

Smart Sustainable Solutions for Effective TL Process: A Case Study

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Abstract:

This paper describes the various ICT tools adopted by the Department of Geography, L.A.D and Smt. R. P. College for Women Nagpur to make TL process more effective and student friendly. It also highlights the efforts of teachers' to achieve higher order cognitive levels. It helps to take teaching learning process beyond classroom. It was observed that it has appreciably and diversely contributed in the progress of students.

Introduction

We are experiencing phenomenal change and advancement in information and communication technology. In accordance with it the present generation is also fast changing. Knowledge and information is on their finger tip. In this scenario it is expected that teachers should adapt and adopt ICT tools and focus more on higher order cognitive level such as analysis, creativity rather than simply transmitting information and understanding by traditional Teaching Learning Process.

Recent NAAC Manual for Affiliated/Constituent Colleges which was effective from July 2017 clearly states the urgent need for promoting the use of technology in day to day TL process. In this perspective application of pro-tech smart solutions is the need of the hour.

Objectives

In this context the present paper aims to emphasize upon various ICT sustainable solutions initiated by the Department of Geography of L.A.D. College for Women, Nagpur. The study attempts to -

1. Investigate the necessities for initiating such initiatives.
2. Bring out various technological solutions identified and implemented by the department for their students.
3. Examine steps implemented to achieve higher order cognitive levels.
4. To present opinion and reactions of students on techno savvy TL Processes.

Material and Method

This empirical study is based on primary data. Web systems and tools identified and initiated since last one year, form the data base for this paper. Focused Group Discussion (FGD) and routine dialogue was organized with the students to know the causes for irregularity of attendance. These causes were categorized and tabulated. Steps initiated to achieve higher order cognitive levels were sorted and analysed. Opinion and feedback of students was recorded, uploaded on YouTube (<https://www.youtube.com/watch?v=U9sydijyjs>) and presented as Case Studies.

Limitation of the Study

The study is based on observations of English Medium students of B.A. Semester I and II (35) and Semester III and IV (30), of the Department of Geography, L.A.D. College for Women, Nagpur. ICT tools presented in the study are in developmental stage.

Results and Discussion

1) Context and Need to Initiate Technology Enabled Initiatives

For a good academic performance it is essential that a student regularly attend classes. Poor attendance is a chronic issue faced by educational institutions. In order to perceive the main causes of absenteeism, a focused group discussion was arranged. The causes for not attending classes regularly have been categorized in Table 1.

Table 1: Causes for Poor Attendance

In-house Activities <ul style="list-style-type: none"> • Participation in students' enrichment programmes, departmental academic activities, cultural fest etc. 	Outside Activities <ul style="list-style-type: none"> • Classes of competitive examinations, short duration job oriented certificate courses and intercollegiate activities
Specialized In-house Activities <ul style="list-style-type: none"> • Participation in Sports, NSS and NCC 	Related with the University <ul style="list-style-type: none"> • Late announcement of results. Many students do not want to attend classes before results
Personal <ul style="list-style-type: none"> • Fail to attend morning and late lectures due to either inefficient public transport system or • Travel time to reach Institute • Economic issues, doing job • Sickness • Family Issues 	Connected with Teachers <ul style="list-style-type: none"> • Sometimes Teachers fail to engage classes due to attendance in conferences, training programmes, refresher courses etc. or on Medical Leave/ CL (System doesn't provide alternative arrangements when teacher goes on long leave-ML, EL etc)
Other Factors: Weather , boredom, leisure, no specific reason mentioned	

Semester pattern was introduced in Nagpur University since the Academic Year 2016-17. It was observed that on account of late announcement of results actual teaching learning process has been reduced to 2-3 months in each Semester. This has affected day to day TL process and results in difficulty in completing the prescribed syllabus.

In this connection education related research says "student engagement is clearly more important than attending and simply occupying classroom seats" (educhatter, 2010). If students cannot attend classes, then why not teachers go to them by the use of technology? Therefore it was necessary to develop techno-savvy sustainable solutions to tackle with the current scenario.

2) ICT Tools Explored by the Department

Various ICT tools have been identified to take teaching learning from a classroom to a multidirectional way. The situation today is in favour of teacher because most of the students have access to Smart Phones with internet connectivity and many have PC/laptops at their home. Financial constraints made teachers to explore open source software which are very easy to use (Table 2). Students have been encouraged to maximise their uses of Smart Phones for visualizing e-content, instructions and notices regarding day to day teaching-learning.

Through such technology related efforts, teachers have deliberately created very powerful learning opportunities both in and out of the classroom. This has helped students to understand and learn various difficult concepts of the subject and complete the syllabus with ease. Faculty members have structured ways for students to participate in the effective learning experiences as per their

convenience and learning pace. Such efforts have empowered students and helped them in problem solving.

Table 2: Web Presence of the Department and Faculty

Sr. No	Web Tools/ Systems/ Resources	Purpose/Use
1	Tutorials on YouTube created by Faculty Members	Self learning e-tutorials, screencast on topics of the syllabus
2	Interactive Systems <ul style="list-style-type: none"> • Padlet https://padlet.com/shubhi1958/girgaonkar • Wikispaces • WhatsApp 	Interaction with students, problem solving as per their convenience any time, any where. To share links of existing audio video web resources and instructions
3	Content Management System <ul style="list-style-type: none"> • Departmental website https://geographydeptladcol.wordpress.com/ • Individual Faculty websites 	To display notices, instructions, learning by doing videos, university pattern question bank, list of reference books, Project assignments etc.
4	Existing YouTube Videos/Screencasts	Soft copy of list of topic wise links of e-text and audios visual web resources was provided to students on WhatsApp.

Thus the use of technology has taken teacher closure to the students. This strategy has given students ownership of learning process and responsibility of learning. This has resulted into deep learning as per the availability of time as they could watch the e- resources repeatedly.

Thus understanding of the content of the syllabus has been achieved out of the class by taking the help of technology. Class time was spent in problem solving by using various active learning strategies. Students were also instructed to contact teacher any time during college hours for problem solving in case they fail to attend regular classes. It was observed that TL process has accelerated owing to these thoughtful efforts.

Opinion and Feedback of Students on Use of ICT:

Case 1: Group of two students

Class: B.A. Semester I

Cause of Absenteeism: Missed Practical classes due to personal and family issues

Experience with ICT (Audio Visual Tools):

- Teacher provided links of seven videos on the topic 'Maps and Scale'.
- While watching the videos we felt as if the teacher herself explaining the topic to us and therefore we could connect with the classroom teaching.
- Videos had many examples and practice questions which helped us to solve them easily as per our convenience and speed of learning.
- The pause and rewind feature proved quite useful to understand the concept as per our convenience.
- If doubts persist it is solved by the teacher in the class next day.
- Before the final practical the videos were really helpful to revise the entire topic.

3) Steps Initiated to Achieve Higher Order Cognitive Levels

a) Project Based Group Activity: Objective of TL Processes is to determine and design learning activities to achieve different hierarchy of cognitive levels and higher order thinking. Faculty of the department are trying to achieve lower order cognitive level such as recall and understand by transmitting information with the use of ICT. Middle order cognitive levels apply and analysis is being attained in the class through application of active learning strategies such as TPS (Think, Pair, Share), streaming of reciprocal questions; cause and effect method etc.

To accomplish highest order cognitive level semester wise project based group activity has been planned (Table 3). This was to exploit their qualities of apply/evaluation/creativity etc. Another objective is to help them to improve required skills of writing and speaking. These difficult tasks help in improving higher order thinking. This activity was linked with internal assessment. So it was made mandatory for students to submit the project report.

Observation of students and their feedback was obtained through dialogue. Students expressed that in this process their group work dynamics improved. Involvement and interest in the subject has increased. It has provided opportunity to express their ideas and a platform to practice their skills. It has promoted peer communication and learning.

In this process students' recognized variety of learning styles. This activity encouraged students to take responsibility for their own learning. Ultimately it has strengthened students-teacher relationship.

Table 3: Project Based Group Activity

Sr No	Class	Projects Undertaken/Planned (Undergraduate Level)	Resources Developed To Complete Task
1	Semester I	Impact of Man and environment Interaction in Nagpur City and Environs	Detailed scheme and worksheets were made available to students and uploaded on the departmental website for their ease
2	Semester II	Monthly Weather Assessment of Nagpur City (1 January-28 February)	
3	Semester III	Geomorphology of Nagpur and Environs	
4	Semester III	Nag River Valley: A Geomorphoc Disaster	
5	Semester IV	Population Characteristics of Nagpur City, Maharashtra	

Opinion of Students

Case: 2

Class: B.A. Semester IV

Expressions on Project Based Learning:

- Great opportunity for me to apply the knowledge and helps in developing the concept.
- Group work essentially created an environment where we 'teach' and 'explain' the concepts to each other. At the same time learnt the importance of cooperation, teamwork and got collaborative learning experiences.
- Taking ownership of the Project content created.
- I felt responsible and accountable for my own learning
- In this process I understood the importance of time management and planning.
- In my opinion, Group Projects are essential and plays a vital role in conceptual development.

b) Participation in MOOC to Incentivize Self Learning: Students were encouraged to register for available free online courses to incentivize self learning. It was also linked to internal assessment marks. Students were advised to take up Geography related skill based courses. Five students have successfully completed two free open online courses, one in each Semester. These are GST 101-

Introduction to Geospatial Technology by using QGIS and GST 102- Spatial Analysis using QGIS conducted by International Organization GeoAcademy (<https://fossgeo.org/>)

Opinion of Students

Case 3

Class: B.A. Semester IV

Feedback on MOOC Initiative

- I have completed two free online courses of International Organization GeoAcademy.
- This course on Geographical Information System helped me to develop skills for my career while completing graduation.
- In the beginning I was worried because of the new online learning methodology.
- Within few weeks my confidence built up.
- For my convenience I made notes of important topics.
- After successfully completing all the modules with high scores I realized that I can adopt self learning easily and do any such courses. It developed new vision of learning within me.
- The last phase of the course was project submission. It took me 3 days to know what exactly I had to do. After complete understanding and taking the help of theory portion I started doing the project. In due course of time I could complete the project and submitted.
- On successful submission of the project I was elated.
- I really liked this new video and e-text based self learning process because I was responsible for my own learning as per the availability of time and my rate of learning.
- I would suggest all my fellow students to engage in this kind of learning and develop required job skills.

Conclusion and Suggestions

In conclusion students were fascinated by this upcoming learner centric teaching methodology. This student friendly methodology is fulfilling their expectations. This ultimately helps in strengthening academic standards and improving outcome of TL process.

It is suggested to develop learning community of interested teachers of Geography to create high quality e- content and active learning strategy to popularise ICT based methodology.

References

1. educhatter (2010), <https://educhatter.wordpress.com/2010/01/30/student-absenteeism-whats-the-problem-and-the-answer/>)
2. NAAC Manual for Affiliated/Constituent Colleges (2017)
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