates of recognized programs are supposed to possess.

Graduate Attributes in Outcome Based Education

1. *Engineering knowledge:* Use your understanding of science, math, engineering principles, and an engineering expertise to address challenging engineering challenges.
2. Problem analysis entails identifying, formulating, researching, and analyzing challenging engineering problems in order to reach established findings based on fundamental principles in mathematics, natural sciences, and engineering science.
3. *Design/development of solutions:* Provide answers to complex technological problems and system elements or procedures that satisfy the necessary specifications while taking into account environmental, cultural, societal, and public health and safety factors.
4. *Conduct investigations on complicated problems*: Problems that cannot be solved simply by applying engineering-related information, theories, and techniques. There may not be a unique answer. For example, a design challenge can be solved in a variety of ways, resulting in various alternative solutions that must take into account acceptable constraints/requirements that are not explicitly stated in the problem statement. Cost, power requirements, durability, product life, and other factors must be characterized (modeled) within a suitable mathematical framework. They frequently necessitate the employment of contemporary computational concepts and technologies.
5. *Ethics:* Apply moral principles and follow professional obligations, ethics, and engineering practice guidelines.

Benefits Of OBE

Clarity

The focus on outcomes establishes clear guidelines for the assignments that students must complete by the end of the course. In addition to teachers knowing what needs to be taught during the course, students will also understand what is expected of them. Over the course of years in school and when collaborative teaching is involved, clarity is crucial. Every team member, or academic year, will comprehend exactly what needs to be done in every class, or at every level, enabling kids to advance. After an outcome has been selected, those creating and organizing the curriculum are supposed to work backwards to ascertain what knowledge and abilities will be needed to achieve the outcome [5].

Flexibility

Teachers can organize their lessons to better fulfill the needs of their pupils provided they have a clear grasp of the activities that must be achieved. OBE gives teachers the freedom to teach their students in any way they see fit because it does not mandate a particular style of instruction. Instructors that use a variety of teaching and assessment methodologies in their classrooms will also be able to recognize student diversity. The goal of OBE is to be a student-centered teaching approach. Two strategies teachers might use to help their pupils learn are group projects and study tools. Teachers are supposed to lead and assist students in understanding the topic in any way that is required.

Comparison

OBE is comparable across different educational contexts. Institutions can determine a student's level at a new institution by looking at the specific achievements the student has attained. Comparing oneself allows institutions to evaluate what outcomes they have in common and identify areas for improvement based on what other institutions have accomplished. Students can transfer between colleges relatively readily because they can compare institutions with ease. To decide how many credits to give the student, the institutions might compare results. Students should be more likely to transfer schools as a result of

the clearly stated outcomes, which should enable institutions to evaluate students' progress quickly. These results also apply to transfers from school to the workplace. A prospective employer can review the applicant's records to ascertain the results they have attained. After that, they can decide if the prospective worker have the abilities required for the position [6].

Involvement

An essential component of OBE is student participation in the classroom. Students are expected to perform individual study in order to completely learn the topic matter. Students who are more involved in their education feel more accountable for their own education, and they should gain more knowledge from this independent study. Parental and community involvement might also take the form of curriculum development or curriculum modification. The determination of OBE results is intended to take place locally or within an educational system. Parents and community people are consulted to ensure that the quality of education in a community remains high and that students are prepared for life after school.

METHODOLOGY

Attainments are calculated for each subject individually and the subjects having lower attainment need corrections. For example, special classes could be held for weak students. Nowadays, a large number of people and students require psychological treatment. As a result, one may argue that the level of education is being assessed. Metrics are obtained from all the stakeholders, namely students, alumni, employers and parents of students. The method of evaluation is very scientific in nature, but it has some drawbacks too. Course Attainment and Program attainment is systematically calculated and there is some freedom to define how it is calculated. Every revision, which might take place annually or at predetermined intervals, has the option to include new teaching and learning strategies. For instance, innovative presentation techniques and assignment weighting. India's universities are accredited by the global accrediting organization, ABETT. Research articles are given a lot of weight, and faculty members recognize excellent work at undergraduate or graduate projects. These efforts have turned into excellent journal articles or papers for international conferences. Small improvements like these create a win-win situation where the students and the professors gain from one other.

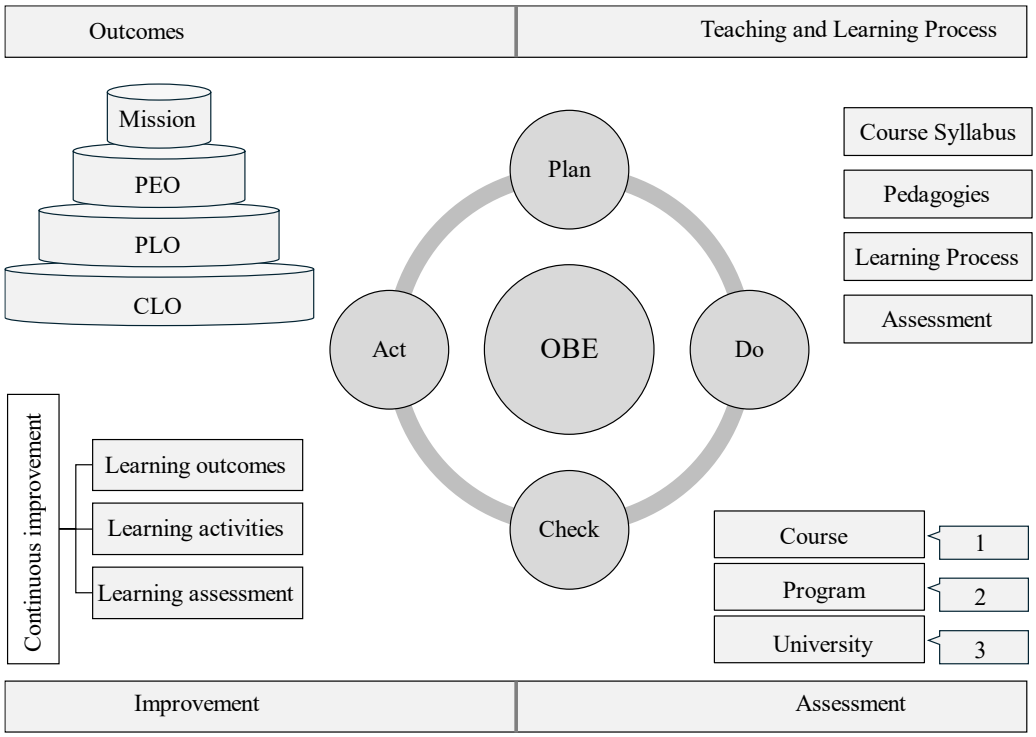

Figure 2. Shows in brief about F education.

Examples of Output and Outcome

Many faculty members are focused on achieving measurable results, but they might not be aware of what results to anticipate as shown above in figure 2.

Output-Pass percentage, placement percentage, Number of publications of faculty and students etc. Outcome-Technically, it means "result." What will we do with the output we get. Hence, outcome-based education is the next level of education, where the faculty are advisors or mentors and allow the students to think freely and express themselves. In order to transition to this mode of education, innovative methods must be certainly used in teaching-learning [7].

The current generation of students are bored with normal classroom-based lectures. They expect deviations from the standard and become bored quickly; they refuse to accept answers without first interrogating the notions. Therefore, encouraging students to express themselves creatively and cultivating a culture of mutual trust are essential [8].

Outcome in Industry

The Mechanical Engineering Industry and other Industries as a whole were focused on terms like output and throughput. There is no question that output is a crucial component. However, they gradually realized that excessive output could be damaging in the long run. So, in some ways, the transition from output to outcome is linked to sustainability [9].

Flexible working hours have become common in Scandinavian countries and comfort of the employees has become of paramount importance. If the benefits of flexible working hours are positive, this should be explored in all countries and industries. In industry parlance, a successful conclusion could include satisfied customers and staff. These need to be quantified in some way. Google forms might be sent out with 8 to 10 questions about what customers and employees want from the industry [10].

Teaching and Outcome Based Education

As previously stated, the one-way traffic of professors or lecturers teaching and providing lectures is gradually becoming unpopular in the current world. Students can already acquire information using tools such as ChatGPT and Google Search. As a result, the teacher's position evolves into that of facilitator, mentor, and counselor.

In some universities, some students find it difficult to stay up to date with the course material. There is heavy competition, and it becomes a dog-eat-dog kind of situation with no consideration of others. Man becomes selfish. This is where, the ancient Indian concept of VasudeivaKutumbakam would definitely help. When the whole world becomes one family, one starts seeing things in an entirely different perspective.

When the outcome becomes a peaceful society with no distinction between human beings, surely there will be heaven on earth. A course on Universal Human values has been introduced in the Engineering syllabus over the last two years. Though the syllabus content is a bit dry, it is upto the faculty to develop the syllabus in way which will make it interesting [11].

Outcome Based Education in Different Countries

Outcome-based education (OBE) is an educational paradigm that arranges an educational system's components around specified goals (outcomes). Each student should have accomplished the goal by the end of the learning process. In OBE, there is no one specific type of instruction or evaluation; instead, opportunities, classes, and tests should all work together to assist students meet the goals. Depending on the targeted outcomes, the faculty member's role shifts to that of instructor, trainer, facilitator, or

mentor. Educational systems all across the world have adopted outcome-based solutions at different levels. OBE limits were introduced in South Africa and Australia in the early 1990s, but they have since been gradually removed. The United States has had an OBE program in place since 1994, and it has been enhanced over time. In 2005, Hong Kong's universities adopted an outcome-based approach. OBE was implemented in all public schools in Malaysia in 2008.The European Union has suggested a reform of education that prioritizes outcomes throughout the EU. The Washington Accord, which was established in 1989 as part of an international initiative to recognize OBE, stipulates that undergraduate engineering degrees earned through OBE methods will be accepted. The entire signatories as of 2017 included the United States, Australia, Canada, Hong Kong, Taiwan, and India [12].

The Philosophy of Education-Blend of East And West

We digress from the topic here and discuss the philosophical aspects of education. Great philosophers from all countries have stressed education in tune with nature and the environment. In India, Rabindranath Tagore established Vishwa Bharathi University at Shanthi Niketan, West Bengal. Emphasis is given to nature, meditation, yoga and other types of learning conducive to the mind too.

Western Education, though rigorous and instilling discipline, is too dependent on quantitative parameters like Cumulative Grade Point Average (CGPA) for undergrads. The same system has been followed, without much modification in Eastern countries of the world. In Eastern Countries like India, Japan, Thailand, Indonesia and Cambodia, there was a culture where many things were immeasurable and exotic in nature. The Guru-Shishya form of education was followed widely in ancient days and education was holistic, with emphasis on all round development. The Shishya served under one single teacher, who was a sort of an allrounder, a Rishi or revered person, who commanded respect from all. Children of kings and commoners studied together, and this was the earliest form of socialism.

Outcome To the Nation

I feel that any outcome should benefit India first and then the whole world. Hence, it will be of interest to us if in the future slowly Indians reduce going abroad and learn to serve the country more. Even if they go abroad, conditions should be so created in India that the students will be happy to come back to India and serve the motherland

Bigger Universities with funding from the private sector is already happening and this should increase on the lines of the United States where the private Universities are doing better than Government funded Universities. Of course, balance between Government and Private Universities is required with good Government Private synchronization and both pulling in the same direction.

CONCLUSIONS

Outcome based education is here to stay and is the progressive step towards the future. It is left to academicians to tap into innovations and improve upon concepts day by day in order to produce better students and a better nation in future.

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