Effectiveness Of Virtual Learning And E-Learning In Engineering Education

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Abstract: *This paper aims to explain didactic learning in engineering education aided by the implementation of Spoken Tutorial. In experiential learning the learner learns from the experiences and then develops new skills, different outlook or innovative thinking through reflection of such experiences. Experiential learning coupled with Spoken Tutorial guarantee accurate achievements by improved and increased employability through active and continual learning. This paper forces one to look into different aspects of experiential learning by means of comparison of Teaching Learning and Spoken Tutorial. It also attempts to present the outcome of experiential learning resulting from identification of environmental effectiveness and facade of the entire learning process.*
Keywords: *Experiential Learning, Online Learning, Active Learning, Practicing Experiential Learning, Project Based Learning*

I.   Introduction

There are many ways of determination of best practice of experiential learning [1]. Lewis and Williams [2] said that, "In its simplest form, experiential learning means learning from experience or learning by doing. Experiential education first immerses learners in an experience and then encourages reflection about the experience to develop new skills, new attitudes, or new ways of thinking." During medieval times, there existed the classroom culture wherein teachers only presented the concepts by pure means of theory without giving them an exposure to the practical side of it, which otherwise would have imbibed sound and deeper knowledge of the subject. During medieval times, there existed the classroom culture wherein teachers only presented the concepts by pure means of theory without giving them an exposure to the practical side of it, which otherwise would have imbibed sound and deeper knowledge of the subject. Learners play a critical role in assessing their own learning [3]. Its end result would vary from one individual to another as this approach presents everyone with different experience through practical implementation of the subject taught.

There are some steps which clears the idea of learning [4] in detail (fig. 1):
Step 1: Classroom Learning: Classroom learning is enclosing the experience of students a enriching, dynamic and a valuable theory/practical. In classroom learning students will gain knowledge by teacher.
Step 2: Assignments given in classroom: it will help to students to practicing the knowledge which they acquire in the classroom.
Step3: Learning Outcomes: By taking online test or offline test of students, learning outcomes will be calculated.
Step 4: Learning Assessment: Correcting Online tests and offline tests time to time will built ability in students for competition, which is now a days is very important.
Step 5: Learning identity: By correcting Tests and Assignments, teacher will easily find out the weak points of students and after that teacher will give more focus on these points only.
Step 6: Learning Review: After all the above steps, the student will ready to go for further competitive exams, higher studies, or for giving knowledge a practical approach in the industry.
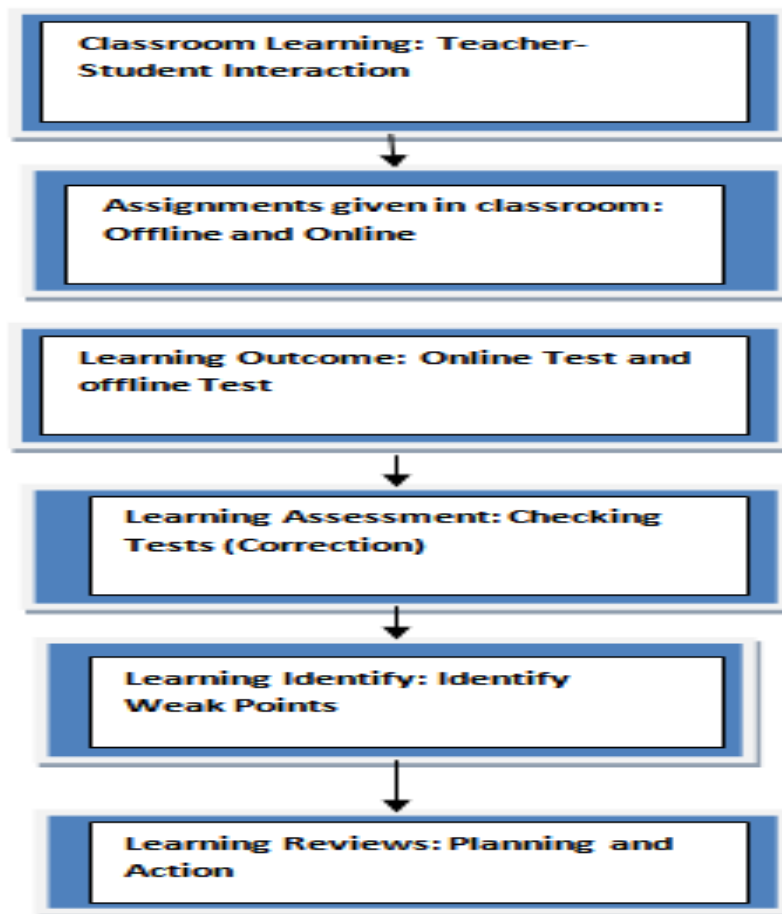
Fig. 1 Effective Learning tool for Students

II. Review Of Literature

Active learning Strategy allows you to reform your class in an efficacious manner without going into the primitive way of classroom discussion. It is when we soak up the students into a pool of some subject, they learn to immerse themselves and sponge it up [5].

A perfectly framed active learning strategy is practiced with the below mentioned features:

a.   Each student must work-through on the materials provided, either singly or in groups.
b.   The time span must be fixed and known in advance.
c.   The Objective must be clear enough for the students to follow, thereby producing a definite outcome.
d.   The nature of the task should be relevant and apt.
e.   The final outcome (answer, choice or anything) must be described in a well defined and categorical manner.

The traditional classroom method had an immense impact as the strategy was quite easy and acceptable. A noticeable result would be cultivated if judged and assessed fairly. Hence the assessment must be done in a genuine fashion. The paper outlines the quality of the outcome attained by the assessment method [6].

Suppose you have attended a workshop on some topic. For the ease of handling a large crowd, the workshop was organized into four distinct courses or streams, each handled by a supervisor. The AITD will then designate each person to his/her preferred stream, maintaining the total count in a proportional way [7].

III. Objectives Of Experiential Learning, Online Learning, Active Learning, Project Based Learning

A. OBJECTIVES OF ONLINE LEARNING

•   Blend of substance and process: There must be a harmony between the experiential exercises and the basic substance or hypothesis.

•   Engagement in deliberate undertakings: In experiential taking in, the student is the self-instructor, in this way there must be "significance for the understudy in the taking in." The learning exercises must be by and by important to the understudy.

- The part of reflection: Students ought to have the capacity to think about their own getting the hang of, bringing "the hypothesis to life" and picking up understanding into themselves and their communications with the world.

B. OBJECTIVES OF ACTIVE LEARNING AND PROJECT BASED LEARNING:
- To give more continuous and prompt criticism to understudies.
- To Advance improvement of understudy abilities in basic reasoning.
- To Expand singular responsibility.
- Advances more noteworthy scholarly accomplishment (expansiveness and profundity); understudies figure out how to think about a subject/theme
- Creates mastery in community learning and collaboration.
- Makes open doors for separated direction
- Effectiveness of Virtual Learning and E-Learning in Engineering Education

C. OBJECTIVE OF PRACTICING EXPERIENTIAL LEARNING PEL IN ENGINEERING EDUCATION

Hearing and seeing somebody clarifying procedure will help more to comprehend it than perusing as 20% of correspondence occurs through dialect rest all is visual motions. Considering fundamental guidelines for successful correspondence Some Online Tutorials has been produced, where understudies will locate an immense gathering of coursers identified with their streams which will help them to learn, comprehend, and utilize open source programming [8].

Idea of Online instructional exercises has been valued by different training foundations, in a decade ago, as it is empowering learning in compelling way. It's a group based site, where everybody is invited for commitments from society like educators, teachers, business people, and so forth. Member ought to choose a theme and set up a point by point video on that for an Online Lectures/instructional exercise to transfer [8][9][10].

Once the video has been transferred, it will be checked on by specialists for substance and quality. When survey process get finished and clear the test, video will be accessible out in the open space to profit the related group of onlookers. Video will be accessible in different dialects as they advance interpretation of these instructional exercises in intrigue vast group of onlookers [8].

IV. Experimental Results

1. Example Of Atharva College Of Engineering, Malad West, Mumbai, India Using This Practice

As Atharva College of Engineering was conducted this test through Spoken Tutorial from last three years to train BE students as well as SE & TE students in a large scale.

Received a special word of appreciation from IIT-B in the year 2015-16, the timetable of ACE's Spoken Tutorial Test was shared with other colleges across the state encouraging them to conduct the test on a large scale for increasing online tutorials.

2. Performance experiments: evidence of success of PEL(spoken tutorial exam in the department of computer engineering)

The below tables and bar graphs shows the last three years data of Atharva College of Engineering who was conducted this test through Spoken Tutorial.

Evidence of Success Of Spoken Tutorial Exam In The Department Of Computer Engineering

Table 1: Academic Year 2015-2018- Online Test Timetable and Detail

TEST	No. of Students appeared for Test	No. of Students who cleared the test
C	338	318
C++	303	292
JAVA	312	285

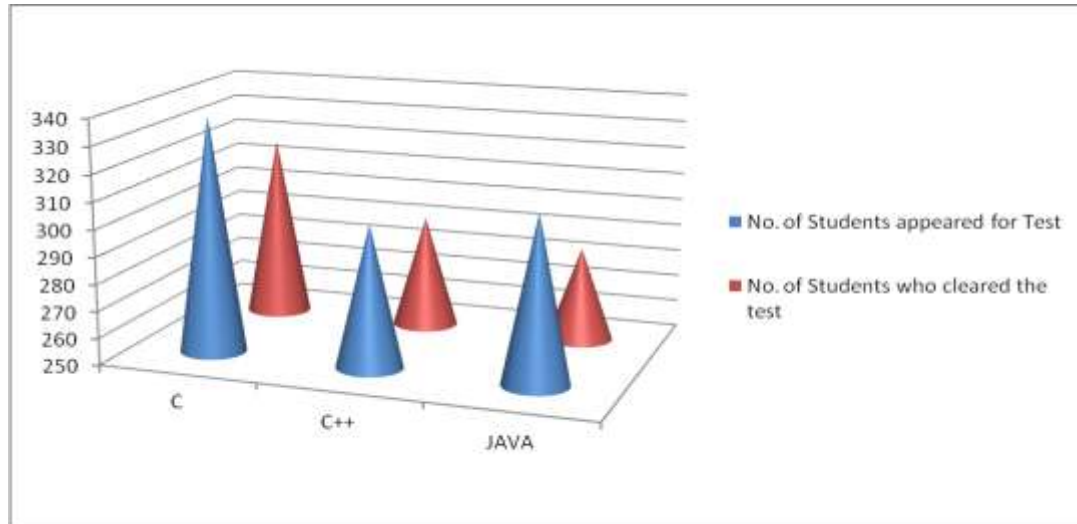**Fig 2. Bar charts analysis of course wise in the year 2015-2018**

Table2. ONLINE TEST ANALYSIS

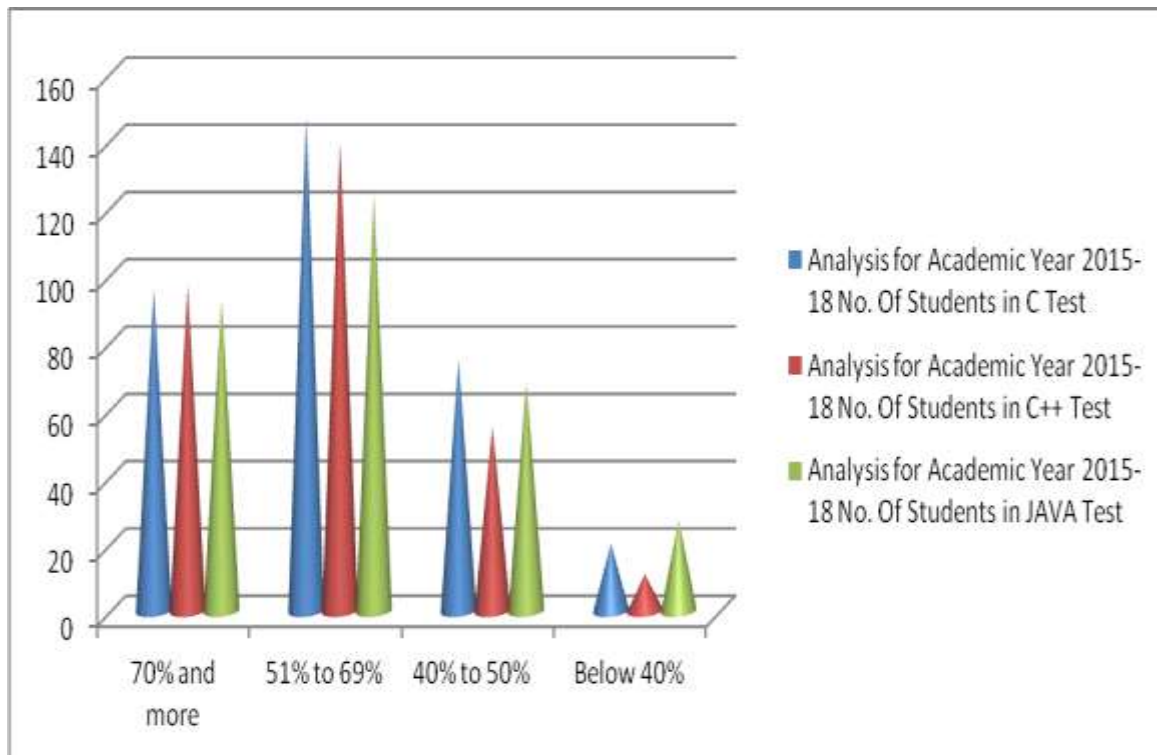| Analysis for Academic Year 2015-18			
Range	No. Of Students in C Test	No. Of Students in C++ Test	No. Of Students in JAVA Test
70% and more	96	97	93
51% to 69%	147	140	124
40% to 50%	75	55	68
Below 40%	20	11	27

Fig 3. Bar charts analysis of Range wise score of students in the year 2015-2018

V. Problems Encountered And Resources Required For Online Learning Or Practicing

There are few common problems which affect smooth functioning of the online learning such as Adjustment in new environment, Technical Issues, Computer proficiency, Time Management, and Self-Motivation. It difficult for students to adapt new online environment from their traditional classroom. It takes time to get familiar with new face to face instructor training approach. During the learning they might face

issues related to internet connection with high bandwidth which is need of online programs. Some time student are not able to fix the basic computer problems arise during online class, during file handling which leads to computer proficiency. Online courses require a lot of time and intensive work, which is difficult to maintain with regular study schedule. Proper time management is requiring for the same. After enrolling to particular course it is necessary to hold interest into it till end of the course since there is no way by which instructor can motivate students to do so self motivation of participant is necessary.

VI. Good Thing About Practicing Experiential Learning Pel : Spoken Tutorial In Engineering Education

Getting knowledge with zero cost of tuition fees is advantage of an MHRD Govt. of India project, 'Spoken Tutorial'. Since it is providing online courses participant does not require traveling for special training, no need to hire any teacher for the same. The best part is the students will gain knowledge for free, as well as they will get reward of the same in terms of certificate approved by government after successfully completion of online exams conducted for courses. These certificates do have value for their future placements, research [9][10][11].

VII. Impact Of Practicing Experiential Learning Pel On Engineering Education (On Placements)

As a result of the activity, the students testified about their increase in self-confidence and were able to work on the technical topics that they were weak and prepare well for the placements. The placements for the last three current academic years are

Placement Record for the Academic Year 2014-2017 Summary:

Table3. STUDENTS PLACEMENT ANALYSIS

Students Data	Year 2014-15	Year 2015-16	Year 2016-17
In-Campus Placements	50	45	50
Off-Campus Placements	35	32	35
Higher Studies	9	8	9
Startup	2	5	2
Not Placed	4	10	4
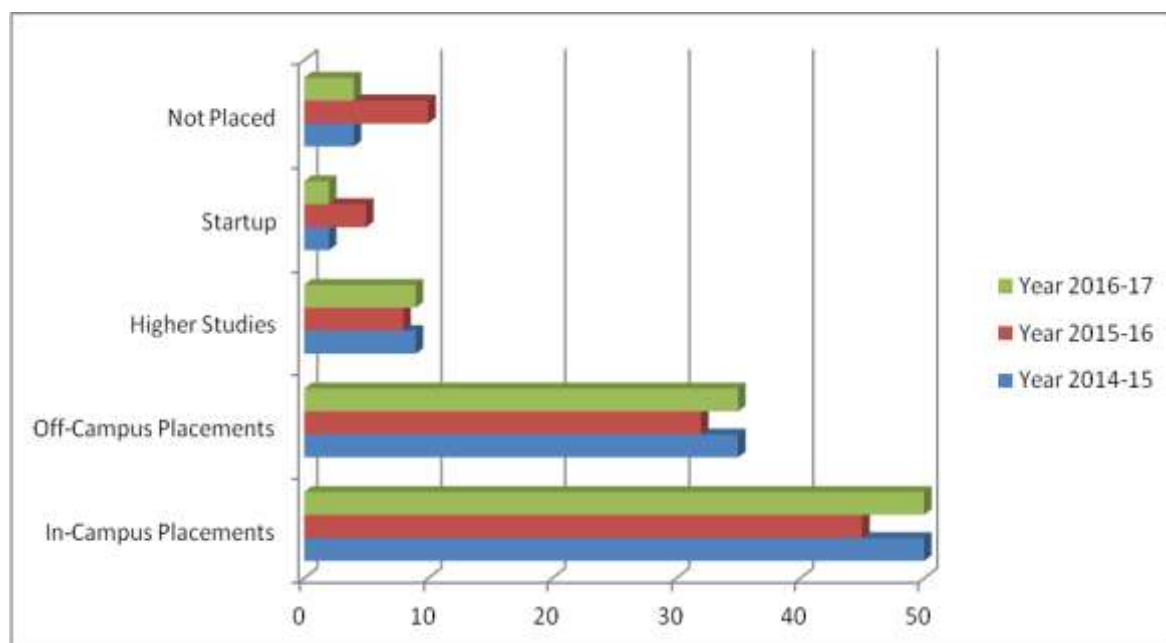
Fig 4. Bar charts analysis of Year wise placement of students in the year 2014-2017

VIII. The Conclusion

There is an immediate effect on understudy's ways to deal with learning by the idea of evaluation utilized by the educators. Honing the experiential learning causes the understudies to get specialized or

functional information in their center subjects. The nonstop execution of showing learning approach by means of talked instructional exercise movement is the best technique for evaluation for understudies will probably repeat the information gained. Henceforth, dynamic adapting really upgrades the employability of the understudies.

IX. Future Plans

The effect of such sessions on the employability of an understudy is high. Subsequently the division intends to expand this web based preparing action that will help their business open door for Third year and Second year understudies.

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