

Survey Paper on Effect of Different Tools developed for Online Learning Education (Like Blended Teaching Learning Philosophy- TLP) in Engineering Education

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Abstract: The aim of this paper is to explain online different tools for Teaching Learning Philosophy to design additional courses in engineering education to fill the gap in academia and industry by practicing of Survey done for Faculty Members as well as Students. Continuous learning is key for excellence of human kind and education is foundation of a successful nation. Hence India's National Education Policy (NEP-2020) focuses on designing multidisciplinary higher education and improvising current teaching approach by emphasizing on use of blended Teaching-Learning Philosophy (TLP). Due to COVID-19 situation around, in this crisis educators and students moved towards contactless approach of learning without physical interaction. Hence various different tools come into the picture to provide online education. We are studying all the tools so that we will design add-on and bridge courses for students which will help to increase their chance at getting placed in good companies. This paper will highlight such tools which are being used by Vikrant Institute of Technology and Management for conduction of TLP smoothly as well as further actions on how to conduct add-on and bridge course in institute.

Keywords: Teaching Learning Philosophy, Blended Learning, Pedagogy

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1. Introduction

One-size-fits-all approach of traditional classroom system with predefine curriculum of fixed length, content and pedagogies is getting outdated as smart systems started replacing the old chalk-and-board mode of teaching [Alvarez, S.]. Over the time this old classroom system is altered by student-centre models which are way better at engaging students and provide them with superior learning Opportunities. Change in approach of traditional classroom model to blended learning is fascinating which will definitely on advantages side for the students. Blended learning can be addressed as a formal education model, in which at-least part of educational content and instructions are delivered to students through online medium with students having control over time, place, path and pace. Blended learning is used and generally well accepted by educators of higher education [N. Vaughan] [A. Bates and A. Singra] [C. Graham, W. Woodfield and J. Harrison.] [K. Poon]. Through blended learning, learners bring experiences and ideas to the intellectual conversion using online platform, due to which the understanding of the other participants is enriched, resulting in active learning. Blended learning needs balance between physical learning, online interaction as well as pedagogical practices such as flip classroom, self-regulated learning etc for effective TLP.

Various tools and technologies work as pedagogies for blended learning remotely or otherwise. This paper will list down various tools used to perform different tasks for blended Learning.

There are some steps which clears the idea of online learning in detail (fig. 1):

Step 1: Online Learning: Traditional classroom learning is replaced by online communication and learning tools to encase the experience of students (understudies) an advancing, dynamic and a significant hypothesis/functional. Via online learning, students will acquire information by educator.

Step 2: Content Sharing: it will serve to understudies to assimilate the information which they secure in the online classroom by studying on their own.

Step 3: Interaction: This will help understudies to document the ideas which they develop by learning in virtual classroom as well as by their own in the form of assignments. This will be great medium to clear the doubts as well for understudies.

Step 4: Learning Outcome: By stepping through online exam via various quiz maker tools or disconnected trial of understudies, learning results will be determined.

Step 5: Learning Assessment: Correcting Online tests time to time will constructed capacity in understudies for rivalry, which is now a days is very important.

Further sections focus on various tools of Teaching Learning Philosophy for online education being used at Vikrant Institute of Technology and Management, Indore. Surveys of faculties as well as students have been conducted to understand the comfortability of faculties as well as students for using online tools and overall online learning process. Based on it add-on and bridge courses for students will be designed which will help to improve quality education hence will increase students' chance at getting placed in good companies resulting in better employment options.

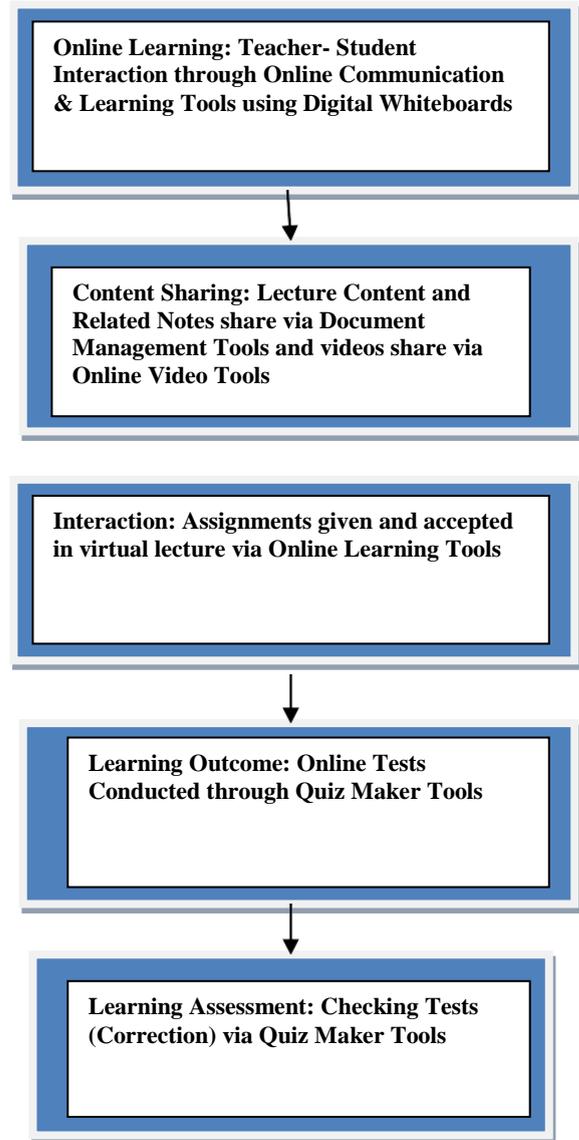


Fig. 1 Effective Online Learning methodology for Students

2. Review on Online Communication Tools

TLP is effective only when there is good quality communication to-and-fro be it a physical one or virtual one. Communication tools assist to do communication between educator and group of students using video conferencing, video rooms, audio calls etc. Some of the popular tools are listed below:

Video Management Tools

Zoom: This is famous tool to conduct meetings and webinars online. Its basic version is free of cost hence it can be used by both educators as well as students to share intellectual information. As a meeting (lecture) host, only educator needs to open an account on zoom. Rest of the students can join in as participants. Recording the meeting (lecture) is a beautiful feature which lets host record the lecture and share it with

participants who missed the lecture. [Zoom]

MS Team: From chat to video call as well as to connect, access, share, and co-author files, to take care of day-to-day schedule MS tool is used. It's used to conduct online meetings, video conferencing, screen sharing, file sharing, file collaboration etc. Basic version of MS team supports up to 100 participants for the duration of an hour is free of cost. [MS Team]

Google Meet: To conduct online lectures with no time constraint, to use all google services like docs, ppts, sheets, slides, forms etc., google meet is perfect solution. The starter's version can accommodate up to 100 participants with drive storage up to 30 GB per participant and 14 days free trial. [Google Meet]

Online Whiteboards: To emulate staple classroom (black/white) boards, online whiteboards are used. Online whiteboards offer unlimited canvas, collaboration and comment feature, ability to attach files as well as mobile compatibility. Some wide known digital whiteboards are:

Miro: Miro is platform independent. It has plenty of templates to start with. If no template is needed then classic whiteboard can be used with online communication tool like zoom. Miro let's educator as well as participants brainstorm together as well as keeps track of the changes made. Basic version of Miro is free of cost and supports up to 3 editable whiteboards. [Miro]

Stormboard: Stormboard looks like sticky-notes. But each sticky note represents huge digital whiteboard. In this, during meeting(lecture), any sticky note can turn into collaborative digital boards with edit rights to every participant. [Stormboard]

Mural: Mural canvas can hold multiple whiteboards which can be rearranged and resized as per the need. Mural is strong tool for a team as it lets one create team rooms as well as allows to have multiple templates or blank whiteboard and it comes with timer to monitor time spend on a board by each participant. [Mural]

Document Management Tools

Educator needs to take care of various documents, like, teaching plan, lesson notes test results etc. Hence central location to store, edit, monitor such documents is a need. Some tools for managing documents are listed below:

Google Drive: Google drive stores documents as well as, images, audio, video over the cloud. One can store, share and edit the data. Everyone between whom the documents will be shared needs to have google account to use this service. For each user free memory space, up to 15 GB is freely allocated. [Google Drive]

Dropbox: Dropbox helps to store documents over the cloud with secure environment. It lets one store, collaborate, edit data. When adapted for campuses, it lets educators monitor data stored and shared by participants. Its features are secure collaboration of file sharing, cross device sync, as well as no upload size limit. [Dropbox]

Evernote: For note taking, project planning Evernote is recommended. It attaches photos, audio, video, to-do list etc to the shared file. Its key features are, character recognition from hand written notes to photos, web clippers etc. [Evernote]

Online Video Tools

Video tools help educators to record online lectures and share them with students, so that it can be re-watched by students whenever required. It will avoid repeating same content again for different batch of same class. Some tools are:

YouTube: YouTube is online video sharing platform where educators can share their pre-recorded videos as well as live stream the videos which can be seen later by participant who were absent or wants to revise. [Youtube]

Screencast-o-matic: Screencast-o-matic is video generator tool which helps educator to create lectures and tutorials and share the same among students. This helps student to understand and follow instructions shared by video and perform task by their own. The free version of it, allows educator to record lecture up to 15 mins as well as allows to host videos up to 25 GB.[Screencast-o-matic]

Online Learning Tools

WizIQ: WizIQ is cloud based learning tool which helps educators and participants access teaching modules through devices. WizIQ supports digital whiteboard which helps educator write down or draw on a simulator just like they do on a physical board. The basic version accommodates up to 100 participants. It records lecture automatically. The recorded lecture can be shared later with all the participants. [WizIQ]

Great Learning: Great Learning is online learning application which provides many pre-designed features like taking online lectures through zoom, can share notes, assignments with students, and Educators conduct exam directly through this application. Best advantage of this application is automated generated attendance of online lecture [Great Learning].

Online Quiz Makers

To monitor the performance quizzes are essential. Online quiz makers help to create, format and share quizzes easily. It automatically creates grade sheet to access grades of

participants. List of some quiz makers is as follows:

Google Forms: Using google forms, educators can create a quiz comprises of multiple-choice grid, check box grid, short answers, paragraphs, upload documents etc. Once form is created educator can share the link with participants. In the background the grades will be maintained which can be accessed in the form of google spreadsheets or excel sheets. [Google Form]

Testmoz: Testmoz is a very fast and simple way to generate an online exam for students. Name the Test, set password and its ready to create. Set the rules, add questions, preview the test. Broadcast the test by sharing URL amongst students. Students can attempt the exam straight away. View results and generate report in different ways. The basic version is free and it supports 50 questions and 100 results per test. [Testmoz]

FlexiQuiz: FlexiQuiz is one of the robust online test generator which automatically marks and grades the quizzes as well as create a marksheet, send it to the faculty in-charge as well as students and analyse the result. [FlexiQuiz]

3. Survey taken from faculties of vikrant institute of technology and management, rgpv university, indore

As part of extended TLP as well as due to COVID-19, Vikrant Institute of Technology and Management, Indore opted for remote teaching-learning process. For the same focus of institute is on “Great Learning” application.

Online Communication Tools

90% Faculties are using zoom platform for conducting their lectures where as 10% faculties are more comfortable with Google meet in fig. 2.

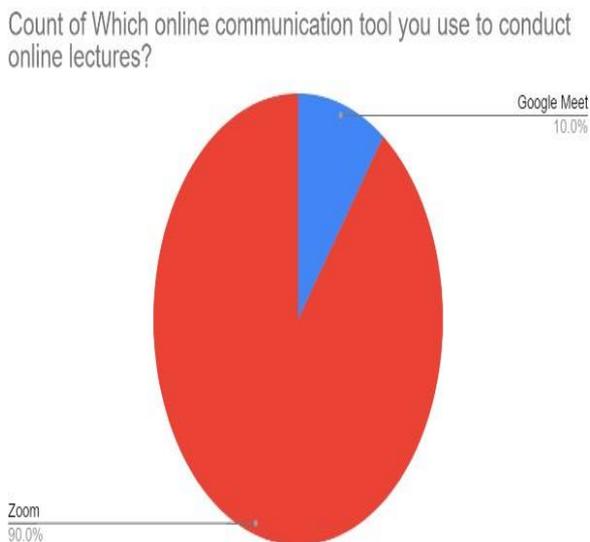


Fig. 2. Pie Chart Analysis of Use of Online Communication Tool

Online Whiteboard

50% Faculties are using Miro platform for online whiteboard, 40% faculties are using Storm board platform where as 10% faculties are more comfortable with Mural as an Online Whiteboard in fig. 3.

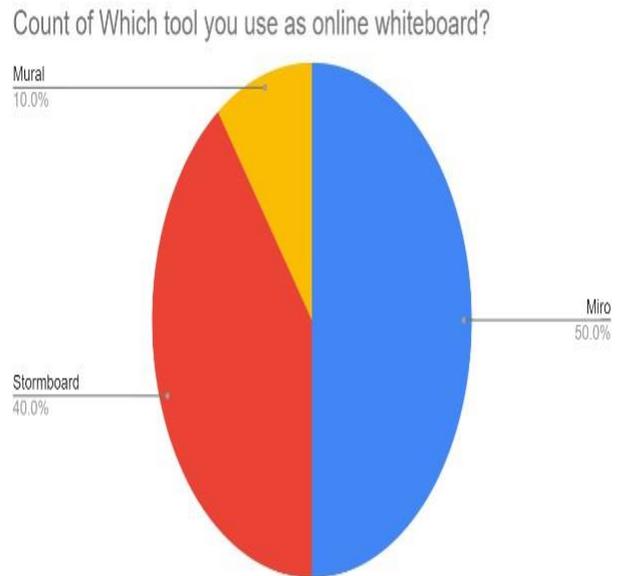


Fig.3. Pie Chart Analysis of Use of Online Whiteboard Tool

Document Management Tool

78.7% Faculties are using Google Drive as a document management tool, 13.3% faculties are using Dropbox document management tool where as 10% faculties are more comfortable with Evernote document management tool use to maintain all subject and students related documents in fig. 4.

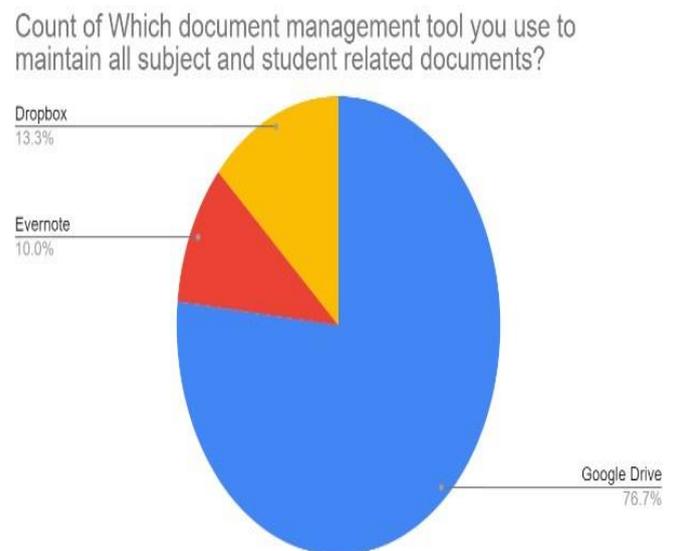


Fig.4. Pie Chart Analysis of Use of Document Management Tool

Online Video Tool

53.3% Faculties are using Screencast-o-matic to record and share online lectures, where as 46.7% faculties are more comfortable with Youtube to record and share lectures among students in fig. 5.

Count of Which video tool you use to record and share lect & tutotials amongst of your students?

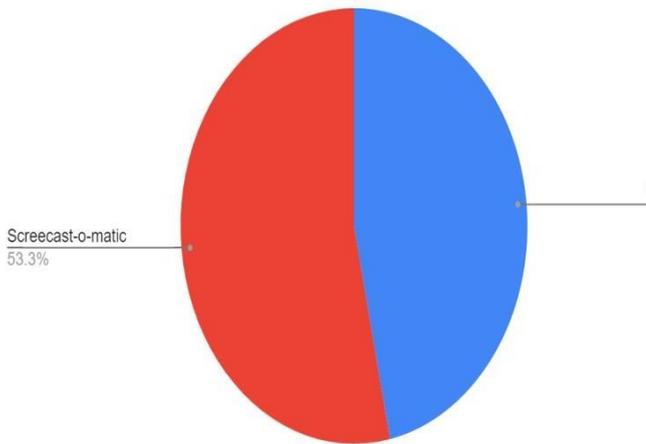


Fig.5. Pie Chart Analysis of use of Online Video Tool

Online Learning Tool

86.7% faculties are currently using Great Learning tool to conduct lecture as well as share and assess assignments from students and 13.3% faculties are using WizIQ tool for the same.

Count of Which learning tool you use to conduct lectures and assess assignments of your students?

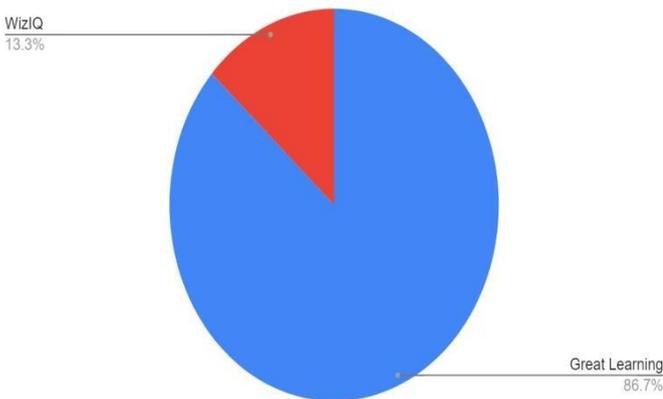


Fig.6. Pie Chart Analysis of use of online learning tool

Online Quiz Maker

70.0% Faculties are using Google form for monitoring students performance, 13.3% faculties are using Testmoz

where as 16.7% faculties are more comfortable with Flexiquiz tool to evaluate the students performance in fig. 7.

Count of To monitor student's performance which quiz maker tool you use?

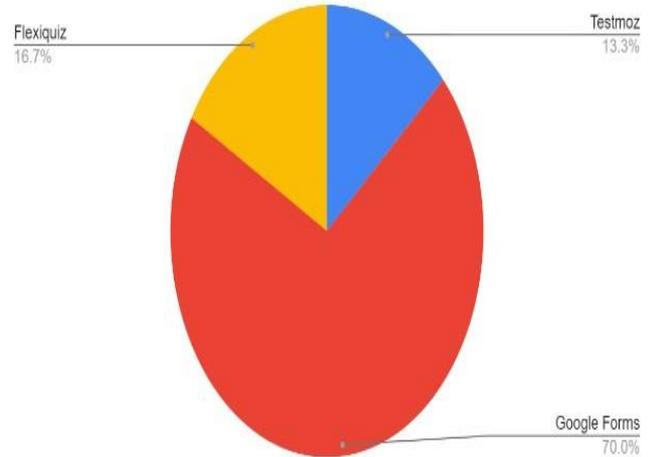


Fig.7. Pie Chart Analysis of Use of Online Quiz Maker Tool

4. Performance Experiments: Evidence of success of TEL (Suver taken from students of Vikrant Institute of Technology and Management, RGPV University, Indore)

Online Communication Tool

80.0% students are satisfied with zoom platform for their online lecture conductions where as 20 % students are comfortable with Google meet in fig. 8.

Count of Which online communication tool you use to attend online lectures?

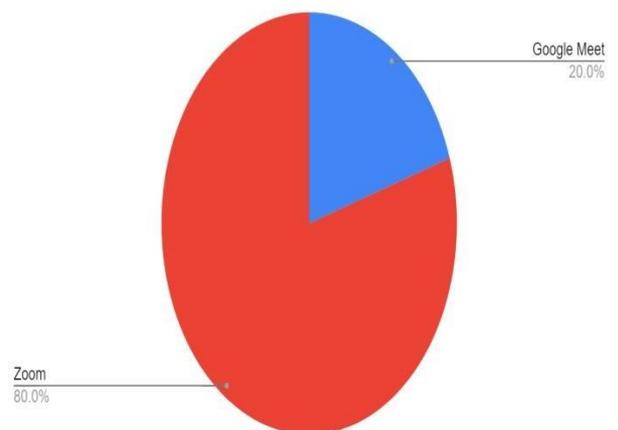


Fig.8. Pie Chart Analysis of student's satisfaction on online platform for lectures.

How much comfortable students are while learning online?

150 students are enjoying online learning wholeheartedly whereas more than 50 students would like to opt for online education. Less than 50 Students think that there is still scope of physical classroom education over online learning, while around 20 students are somewhat dissatisfied with online lecture and around 10 students are extremely dissatisfied with online education as shown in fig. 9.

Count of How was your experience learning from home as compared to learning at university /institute?

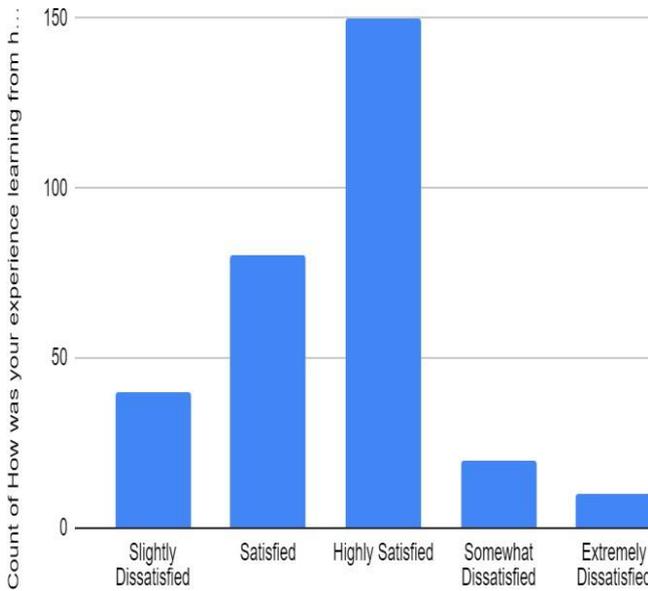


Fig.9. Column Chart Analysis of student’s satisfaction on online lectures.

5. Result and Further discussion

The survey results above show that faculties as well as students are satisfied conducting TLP in the form of online education. Hence it is not wrong to conclude that to conduct add-on courses as well as bridge courses, going online seems feasible solution. Faculties as well as industry experts may design various add-on courses using different tools.

As per the survey result, recommended tools to design add-on & bridge courses for every step of online learning methodology are as follows:

Step 1: Online Learning:
 Communication Tool: **Zoom**
 Learning Tool: **Great Learning**
 Digital Whiteboard: **Miro**

Step 2: Content Sharing:
 Document Management Tool: **Google Drive**
 Video Tool: **Screencast-o-matic**

Step 3: Interaction:

Online Learning Tool: **Great Learning**

Step 4: Learning Outcome:
 Quiz Maker Tool: **Google Form**

Step 5: Learning Assessment:
 Quiz Maker Tool: **Google Form**

So basically, any add-on or bridge course can be created from above mentioned tools, again as per faculties convenience and share the same amongst students. To assess such courses and to check how much knowledge student have gain quizzes plays important role. It is also recommended to generate and distribute certificates of successful conduction of these courses amongst students using different certificate generation tools for eg. Certifyme etc. to boost confidence of a student.

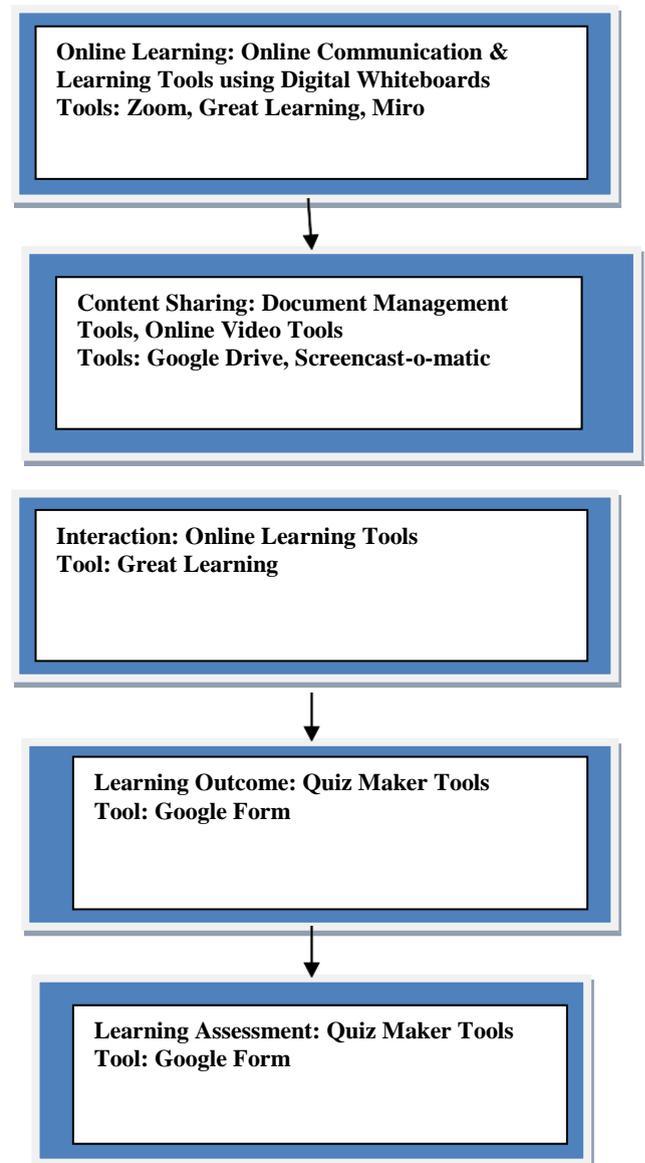


Fig. 10 Effective Online learning methodology for to design add-on / bridge course

6. Conclusion

To make education effective blended learning is important as it lets participants as well as educators to learn together as per their pace and comfort. As a part of blended learning, various tools and technologies are being adapted by various institutions as well as educators to excel the entire education process and make it student-centric. There is an immediate effect on student's ways to deal with learning by the idea of appraisal utilized by the instructors. Rehearsing the experiential learning assists the students' with getting specialized or down to earth information in their centre subjects. The persistent execution of showing learning approach through spoken instructional exercise movement is the best strategy for appraisal for understudies are bound to repeat the information obtained. Henceforth, dynamic adapting really improves the employability of the understudies (students). There is a direct impact on student's approaches to learning by the nature of assessment used by the teachers is shown by the survey done in this paper.

7. Future Scopes

The impact of such surveys on the satisfaction as well as employability of a student is high. Hence the Institute plans to extend this online survey of all the tools/platforms that will boost students' enthusiasm to study online not just as per the syllabus but on a broader level as well. Institutes should focus on planning add-on and bridge courses and broadcast them using online tools which will be resulting in enhancement in their employment opportunity.

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MS Team- Link: <https://www.microsoft.com/en->

[in/microsoft-teams/group-chat-software](https://www.microsoft.com/en-in/microsoft-teams/group-chat-software)

Google Meet- Link: <https://workspace.google.com/>

Miro Whiteboard- Link: <https://miro.com/>

Stormboards- Link: <https://stormboard.com/>

Mural- Link: <https://www.mural.co/>

Google Drive- Link: www.drive.google.com

Dropbox- Link: <https://www.dropbox.com/education>

Evernote- Link: <https://evernote.com/>

YouTube- Link: <https://www.youtube.com/>

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