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NON-TRADITIONAL LEARNING

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Abstract:

Learning is an essential part of every individual's life as it helps one to increase their knowledge and also to enhance skills. The interactions, observations, experiences in one's daily routine also contribute to his learning. Every individual should also make conscious efforts to learn new things.

This paper talks about a few nontraditional learning methods like MOOC's, social learning and open ended experimentation to be incorporated into the curriculum in addition to conventional teaching learning process. A survey was conducted among the students from different colleges. The study indicates that the awareness of MOOCs, Outcome Based Education and Social learning is high among students though the level up-to which they're aware is limited. The interpretation of the survey highlights the students' inclination towards sources other than just a classroom to learn.

Introduction:

Learning is a continuous process. Most adults spend a considerable time acquiring information and learning new skills. The rapidity of change, the continuous creation of new knowledge, and an ever-widening access to information makes learning faster and simpler. Much of this learning takes place at the learner's initiative. A common label given to such activity is self- learning. In essence, in nontraditional-learning, individuals have primary responsibility for planning, implementing, and even evaluating the effort. [1]

Self-motivated learning has been an age old tradition. For example, it played an important part in the lives of Greek philosophers such as Socrates, Plato and Aristotle. Lack of a proper educational institution necessitated that many people had to learn on their own irrespective of what they learn. A number of educational institutes and a proper educational system came into place after consistent efforts by various people around the world in different places. For a long time, due to unavailability of abundant resources, students referred various books written by different authors, understanding each ones perspective and strengthening their concepts. But today, due to increased digitization, life of students has become a lot simpler.

The availability of information in abundance on the internet allows students to make concise notes. Another advantage of the digitization is availability of a search filters which provides all the content as per a student's requirement.

This technological advancement has been a boost to the individuals who opt to learn topics un-conventionally or nontraditionally.

In traditional classroom teaching process, the students are at the receiving end and could be passive recipients as well. The information received in a class room might not be enough to meet the academic requirements hence students are motivated to utilize other learning platforms such as MOOCs, open ended experiments, social learning and other e-resources. This kind of learning is known as Non-traditional learning.

Therefore, active learning happens when learners are self-directed to learn and involves solving authentic or personally meaningful problems. The key to active self-directed learning is the motivation.

A lifelong learning approach permits integration of the best features of school, community, home, and workplace learning. Insights gained from these individual situations need to be developed into broad and effective theories of learning, innovative and intelligent systems, practices, and assessments across many professional genres.

This approach is advantageous for both motivation and to enhance the ability to acquire knowledge so that the students are able to direct their own learning. This also proves to be advantageous in the sense that students learn to solve problems more effectively which in turn adds to their learning experience. Non-traditional learning focuses on mutual dialogs and joint knowledge construction, enhanced by the creation, discussion, and evolution of artifacts. In schools and in professional training courses modeled after schools, learning is often restricted to the solution of well-defined problems. Lifelong learning includes training approaches and also transcends them by supporting learning in the context of realistic, open-ended, ill-defined problems.

Learning can be done in a number of ways. A few of them are, by utilizing E-resources such as e-books, videos, etc., by discussion with people around and understanding different perspectives, reading books, listening to practical examples and experiences.[2] All these help a person to lean in different ways and the best way is chosen by the individual depending on their comfort.

Open ended experiment is an experiment in which the initial conditions are user defined and the outcome is studied for a particular set of inputs. It helps in co-relating the topics learnt and its applications.

Educational videos majorly contribute to the e-learning. The online learning portals like edX, Coursera and NPTEL prove to be very helpful for the students. Table 1 shows the number of searches made for different e-learning portal as obtained from Google Trends and Google AdWorks.

Online portal	Keyword searches
khan academy	95000
coursera	165000
edx	90500
nptel	246000

Table 1: Number of keyword searches of MOOC sites in India

Between September 2015 – September 2016 [3]

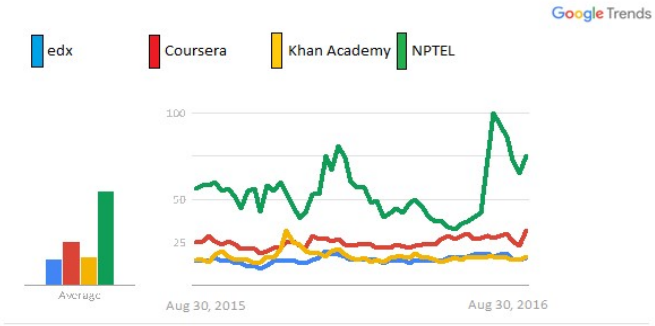

Figure 1: trend of usage of MOOCs in India

(Source: google trends)

It is evident that the number of searches for MOOCs have been on a steady rise in the past decade and India is a major consumer of it as more students are looking for sources other than class rooms to gain knowledge and be competitive on a global scale.[4]

Methodology

The present survey was conducted on 350 engineering students from colleges across the state of Karnataka. The Questionnaire for the survey was prepared during the period of July - August 2016 and the subsequent results were summarized during the period of August - September 2016.

The survey consists of two categories of questions. The first part obtains the students' opinions on the current teaching learning ecosystem. Here we try to determine what the students feel about the traditional process and what the reasons for their opinions are. The second part focuses majorly on seeking the awareness of nontraditional-learning and open ended experimentation amongst the students, the availability of resources and encouragement given to them.

The questionnaire consists a total of 23 questions. Out of these, five questions were aimed at gathering students' satisfaction level and their motivation towards the current education system. Rest of the questions aimed to determine the motivational factors, feasibility and the type of resource used to learn.

The online survey was conducted using Google Forms.

Results and Discussions:

From the survey that we conducted on 350 students from over a dozen colleges, 62.9% students belong to autonomous institutions. The study shows that 70% of the students are not satisfied with the current (Traditional) teaching learning process and feel that a change is necessary, only 17.3% of the students state that classroom is the only place where they learn. The other 82.7% of the students utilize sources other than classroom to learn.

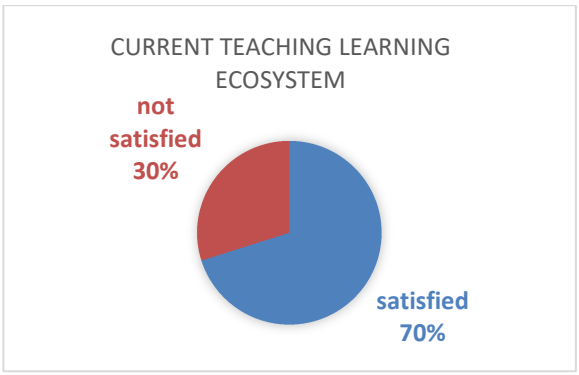

Figure 2: Opinion on current leaning ecosystem

The survey indicates that about 46% of the students attend classes to fulfill the formalities or academic requirements and the rest are motived to attend classes in order to gain knowledge.

When asked how attending classes help them, 32.3% of the students do not find the classes to be of much help, 18.4% say that they are good listeners and attending classes' benefits them and 40.8% of the students believe that even though they have good listening skills, they need assistance in order to understand the concepts better.

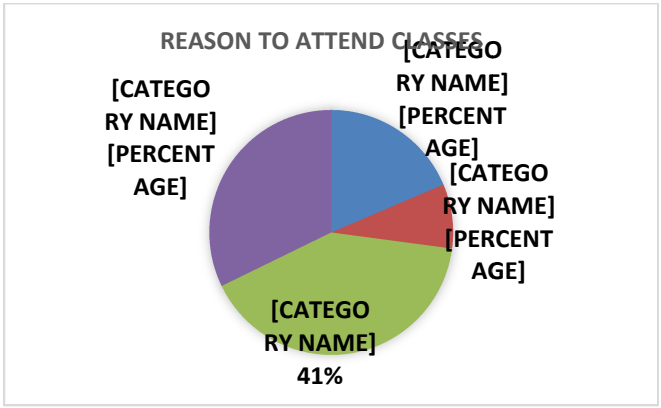

Figure 3: Reasons to attend classes.

Classes can be ineffective due to a number of reasons. 76.2% of the students find the way of teaching employed by the course instructor ineffective, 59.2% of the students are un-happy with their course instructor, 37.4% of the students are troubled by fatigue and 31.2% of the students find the classes to be ineffective because of lack of interest in the respective subjects.

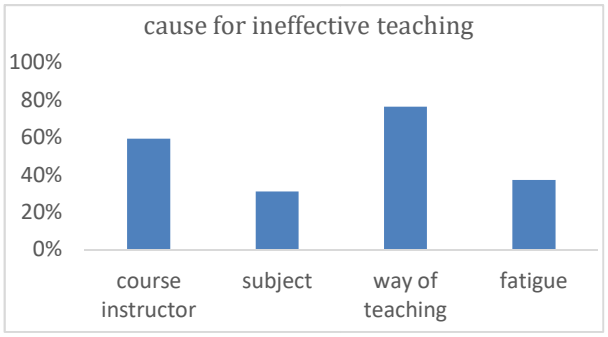

Figure 4: Possible causes for ineffective teaching

94.6% of the students are aware of nontraditional learning and at least 84% of them have practiced it before. It is seen that 67.1% of the students put consistent efforts towards such learning and 60.3% of them practice it because sources other than class rooms makes learning more interesting.

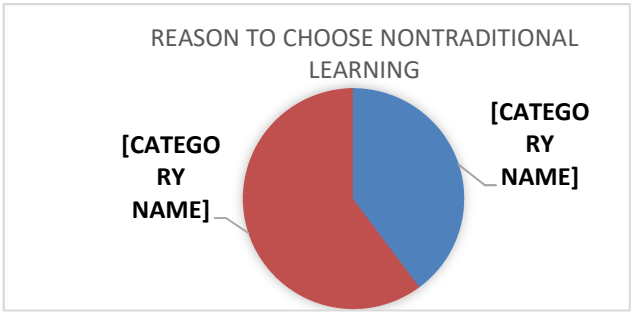

Figure 5: Reasons to opt Non-traditional learning

71.1% of the students have an opinion that IQ of an individual has a direct impact on the ability to learn topics by themselves.

74.5% of the students utilize e-resources to learn and 40.5% of them are an active part of it. 72.5% of the students resort to text books to learn, 49.3% of them depend on notes and 40.2% of them feel that discussions help them to understand and recall the concepts more effectively.

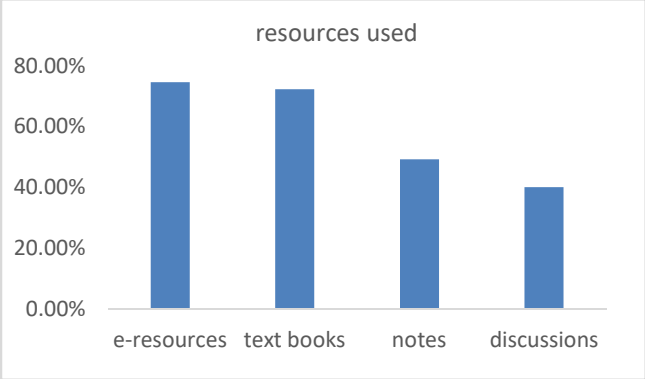

Figure 6: Resources used.

90% of the students understand topics better by conducting topic related experiments. 58.9% of the students are aware of open ended experimentation and 55.8% of them have conducted an open ended experiment before. Of the 41.1% students who are not aware of open ended experiments, 71% of the students are interested in conducting it.

Conclusions:

The Indian education system has a rigid structure and hence has reached to a standstill wherein the students are compelled to follow the curriculum and are burdened with a huge number of assignments and tests without taking into consideration their interests. Thus it has become necessary to bring about changes in the existing education system and implement modern teaching and learning techniques. One way to bring about this change is to incorporate open ended experiments, social learning, blended learning, etc. as a part of the curriculum. This paper sheds light on the awareness of the fundamental meaning and techniques to perform efficient learning. It also describes very briefly the importance of open ended experimentation in learning.

The results obtained above are analyzed taking into account students' busy schedule, motivation provided to the students by their respective institutes and faculty and also their interest in cultivating a habit gain knowledge in an un-conventional way. The survey also shows that the factors which make the students dislike attending classes are the methods of teaching implemented by their course instructor and fatigue caused by attending classes all day long. The survey also indicates that steps should be taken to update the syllabus as per the present and near future requirements. The time available for the students during a semester is insufficient for the students to practice online learning techniques hence creating awareness is necessary. Open ended experiments is a tool for the students to explore the world of science and understand the various phenomenon and concepts as taught in the course of Graduate studies (mainly engineering).

In today's scenario of digitization, in order to cope up with the advancement in technology and competition, inclusion of modern learning methods and apt experimentation in the syllabus is a must!

References:

1) Learning at the back Door- Reflections on nontraditional learning in the life span by Charles A. Wedemeyer, pages 95-114, 161-178.
2) Lukman, R., & Krajnc, M. (2012). Exploring Non-traditional Learning Methods in Virtual and Real-world Environments. Educational Technology & Society, 15 (1), 237–247.
3) Google AdWorks keyword tool.
4) Studying Learning in the Worldwide Classroom: Research into edX's First MOOC. Breslow, Lori; Pritchard, David E; Deboer, Jennifer; Stump, Glenda S; Ho, Andrew D; et al. Research & Practice in Assessment 8 (Summer 2013).