Outcome Based Education (OBE) - Developing and Tracing the Efficacy of Revision Tools

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ABSTRACT

"Every individual is distinct", inline with this principle every teacher has distinct teaching style while every student has distinct learning style. A mismatch in teaching and learning styles results in non-achievement of the educational outcomes. This is where OBE comes on the canvas and guides the teacher to develop such "tools", which will bridge the gap between teaching and learning styles; thereby making the educational experience more efficient and fulfilling. This paper focuses on elaborating the revision tool that we developed. The sole motive was to extract the most from the available resources and to serve it to students in a manner so that they could easily absorb it. This quest led us and ended up in developing a revision tool; which is the focal point of this paper.

Keywords: outcome based education, teaching styles, learning styles

I. INTRODUCTION

Traditional educational experience revolves around transmitting knowledge from the faculty to the student through chalk and duster method. While the faculty acts as an emitter of knowledge; the student acts as a receiver of knowledge. Even though ideally; this conceptualization may sound efficient; practically the reverse is true. This is so because this phenomenon is riddled with certain inherent drawbacks such as:-

    i.   Mismatch between teaching and learning styles.

    ii.   Inherent disturbances in class room.

    iii.   Frequent absenteeism of the pupil, leading to discontinuity in the flow of knowledge.

    iv.   Lack of concentration of the student during the educational experience.

    v.   Lack of revision of the transmitted knowledge after the completion of the educational experience.

Apart from these discrepancies it is well established fact that human brain can concentrate only in slots of time. And these slots vary with individual. A teacher might supplement traditional teaching efforts with PPT's, videos, active learning techniques, etc. but these all are futile if they fail to provoke/ attract the concentration of pupil.

Considering these pitfalls; we planned to modify the traditional teaching-learning experience in order to enhance the ability of students to revise knowledge during educational experience and this is where OBE comes on the canvas of the traditional teaching learning experience.

Objectives:

i.   To develop a revision tool, to nullify the inefficiency in teaching learning process caused due to poor concentration of the students.

ii.   To study the impact of revision tool on students and achievement of learning outcomes.

II. LITERATURE REVIEW

William G Spady pointed out "an Outcome-based Education is NOT a program, a package, a technique, a fad, a quick-fix, apanacea, a miracle or an event. It is transformational way of doing business in education" [1]. As per kudlas J.M. "OBE is a process that focuses on what is to be learned - the outcomes" [2].William G Spady et al. noted that "The basic tenets of OBE are shifting the focus of educational activity from teaching to learning; skills to thinking; content to process; and teacher instruction to student demonstration" [3]. As stated by Spady, W. D. "An outcome based education is a culminating demonstration of learning. It is a demonstration of learning that occurs at the end of a learning experience. An outcome is the result of learning which a visible and observable demonstration of three things is: knowledge, combined with competence, combined with orientations" [4]. According to James, "Education that is outcome-based is a learner-centered, results-oriented system founded on the belief that all individuals can learn" [5]. As said by William G. Spady and Kit J. Marshall, "Outcomes are clear, observable demonstrations of student learning that occur after a significant set of learning experiences. They are not values, attitudes, feelings, beliefs, activities, assignments, goals, scores, grades, or averages, as many people believe. Typically, these demonstrations, or performances, reflect three things: (1) What the student knows; (2) What the student can actually do with what he or she knows; (3) The student's confidence and motivation in carrying out the demonstration. A well-defined outcome will have clearly defined content or concepts and be demonstrated through a well defined process beginning with a directive or request such as 'explain', 'organize', or 'produce'"[6]. Boschee F, Baron and M.A, revealed that "Outcomes are future oriented, publicly defined, learner-centered, focused on life skills and contexts; characterized by high expectations of and for all learners, and sources from which all other educational decisions flow". As per the statement given by Boschee F, Baron and M.A, "Learning is facilitated carefully toward achievement of the outcomes, characterized by its appropriateness to each learner's development level, and active and experienced-based"[7].

III. ANALYSIS OF THE PROBLEM

The present teaching learning phenomenon has two stake holders THE TEACHERS & THE STUDENTS. The phenomenon of teaching is nothing but a message transmitting process; in this process it is very much essential that the pupil listens to the teacher attentively. But humans have been cursed with the ability to concentrate only for short durations; having said this it implies that majority of the students fail to concentrate for ample period of time thereby failing to yield the ideal outcomes from the teaching learning process. Apart from this the present teaching learning process in itself is grappled with other problems, if the teacher himself is under educated or under skilled he fails to transfer rich quality of knowledge to the students, apart from this if the student is facing certain cognitive problems he cannot yield the benefits of this teaching learning process, also many a times it happens that the teaching and learning styles do not match.

IV. IDENTIFICATION OF THE CAUSES

Any problem can be tackled efficiently only if the victim has a sound and in-depth knowledge of the reasons responsible for the problem. Hence we began withdrawing the fish bone diagram as it is a quality circle tool that efficiently and logically elaborates the reasons that generate the problem. We started by making a rough list of the causes; then the causes listed were categorized as shown below.
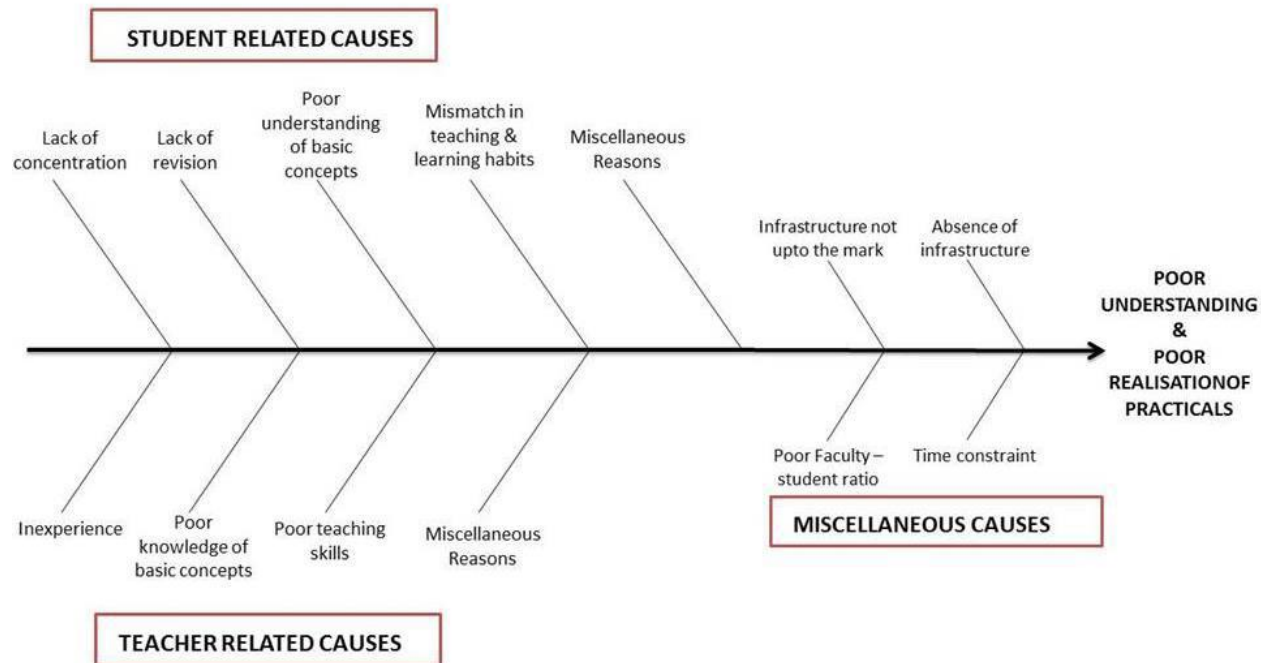

Fig 1 Cause and effect Diagram

V. DEVELOPMENT OF REVISION TOOL

Human brains tend to forget easily what it learns; and the best tool to overcome this natural habit of brain is to revise frequently. Keeping this principle in mind, we have decided to record the practical and to convert M. S. B. T. E. manuals into audio- video format. Initially we will be testing this solution by implementing it on a small scale. And hence our first step is to start by recording the practical for only 1 or 2 experiments. While teaching in classroom the teacher has many constraints and the most formidable challenge is the inability to maintain uniform concentration level throughout the teaching learning process. To overcome this barrier a thought process driven by sheer determination leads us to develop a revision tool. The sole purpose of this revision tool was to recreate the atmosphere and the happening in the classroom at the will of the student. The revision tool will not only help to recreate the class room but will make knowledge accessible to students at his or her own will. To start on a pilot basis the subject CNC Machines was chosen. CNC machine is a subject which is to be taught to the student of diploma mechanical final year students. And in this subject students have to run their part program and verify it by using simulation software. But while implementing the curriculum of CNC machine it was soon realized that students fail to grasp what is taught during practical's and there were many reasons for this viz,

   i.   the weekly nature of practical's

ii.   non availability of resources to revise the contents taught during the practical's

iii. lack of concentration during practical's

iv.   frequent absenteeism

Considering all these reasons we at R.I.T decided to develop a revision tool. To develop this revision tool experiment no 1 and experiment no 2 were selected given in MSBTE manual of the subject CNC machine. These experiments ask the students to develop part programs and to verify them using simulation software.

Experiment no 1 entitled "To develop a part program for plain turning operation on CNC lathe machine and to verify it by using simulation software in single block mode" Focuses on CNC lathe machine operations.

Experiment no 2 entitled "To develop a part program for linear interpolation on CNC milling machine and to verify it by using simulation software in single block mode" Focuses on CNC milling machine operations.

Now to develop the revision tool we downloaded the screen recording software named CAMTASIA. Using this software we recorded the screen while using the simulation software. The video thus generated serves the purpose of a revision tool.

VI. RESULT

In order to trace the usefulness of the tool we analyzed the performance of the students in two stages:

Initially the performance was evaluated before giving the revision tool

Later the performance of students was evaluated after giving the revision tool.

Table no. 1 performance analysis of students

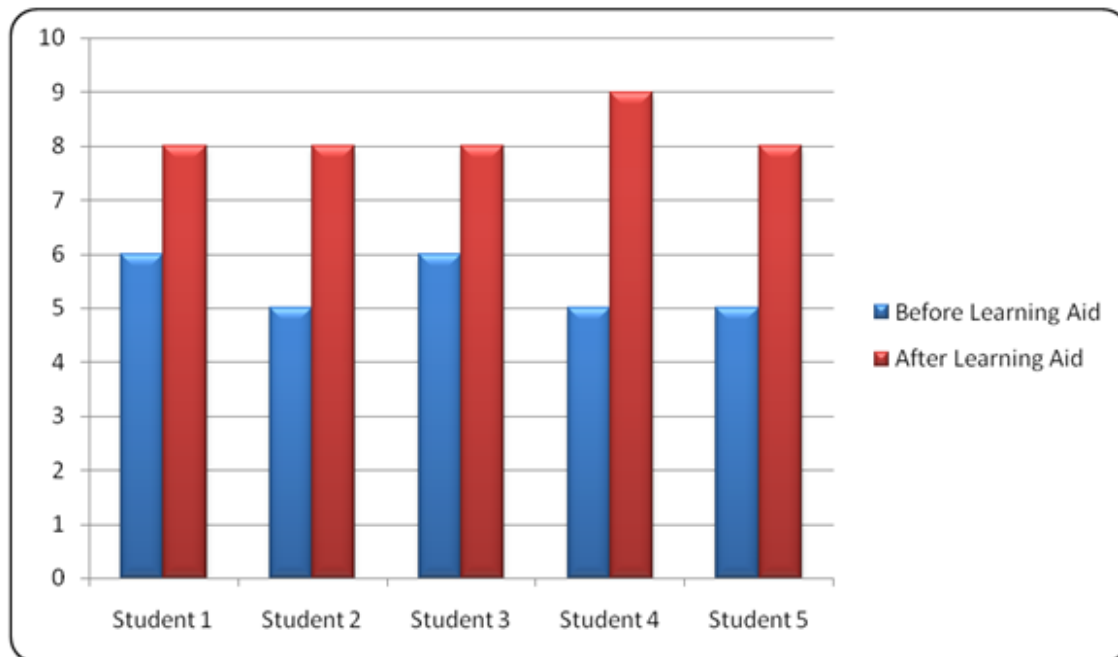| Sr. No.	Participants	Result before Using Learning Aid	Result after Using Learning Aid
1.	Student no 1	6	8
2.	Student no 2	5	8
3	Student no 3	6	8
4.	Student no 4	5	9
5.	Student no 5	5	8

Fig no 2 graph of performance of students

VII. ADVANTAGES OF REVISION TOOL

1. The recorded video is easily transferable and hence can reach numerous users.
2. Concept taught during practicals can be revised frequently.
3. Physical presence of the student is not mandatory, a student who is absent during practicals can recall it at his/her own will.
4. Free and unrestricted access to the content.
5. Student can study when he is tempted to study.

VIII. OPERATING PROCEDURE

The instructor of the subject shall not initially introduce students to this revision tool and shall use traditional methods of teaching. Once the teaching is completed the students shall then be shown the video and explain the significance and how it is to be used.

IX. CONCLUSION

From our endeavor we hereby conclude that merely teaching a student once; unaware of the fact whether they have learnt anything or not, does not ensure the fulfillment of learning objectives. To ensure the fulfillment of learning objectives as enshrined in OBE developing a revision tool proves to be handy and acts as a catalyst which enriches the learning experience.

X. FUTURE SCOPE

Understanding what is taught helps to clarify concepts whereas revising what is taught helps recreating the knowledge. The revision tool which we developed is merely a baby step in the direction of creating resources which are conducive to encourage students to revise. By using I.C.T and providing a higher version of graphical interface or animations one can further enhance the compatibility of the revision tool.

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