

Best Practices in Teaching and Learning of Technical Institutes in India

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Abstract—The present paper briefly describes history of teaching and learning in educational institutions since ages. There have been several studies in various disciplines excluding technological subjects which have been given less importance. Due to continuous dynamic growth of various technologies in education including teaching and learning it has become important to find out the best practices in this area. The two premier technical institutes of India have been selected for this study. The spine of educational system is the faculty members who have been chosen to provide their perceptions in critical components such as standard of courses and its upgradation, training for updating knowledge, examination, evaluation and others. The statistical analysis reflects that it will take some more time for the premier institutes to make the teaching and learning practices IT savvy and learners focus. Thus it is aimed that the present work will set up an example of best practices in teaching and learning to other institutions of India.

Index Terms—Technical Education, Teaching and Learning, Examination, Academic Programme, Best Practices, Training, Information Technology

INTRODUCTION

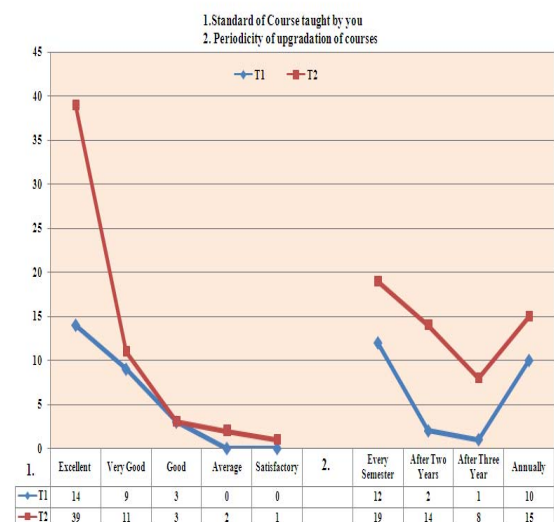
In India the teaching and learning had long history since ages. In early days of invention of human living, there was need to develop certain roadmap related to living conditions of manpower. Slowly reforms continued and teacher-taught traditions (Guru-Shishya Parampara) developed for improving human behavior, delivery of knowledge in various sections including several types of researches related to development of human relations, scientific tools applied in given situations and availability of related resources.

Soon, it became a formalized sector by establishing teaching institutions first in a disorganized manner afterwards further improved by the then kings followed by various governments. This continued for some time till effective governance took over to rule the country which established universities & colleges.

The physical infrastructures were developed and related human resources were then recruited for delivery of knowledge that is teaching. However, learning aspect was given emphasis to understand the teaching effectively by all learners. Different practices were introduced to make it effective and purposeful. The chalk, duster and blackboard systems continued in several centuries. However, slowly with the advancement of technology and teaching and learning tools this system was continuously improving upon to include visual and audio-video tools. However, it got different impetus with the advent of computers & information technology. In Electronic-Era i.e. in modern

age, several tools and technologies were developed for making teaching and learning practices very effective so that learners may adopt the knowledge from grass root to the developed stage.

There have been a number of studies [1,2,4,5,7,10,12,14] to find out the best practices in teaching and learning in several subjects of education particularly the areas of social sciences, humanities, sciences and languages. However, there are a very few studies [3,11,15,,20] in case of technical subjects although these areas are growing very fast. Therefore there is a need to have an in-depth study of the best practices in teaching and learning in technological institutions. To fulfill this objective the author has made a statistical analysis on various aspects of teaching and learning of two premier technical institutes identified as T1 & T2 of India. The important 13 parameters giving the factual information about the best practices have been standard of courses and its upgradation, use of multimedia in delivery system [17-18] training [9] examination and evaluation [6] teaching taught relation [10] exposure to outworld system, exposure through conferences/ seminars and others. These parameters have been analyzed in Fig. 1 to 6. As the faculty members are the prime source for establishing such practices therefore their personal views have been collected through organized questionnaire from the two institutes. For such collection the questionnaire were distributed to both faculty members and students of T1 and T2. However in this paper the opinion of faculty members only have taken into consideration. The analyses of the data alongwith discussion, impact and corrective majors have been depicted through the following diagrams.



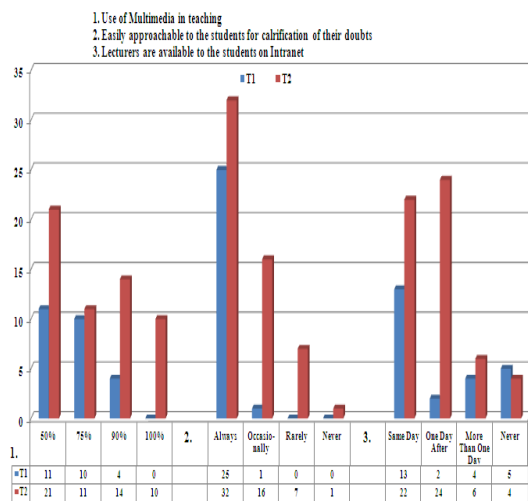
Technical Institutes T1 & T2

Fig-1.1, 1.2

Fig.1.1 shows the views of faculty members

about rating of courses taught by themselves. The data in both the institutes reflects that the majority of faculty (54%) at T1 and (69%) at T2 rated the standard of courses taught by them as excellent. At T1 the percentage of those who rated it as very good was more in T1 i.e, (35%), in comparison to T2 where it was only (20%). At T1 (11%) faculty rated it as good and at T2 only (5%) rated it as good. At T1 nobody rated it as average or poor whereas at T2 (3%) faculty rated it as average and (2%) rated it as poor. It means that at T2 the opinion of faculty ranged from excellent to poor whereas at T1 the rating was consistent with majority of opinion focused around excellent, very good and good in decreasing order. It can be concluded that on an average the faculty of both T1 and T2 feel that the standard of courses is excellent/very good.

In Fig 1.2 data received from the responses of the faculty members reveals that at T1 (46%) of the faculty is more punctual and frequent in updating the courses as compared to the faculty of T2 i.e after every semester (38%) faculty updates the courses at a longer interval of time i.e after one year and majority of faculty of both institutes updates courses within 2-3 years. In view of continuous development of technology it would be appropriate if the courses are updated after every semester atleast in case of information technology, computer science and computer engineering [18-20].



Technical Institutes T1& T2
Fig-2.1, 2.2, 2.3

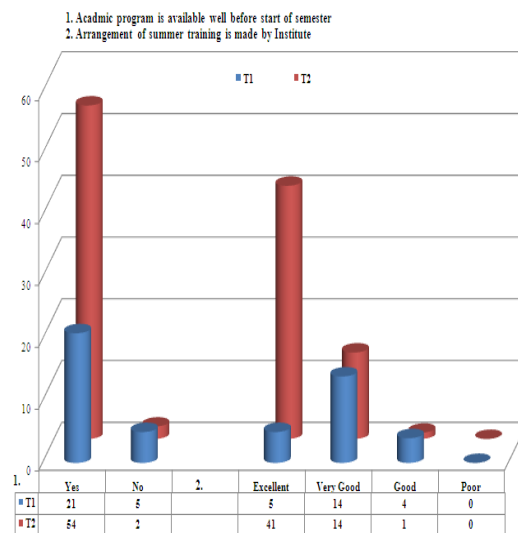
Fig.2.1 reflects proportionate use of multimedia by faculty members in their teaching and learning in T1 and T2. In cases of T1 (42%) and T2 (37%) faculty answered that they use (50%) multimedia in their teaching, whereas about (39%) of T1 and (20%) of T2 use (75%) multimedia. This is partially encouraging aspect as multimedia including audio-video systems will enhance learning capability of students in general. However, the faculty members have to further take steps in this direction to make delivery of teaching learner oriented [9,13,14].

Fig-2.2 shows the approachability of the faculty to the students for clarification of their doubts. Analysis concludes that in T1 (96%) faculty are always easily approachable to the students, (4%) said that they are approachable to the students occasionally. At T2 (57%) faculty is always

approachable to the students, (28%) faculty is approachable occasionally, (12%) faculty is approachable rarely and (2%) faculty is never approachable. The students taking admissions in premier institutes like the ones under study are admitted through All India Entrance Examinations. Mostly they are brilliant and belong to different social and economic status of the society. Those joining the institutes from rural background are generally shy in asking questions in class rooms and like to clarify their doubts with faculty members separately. Therefore, faculty should be always approachable [19] for their clarifications.

Fig-2.3 shows the availability of lectures on intranet to the students after the classroom teaching. T1 (50%) faculty said that they make it available on the same day, (8%) said that they do it on next day, (15%) faculty makes it available after two days and (19%) faculty said they never place it on intranet. Similarly at T2 (40%) said that they make it available on the same day (43%) said that they make it available the next day and (11%) said that they make it available after 2 days and (7%) said that they never put it on intranet.

Thus at T1 the (50%) of faculty and at T2 the (39%) makes the lesson available to the students on the same day and (43%) makes it available on the next day. It means that at T1 half of faculty makes their lectures available on intranet on the same day to supplement their teaching whereas at T2 the faculty is a bit non-serious regarding this aspect. However in both the institutes almost (80%) faculty makes the lectures available within two days. It means that in both the institutes the faculty takes support of electronic media but they are not very prompt in using them timely.



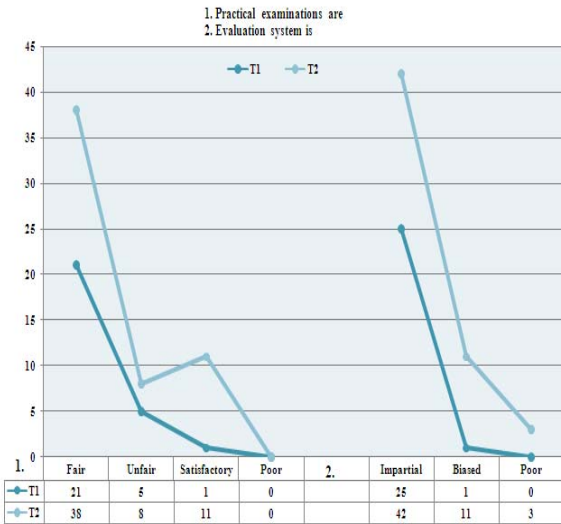
Technical Institutes T1& T2
Fig-3.1, 3.2

Fig-3.1 mentions availability of Time Schedule to the students well before the start of the semester. (89%) faculty of T1 and (96%) faculty of T2 said that they provide time schedule well in advance before start of the semester. (19%) of T1 and (4%) of T2 responded negatively to this question.

Giving time schedule to the students well in advance is one of the important responsibilities of faculty so that the students come to the class with readiness. In this regard majority of faculties of both institutes are conscious about this aspect whereas small fraction of faculty is not very

particular in this matter. It can however be concluded that both the institutes take care of keeping time factor in mind for providing time schedule to their students.

Fig-3.2 summer Training is one of the ways to brush up the skills and update oneself with latest trends and information. Generally all reputed institutes organize summer training for their staff and faculty. Regarding the quality of summer training, majority of faculty at T2 (73%) said that it is excellent whereas at T1 only (19%) said that it is excellent. At T1 the majority of faculty (53%) claimed that it is very good. It means at T2 the faculty is more serious and meticulous in organizing summer training than that of T1.



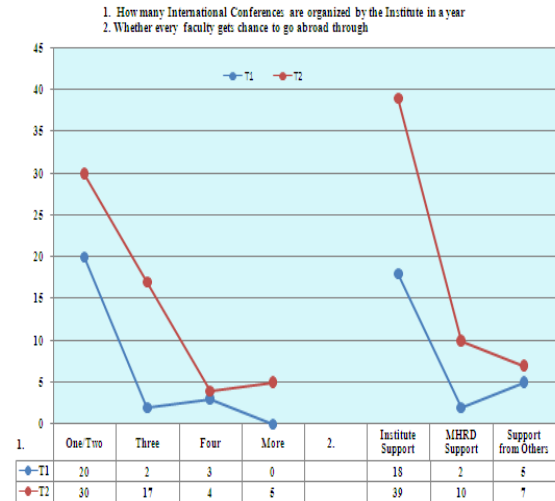
Technical Institutes T1 & T2
Fig-4.1, 4.2

The rating of practical examinations of the Institute by faculty members is shown in **Fig. 4.1**. for this item almost (81%) faculty at T1 said that is fair and at T2 (68%) faculty said that is fair, at T1 (19%) rated it as very unfair and at T2 (14%) rated it as unfair, at T1 (4%) rated it as satisfactory and at T2 (20%) rated it as satisfactory.

The Conduction of fair practical examinations is the most crucial dimension on which the reputation of the institution depends upon a lot. Many institutions tend to be unfair in conduction of practical examination to show good results but in a long run the institutes lose their reputation. In this regard the trend shows that at T1 (80%) faculty rated it as fair whereas at T2 (68%) rated it as fair which is tilted a bit downward. But the percentage of faculty which rated it as unfair is also more at T1 in comparison to T2. We can conclude that the practical examinations be conducted in an absolute fair manner at both the institutes [6].

Fig-4.2 depicts the analysis of the rating of students evaluation in an impartial manner of the institutes. In this case almost all (96%) faculty at T1 and (75%) faculty at T2 rated it as impartial, (4%) faculty at T1 and (20%) faculty at T2 rated it as biased and (5%) faculty at T2 rated it as poor.

It means that the majority of faculty at T1 feels that the student evaluation is impartial in their institutes. As the institute is richer in technology they may be having more systematic evaluation system.



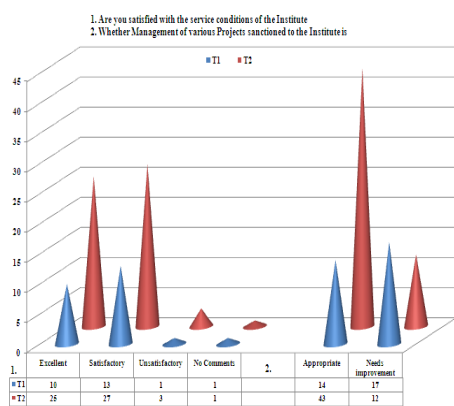
Technical Institutes T1 & T2
Fig-5.1, 5.2

The international conferences organized by the faculty per year are shown in **Fig.5.1**. At T1 (77%) and at T2 (54%) faculty said two conferences, at T1 (8%) and at T2 (30%) faculty said three conferences, at T1 (11%) and at T2 (7%) said four conferences being organized per year.

Organizing four international conferences in a year is a mammoth task but in both the institutes under study a significant percentage of faculties said they organize four international conferences per year. It is credit to both the institutes to have faculty who is capable of organizing four international conferences in a year. The data reveals that a majority of (77%) and (54%) faculty at T1 and T2 respectively organize two conferences in a year. At T2 the percentage of faculty who organize three conferences in a year is also quite significant i.e (30%).

Fig-5.2 reflects the support of the funding agencies to the faculty to go abroad. In this case at T1 (69%) faculty said that they get support from the institute, (8%) get support from MHRD and (19%) said that they get support from other agencies. Similarly at T2 (70%) said that they get support from the institute, (19%) get support from MHRD and (12%) said that they get support from other agencies.

The data reveals that in both the institutes the faculty is supported to a large extent by the institute. This is not a very encouraging situation as by providing support from the Institute faculty will not try to generate resources from other agencies. They should be encouraged to approach other agencies for financial support which is an important aspect for any institute as in view of recession it has become further necessary for every unit of the institutes to find out possibilities of additional financial resources.



Technical Institutes T1 & T2
Fig-6.1, 6.2

Fig 6.1 shows the rating of service conditions of the institute. (36%) faculty at T1 and (45%) faculty at T2 said that the service conditions are excellent, and (50%) faculty at T1 and (48%) faculty at T2 said that the service conditions of their Institutes are satisfactory, (4%) faculty at T1 and (5%) faculty at T2 said that it is unsatisfactory and (4%) faculty at T1 and (2%) faculty at T2 opted the alternative of no comments.

Satisfaction of the staff is one of the crucial dimensions of human resource management. Interestingly in this aspect the faculties agreeing with satisfactory service conditions are more in comparison to those who said that they are excellent in both the institutes. It can be concluded that the service conditions of both the institutes are not up to the mark and therefore need improvement [3].

Fig-6.2 shows the appropriateness of management of various projects sanctioned to the institute. (54%) faculty at T1 and (77%) faculty at T2 said that it is appropriate and the remaining (46%) faculty at T1 and (21%) faculty at T2 said that it needs improvement. The data shows that in both the institutes majority of faculty considers that the management of projects sanctioned to the institutes is appropriate but a significant percentage of faculties feel that the management needs improvement. It means that in both the institutes the human resources are a bit callous in their approach in handling the projects. It is not a very healthy trend and therefore needs to be modified [2].

CONCLUSION

The empowering of students through appropriate knowledge lies primarily with the faculty members of any educational organization. This could be through effective teaching & learning in any subject. However, there are certain critical aspects to make teaching & learning a model of best practices in this area. The present contribution briefly narrates historical perspectives since ages till modern E-Era. 13 important parameters as mentioned in introduction part of the paper related to best practices have been selected to have the assessment of faculty members of two technical institutes of eminence of India. About courses taught by faculty members majority of them opined it as an excellent course in the two institutes. However, only half of them appreciated the updating of the courses every semester. In recent times use of multimedia provides all-round understanding & knowledge of the students. The faculties of

both institutes agree with upgradation of knowledge through periodic training which has been appreciated by majority of the faculty members. Availability of lecturers and time schedule at intranet well before starting of courses is another important parameters in the study and has been rated excellent by faculty members. After completing the course, examination and evaluation decide the fate of the students. This should be as fair as possible as agreed by most of the faculty members. The facilities related to academic component and service conditions prevailing in two institutes were also found quite satisfactory. Organization of two-three international conferences in a year is an important platform for exposure of all concern such as students, faculty & staff. This actively alongwith proper management of projects generated from various agencies is appropriate at both institutes. However, the depressing aspect is the dependence of faculty members for funds on the institute which is not a healthy tradition. The faculty should try to generate fund from other funding agencies as well. Overall the paper has given important findings for technical institutes to adopt for their better practices of teaching & learning.

ACKNOWLEDGEMENTS

The author acknowledges support of the authorities of Indian Institute of Information Technology, Allahabad, India. The author is indebted and expresses her sincere gratitude to Dr. M.D. Tiwari, a pioneer Director of IIIT-Allahabad, India for his kind encouragement in completion of this paper.

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