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DESIGN AND DELIVERY OF ONLINE COURSES IN YCMOU

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ABSTRACT

The School of Science and Technology of 'Yashwantrao Chavan Maharashtra Open University (YCMOU)' has proposed to offer 'Web Based Live Teaching Learning Support' from 'real' teacher, with 'Live Virtual Online Class (LVOC)' integrated with 'Learning Management System (LMS)' for all courses of all programmes on offer. In the first phase, school has started LVOC for total *ten courses* in from Feb 2014. This web-based system is designed to provide an opportunity to:

- **maximize interaction, discussion and spontaneous exchanges with 'real' teacher during live virtual class**
- **present quality learning material to individual to suit his/her learning styles, interests, needs, and at their own pace.**

Further, LVOC is integrated with LMSs to present a set of features designed to provide an effective continuous assessment. The strategies adopted to provide learning support with guidance at every step of the way is elaborated here. In the next phase, school is planning to launch 'Online Certificate Course' for which all planned LVOC are already developed. As Learning is a collaborative process, authors have suggested additional strategies to be incorporated by 'real teacher' to offer 'Online Course'. This will help to ensure better quality and to develop confidence, comfort, and experience in online teaching.

Keywords: **eLearning, Online Courses, Learning with Technology Enhancement, LMS, Live Virtual Online Class, Distance Learning.**

INTRODUCTION

One of the goals of 'Yashwantrao Chavan Maharashtra Open University (YCMOU)' is to provide an inexpensive, easy access and flexible learning opportunities to every enrolled learner. Most of enrolled learners have diverse academic backgrounds, interests, and motivation. Hence, they require 24x7 learning support from anywhere, anytime. This expectation shifted the course content delivery from contact session (counseling session)

along with printed self-instructional textbooks to the use of technology for dissemination. For almost all learners, real learning starts only when learners start interaction with the received information and with the learners in the learning community.

Hence, to provide best learning experience to learners, teacher is required to maximize interaction, discussion and spontaneous exchanges instead of only delivery of information or course content. One of the possible solutions is to make available course content and teaching learning support as per the learner's needs. We believe that learners' needs could be addressed through the use of eLearning. The School of Science and Technology of 'Yashwantrao Chavan Maharashtra Open University (YCMOU)' has proposed to offer 'Web Based Live Teaching Learning Support' from 'real' teacher, with 'Live Virtual Online Class (LVOC)' integrated with 'Learning Management System (LMS)' for ten courses from Feb 2014. Here, the strategies used for just getting started in the online environment are elaborated. Research and experience (Boettcher, 2007) suggests that these strategies contribute to an effective, efficient and satisfying teaching and learning experience for both Teacher and learners. Authors have suggested additional strategies which can help to ensure better quality and to develop confidence, comfort, and experience in online teaching.

"Live Virtual Online Class (LVOC)" Model

School has developed a 'Teaching-Learning Process' model referred as learning cycle (Killedar, 2010) to provide an enjoyable and effective learning experience to all enrolled learners, is shown in Figure: 1. This model is derived by applying the Instructional Design on Educational and Information Technologies to provide the best interactive environment on web based education. It consists of only few well organized components (Kamlaskar and Killedar, 2012) such as:

- **Learning Objectives**
- **Delivery of information,**
- **Interaction,**
- **Evaluation and**
- **Feedback.**

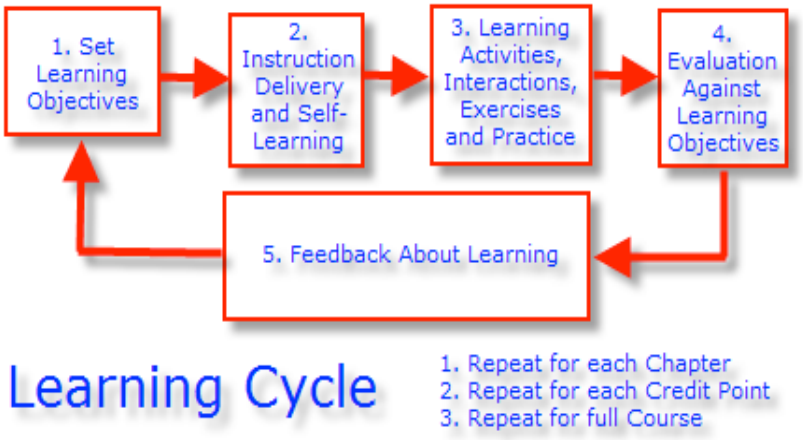


Figure: 1
'Teaching-Learning Process' Model

Each 'Live Virtual Online Class' template is designed based on learning cycle's components and embedded in Moodle LMS to provide complete learning experience to the learners.

Features (Killedar, 2013) of 'Live Virtual Online Class (LVOC)':

- **Live Teaching to all enrolled students from single 'Real Teacher'**
- **Live streaming Audio and Video where teacher and students can see and hear each other**
- **Each LVOC is about 40-60 minute duration. The 'Live Audio Lecture' is synchronized with bulleted items on the slide. 'Active Learning' such as question answers, problem solving, assignment, self-test, discussion etc is an integral part of each LVOC.**
- **During Live class, each student can interaction with 'real' teacher by using various options such as raise hand to indicate teacher a need for student, screen sharing, chatting, whiteboard etc**
- **To test understanding of content covered in each LVOC, Self-Test is made available to student. Student can opt to appear for self-test after each LVOC or at the end of each month. Self-Test consists of 'Multiple Choice Questions' each of 2 Marks. Student will get immediate feedback with test score.**
- **Each LVOC is automatically digitally recorded and can be downloaded for revision or revisit.**
- **Each LVOC is well-organized and easy to navigate**

Software/Hardware Requirement

- **At University End:**
  - **Latest version of Moodle at http://www.ycmou.ac.in**
  - **Domain hosting on Cloud server with 4CPU cores, 8GB RAM, 100GB server Disk Space, 100 GB bandwidths with 64 bit latest stable Linux operating system**

- **At Teacher End:**
  - **Hardware**
    - **Latest fast notebook or Tab with integrated webcam**
    - **Multimedia Headphone with Mic,**
    - **A4 size Take Note (Model A414 from iball.co.in) [optional]**
  - **Software**
    - **Free /Microsoft office Suite with PowerPoint, Word etc,**
    - **Fast (1 MBPS or Higher) broadband internet connection,**
    - **Subscription for "Live Virtual Online Class" service from any reputed supplier like www.wiziq.com**

- **At Student End or At Study Center:**
  - **'WizIQ Desktop App' available free to download from http://www.wiziq.com/desktop**
  - **Internet Connection with Minimum 512 Kbps speed,**
  - **Speaker/Ear Phone**

Strategies Implemented to Offer 'Live Virtual Online Class (LVOC)

Be Present in Virtual office hours at the Course Site

In a face-to-face classroom, a learning community gets developed when Teacher actively interacts and engage students. The same type of intellectual and personal bonds happens in an online setting only if Teacher who shows their presence multiple times in a week, and at best, daily.



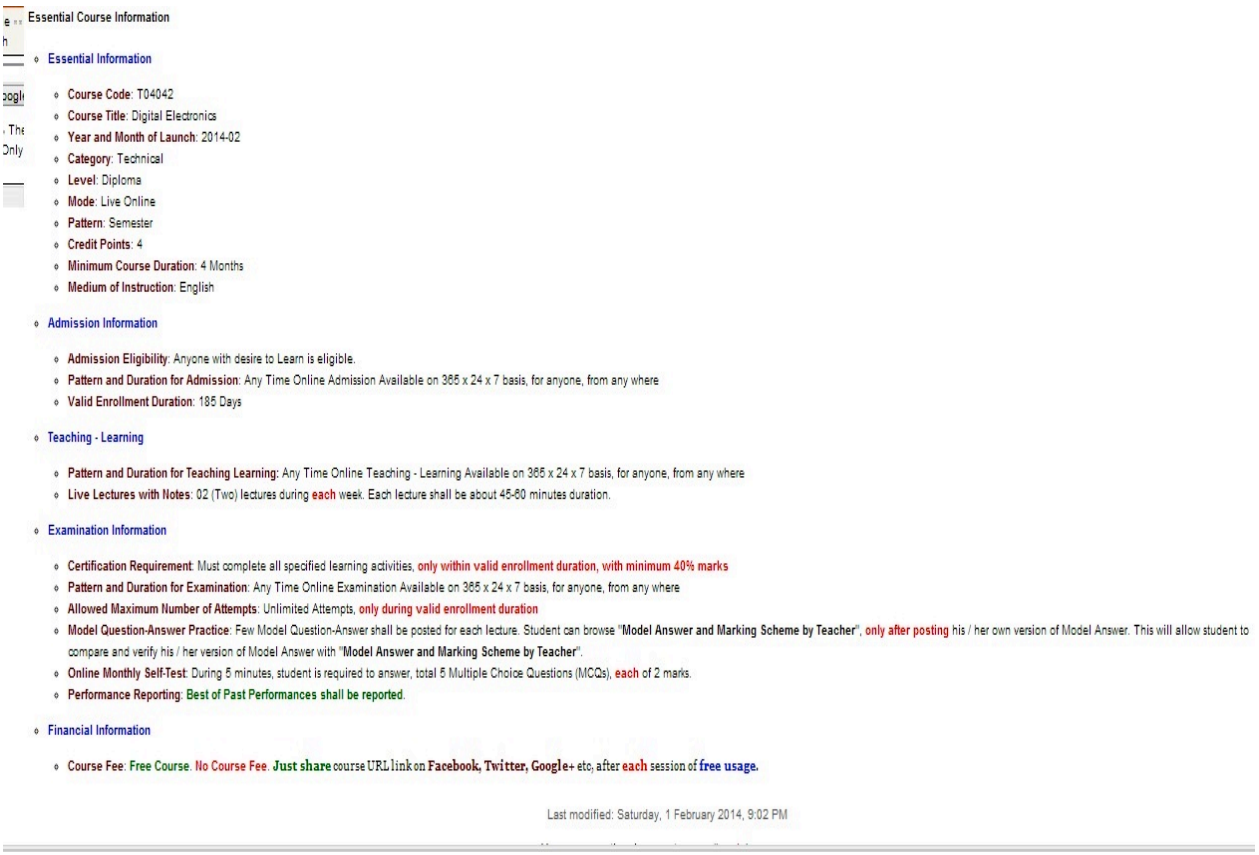
Figure: 2
Couse Webpage

Hence, at the beginning of a course, framing of course policies is very helpful like setting regular times to meet in a virtual classroom or be available by email or discussion forum and for how many hours, almost in real time similar to office hours, can be invaluable. Teacher should be present on schedule time at the course site to motivate the learners to follow the time schedule and able to be online together at the same time.

For example, 'V63: Diploma in Electronics and Telecommunication Engineering' programme has launched from 'real' teacher; with "Live Virtual Online Class (LVOC)"

integrated with "Learning Management System (LMS)" (Killedar, 2013). The course web page is shown in Figure: 2, some of features are;

- **Prior to start live virtual online class, 'Essential Course Information' is made available to everyone with free access. The screen shot is shown in Figure 3.**
- **Both Teacher and learner to be present on schedule time, the scheduled of live lectures within each month is displayed in advance as a table of content on left side of web page. The screen shot of it is shown in Figure: 4.**
- **Along with Monthly live lecture links, Model "Question-Answer" Forum based on syllabus covered in each month and Self-Test for each month which is made available 24 x 7 basis, for learners, from anywhere.**



Essential Course Information

- **Essential Information**
  - **Course Code**: T04042
  - **Course Title**: Digital Electronics
  - **Year and Month of Launch**: 2014-02
  - **Category**: Technical
  - **Level**: Diploma
  - **Mode**: Live Online
  - **Pattern**: Semester
  - **Credit Points**: 4
  - **Minimum Course Duration**: 4 Months
  - **Medium of Instruction**: English
- **Admission Information**
  - **Admission Eligibility**: Anyone with desire to Learn is eligible.
  - **Pattern and Duration for Admission**: Any Time Online Admission Available on 365 x 24 x 7 basis, for anyone, from any where
  - **Valid Enrollment Duration**: 185 Days
- **Teaching - Learning**
  - **Pattern and Duration for Teaching Learning**: Any Time Online Teaching - Learning Available on 365 x 24 x 7 basis, for anyone, from any where
  - **Live Lectures with Notes**: 02 (Two) lectures during each week. Each lecture shall be about 45-60 minutes duration.
- **Examination Information**
  - **Certification Requirement**: Must complete all specified learning activities, only within valid enrollment duration, with minimum 40% marks
  - **Pattern and Duration for Examination**: Any Time Online Examination Available on 365 x 24 x 7 basis, for anyone, from any where
  - **Allowed Maximum Number of Attempts**: Unlimited Attempts, only during valid enrollment duration
  - **Model Question-Answer Practice**: Few Model Question-Answer shall be posted for each lecture. Student can browse "**Model Answer and Marking Scheme by Teacher**", only after posting his / her own version of Model Answer. This will allow student to compare and verify his / her version of Model Answer with "**Model Answer and Marking Scheme by Teacher**".
  - **Online Monthly Self-Test**: During 5 minutes, student is required to answer, total 5 Multiple Choice Questions (MCQs), each of 2 marks.
  - **Performance Reporting**: Best of Past Performances shall be reported.
- **Financial Information**
  - **Course Fee**: **Free Course**. No Course Fee. **Just share** course URL link on **Facebook, Twitter, Google+** etc, after each session of **free usage.**

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Figure: 3
'Essential Course Information' web page

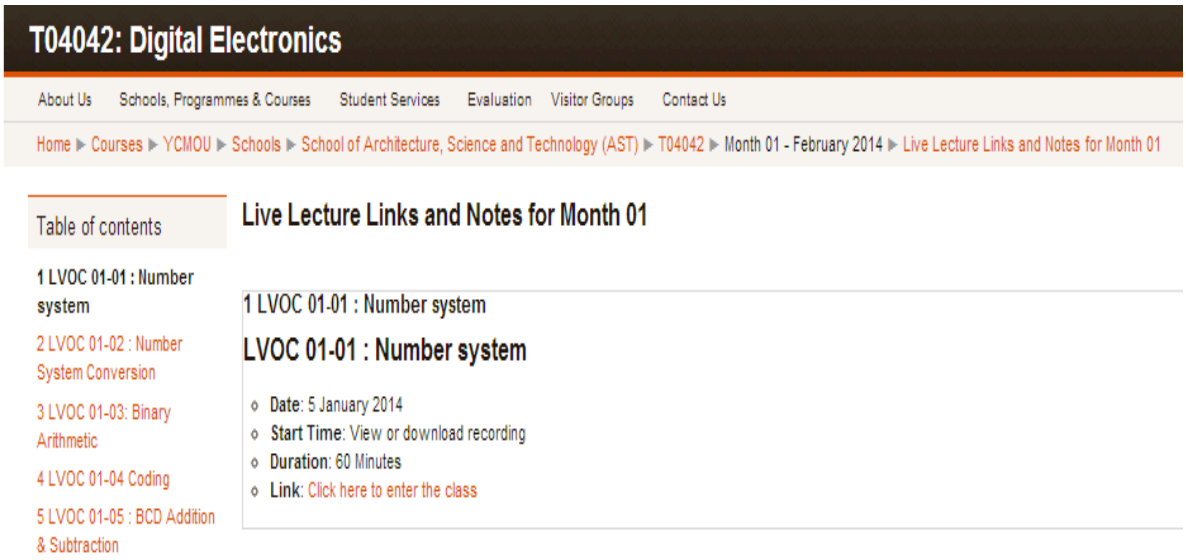


Figure: 4
'Time schedule of LVOC'

CREATION OF A SUPPORTIVE ONLINE COURSE COMMUNITY

A good strategy for developing a supportive online course community is to maintain harmony between Teacher to student, student to student and student to resource interaction equally.

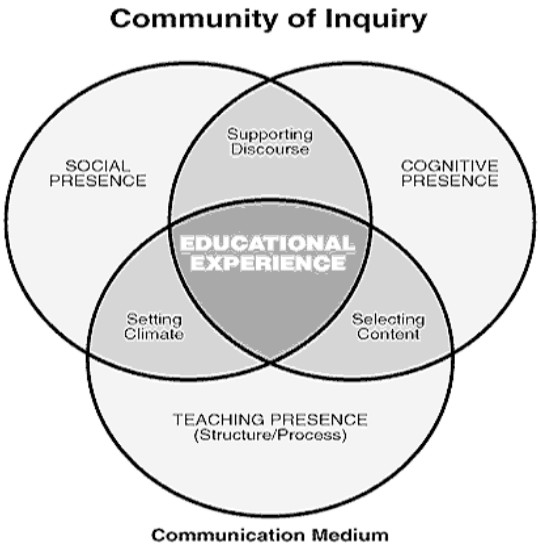


Figure: 5
'The Community of Inquiry model' by Garrison

According to 'The Community of Inquiry model' of Garrison et.al (2000), shown in Figure: 5, learning "occurs within the Community through the interaction of three core elements... teaching presence, social presence and cognitive presence".

Following three strategies are used to encourage peer-to-peer, student-to-student engagement and thus the building of a course community:

Teaching Presence

To make interaction of Teacher to learner more effective, Web based system of 'Live Online Virtual Class' is designed as *weekly* coaching with following features:

- **Live Online Virtual Class template for each course along with the synchronized audio lecture is prepared based on instructional pedagogy.**
- **Each Live Virtual Class of about 40-60 minutes duration which starts with personal introduction of Teacher and a note of their teaching strategy such as clearly stated learning objectives using Bloom's taxonomy, Opening of topic to arose curiosity of topic to be taught, key Terms, well-illustrated content using one or more type of presentation style like text, graphics, PDF, Image, Video, Summary of the content covered etc.**
- **Each Live Online Virtual Class can be used "plug and play" in Learning Management System (LMS) and track the learner's process.**

Social Presence

While completing learning activities, interaction between learner-learners, learner-teacher, and learner with other community is essential. For this;

- **'Live Active Learning' consisting of question-answers, problem solving, assignment, self-test, discussion etc. and is made an integral part of *each* Live Online Virtual Class.**
- **During Live class, Social presence was achieved through Synchronous discussion- 'Chat box'. It provides an opportunity to everyone actively participates at the same time.**

Cognitive Presence

Here, Cognitive presence is constructed through ongoing conversation about content and supplementary learning material. For this, Model 'Question–Answer' forum and Self-Test are provided.

- **Model 'Question–Answer' forum: First, Learner has to post his/her answer to model question before actual Model answer provided by Teacher can be seen. This helps to enhance understanding and interpretation skill of learner. Also help to learner to compare and verify his / her version of Model Answer with "Model Answer and Marking Scheme by Teacher". Posting views as a reply to discussion thread is itself a projection of interaction. Figure 6 shows the screen shot of Model 'Question–Answer' forum.**
- **Self-Test: Online monthly Self-Test is provided to encourage learner to interact with learning material frequently. To make evaluation experience enjoyable, 5 minutes duration Self-Test is provided based on the content**

covered in Live Online Virtual Class. Learner is required to answer, total 5 Multiple Choice Questions (MCQs), each of 2 marks. Figure 7 shows the screen shot of Self-Test.

- Here, understanding, interpreting and finding suitable solution to Self-Test questions and 'Model Question' by the learner is the key example of cognitive presence.

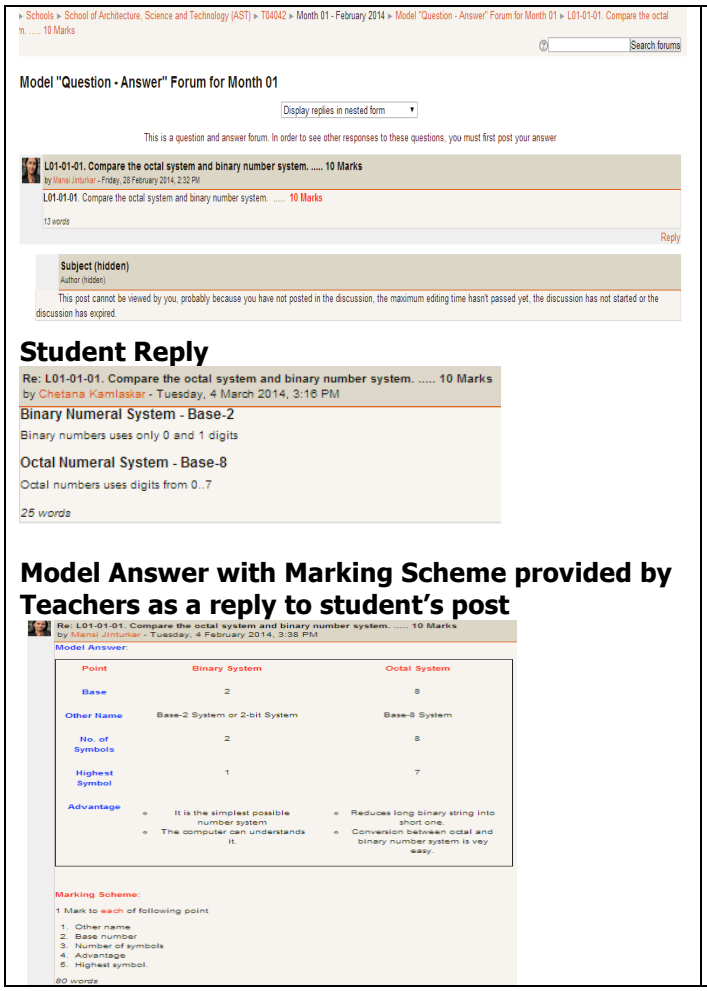


Figure: 6
Model 'Question–Answer' forum

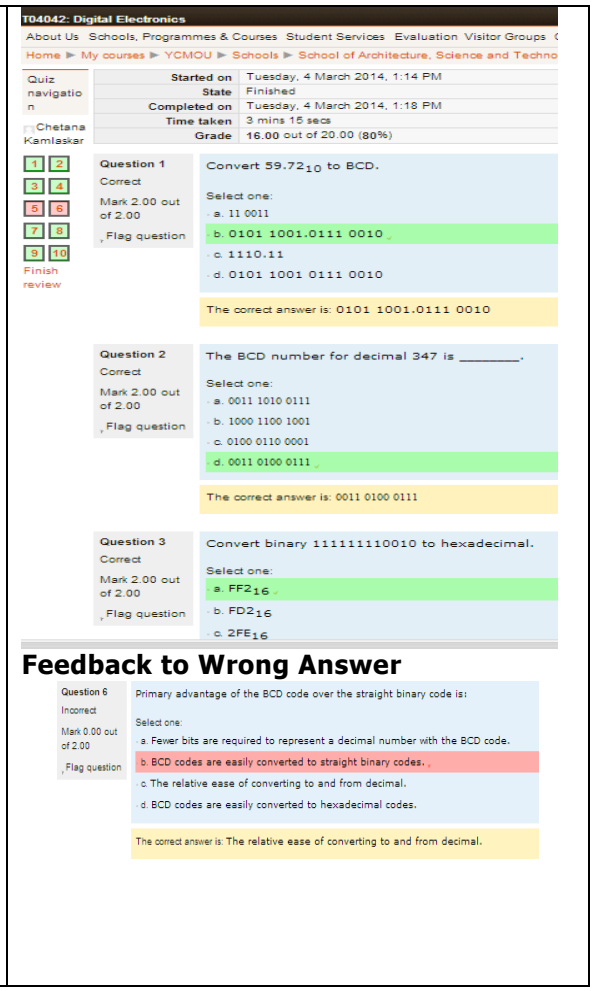


Figure: 7
Self-Test

Clear Explanation for How Learners and Teachers Communicate and Time Required by Learners to Work on the Course Each Week

In online learning environment, it should be clear to learners and teachers as to how much effort and time will be required on a weekly basis. Online learning is equally demanding time and effort as if one were attending face-to-face classes. Hence, time to do the work needs to be scheduled and planned for, is mentioned in 'Essential Course

Information' of each online course. Further, information about eLearning tools (chats, mail, digitally recorded live virtual class, discussion forum, phone etc) is made available to everyone, to share responses and flexibility in access and review content.

Use ff Both Synchronous and Asynchronous Activities as Per Learners Need

Using Moodle course management systems and WIZIQ live virtual class along with audio tools made it possible to do almost everything as in face-to-face classrooms (Kircher, 2001). Further, learners are engaged in more collaborative and more reflective activities by using chat, white board, screen sharing, offering raise hand option to indicate teacher a need for support or interaction. In each live virtual class what happens is automatically recorded and archived. This can be later on used for review and occasionally revision.

For example, understanding complex content such as principles, laws, derivation etc, teacher can make use of the synchronous tools and learners enjoy getting together from anywhere at a specific time to interact in real time. In such situations, real time problem-solving and question and answer review sessions are very effective learning experiences. Whereas some activities require thinking, plan, write and summarize which makes learning most effective for an individual. This can be achieved using asynchronous interaction which is possible from anytime, anywhere.

Suggested Strategies to Enhance Teaching-Learning Experience of Offered Course

To find a harmonious balance between online access to knowledge and face-to-face human interaction, author has proposed enrichment in Teaching-Learning Experience of offered courses:

Suggestions to enhance Teacher Presence

- **Many teachers who are new to the online environment may concern about the impact of virtual classroom interaction. Similarly, many students who are new to online environment may worry about this new way of learning and greatly appreciate a support from teacher. Before starting LVOC, teacher may send 'Welcome Mail' to all enrolled learners. It may include profile of teacher and a message that greets the students and informs them as to how to get started and how to get help on course homepage.**
- **Plan a 'first exercise' (not related to course content) which encourages learners to interact with online environment and other follow learners. This activity should build a confidence that teacher is available, approachable, supportive, and actively interested in mentoring learners. For example, create a social space 'CollegeKatta' on the forum for students to do informal discussions not directly related to course but do casual conversation of their surrounding and sharing of daily lives. Teacher may also meticulously respond to each introduction individually so that class will know that teacher is interested in getting to know them. With this small change, learners will begin to feel comfortable responding to each other in discussion areas.**

Suggestions to enhance Social Presence

- **Learning within an online course community will work better for some students but some students may choose not to participate very actively at all. Teacher must plan few activities which require a formation of small**

study group of 2, 3 or 4 learners. In small group, learners can assume responsibility for supportive mentoring of fellow learners and summarizing key points of a class assignment/discussion.

- **Online courses can be more enjoyable and effective when learners have the opportunity to work through concepts and assignments with either one or more fellow students [1][4]. At the same time some students work and learn best on their own. Therefore, designing a variety of activities and experiences are essential to well working of the community. So, it is highly recommended to build an options and opportunities for learners to work in both modes, that is, together and individually.**
- **For example, assigning mini-project or collection of technical information of latest electronics gadgets which uses 'Digital Electronics' concept is more encouraging and enriching experience if learner are allowed to post related video or report on discussion forum.**

Suggestions to enhance Cognitive Presence

- **Immediate feedback to learner to each Self-Test question boosts cognitive presence as learner has to apply their understanding of course content from their own personal reflections and the readings. Hence, immediate feedback should be provided to each correct and wrong answer of Self-Test question.**
- **Use randomization in Self-Test question and its options**
- **On weekly basis, track learners progress, identify and assist learners quickly**

Focus on Content Resources and Links to Current Events

Learners enrolled in Online courses wish to do learning anywhere, anytime. Always login through Personal Computer or carrying around large, heavy textbooks and even laptops sometimes feels like an offbeat.

Content that can be accessed via smartphones, ipads, ipods, and mp3 players are welcome additions for many learners. Teacher should provide links for current events related to topic to be taught in LVOC. This strategy is mostly applicable to supplementary resources and library resources. At the starting of each online course, 'External Links for Learning Resource' and 'Learning Resource Repository' should make available.

Always Ask for Feedback or Suggestions on "How is the Course Going?"

Informal discussions with learners' or ask early feedback on what is working well in a course and what might help them have a better course experience. This early feedback will be helpful to do corrections and modifications for enjoyable learning experiences. Teacher may ask for suggestions or feedback by sending email to individual learner and create personalized touch in virtual environment.

Prepare Discussion Posts that Invite Questions, Discussions, Reflections and Responses

In online environment, 'Discussion Forum' should reflect discussions equivalent to class discussions in a face-to-face. In fact, online discussion forum is a powerful tool as they are asynchronous, requires written and/or audio response, provides time for thought and reflect. Hence, the post on discussion forum should encourage critical or creative

thinking of learners. It can be made more effective and human friendly by,

- **Creating Post or inviting questions for which learners have to apply the concepts that they are learning**
- **Asking 'Why', 'How', 'Clarifying' or 'propose an alternative strategy' type of questions that encourage learners to think about what they know and don't know.**
- **Providing guidelines to respond to other learners post such as 'what you liked or agreed with' or encourage learners by posting 'I would encourage you all to look through post .....'**
- **Always reminding the due dates of the task to be completed.**
- **Encouraging learners to submit online assignments in time and teacher should provide friendly feedback with smiley.**
- **Providing mid-point summary and/or encouraging comments on the received responses at the end of each month.**
- **Posting a 'How are you doing?' question in the discussion forum at least once in a week to create feeling of caring, an indication of teacher presence and learners are learning along with teacher.**
- **Posting announcement or comments about topic to be covered for example 'We focus in this week on..... or 'We continue this week with.....'**
- **Set the minimum number of postings required of each learner for each discussion with due dates to manage learners workload**
- **Providing choices and options for learners, especially for working professionals, to link the learning more directly with their work experiences and needs. This helps in developing personalized and customized learning.**
- **Developing scenarios like problem solvers which do not necessarily have a right or wrong answer but they create debate and get learner to think. This may possible in some courses only. However, it involves collaboration with others and brings together a range of different experiences and perspectives from others which are an advantage of e-learning.**
- **Reminding to 'Log In' to course at least 2 times a week - answer email, browse discussions, post reply, and do revision for the content covered in the week.**

Links to Current Practices and Examples that are Easily Accessed to Learners

Learners enjoy seeing how what they are learning links to current practices. Organizing course discussions and links to current practices or applications is often motivates to learners. So, encourage learners to make the use of Internet resources. The best way to enrich these resources is:

- **To include tutorials, simulations and supplementary material in course.**
- **Incorporate assignments and discussions which involves learner active participation in identifying high quality content available online**
- **To provide options and choices in assignments and special projects based on current practices**

Combine Core Concept Learning with Customized and Personalized Learning

When learner first time gets aquatinted with a new field or discipline, often focus on learning the vocabulary. Actually, this can be done without teacher support. Hence, the

job of teacher is not only to make learners aware about core concept and learning objectives of course but make learners' thinking visible. Provide more attention on interaction and engagement of learner with the core concepts and skills of a course. Therefore Teacher must teach in a linear fashion to stimulate learner's growth from concept awareness to concept acquisition. With use of Discussion Forum, Blogs, Journals and small group activities, teacher can engage learners to create, talk, write, explain, analyze, judge, report and make thinking visible. Hence, personalize learning by providing freedom to use various tools while performing task.

Plan A Good Closing Activity for the Course

In online environment, well designed ending of a course provides opportunities for reflection and integration of useful information covered in the course. It should include reports, summaries and analyses of activities performed by learner in due course of time with grade performance. These provide insights into just what useful knowledge learners are taking away from a course and where there is scope of performance improvement.

Least but not the Last, Teachers Should have Competencies to Do Online Teaching

Many excellent classroom teachers have great difficulty to teach in online environment (Wolf, 2006). There may be an access issue and/or it is a matter of being comfortable using technology. In order to teach well in online, a high degree of comfort with the tools and systems being used is required such as discussion forums, chats, Powerpoint, emails, Video, Animations, LMSs etc. To make teachers confident about online teaching environment (Kircher, 2001), University may adopt one of the following strategies:

- **Establish *training programs* to prepare teacher to *teach online*. Creating short-5 to 7 minute-demonstrations or mini-lectures using the tools and systems they will be using when they teach might be a good practice. This will provide better understanding of online teaching and required competencies (Wolf, 2006).**
- ***Teacher* should have firsthand experience as *online learners* in order to understand how to be effective in an online environment. There are many free online courses (Referred Websites) are offered by MIT (edX.org), Stanford (Coursera.org), iversity.org, udacity.com etc. Recommend to Teacher to explore at least one module and assessment approach from any free online course to know 'how to become interactive, social and accessible in online environment'.**

CONCLUSION

In order to capitalize the strengths of 'Live Virtual Online Class (LVOC)' and to create a more active learning environment for YCMOU learners, authors have suggested enrichment in the design and delivery of offered courses. While offering a collection of LVOCs as online courses,

- **Be focus on interaction and engagement of learners with the core concepts and skills of a course.**
- **Offers various Synchronous and Asynchronous tools for reinforcing key concepts and understandings**
- **Develops a habit in learner for asking questions and interact with peers**
- **Supports the community of learners and contributing to the overall growth of**

the group
- Develops activities which require extensive use of 'Learning Resource Repository'
- Offers Freedom and power to use various eLearning tools
- Blended mode with feedback-oriented approach to teaching is essential as online courses are not the right fit for all learners.

By incorporating these small changes along with LVOC, School of Science and Technology can enrich learning experience better for every learner.

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