

Exploring the Models of Designing Blended & Online Learning Courses for Adoption in Regular Teacher Education Course

Abstract

Models of online and blended teaching-learning have a unique feature regarding their development. The changes here are brought by technological advances, and only with the accumulating experiences of teaching, the pedagogical understandings have emerged. Online and blended learning modes have several features that support the fast-changing needs of professions. The Teaching profession is a profession where the changes in content happen at a relatively slow pace. The slow pace of change is one of the reasons that online and blended education has not been adopted in teacher education. The teacher education institutions should step forward to take up the responsibility to integrate blended online mode in their practice. It is in this context the study identified the potentials of different online course design models for use in a regular teacher education course. The surveyed models are Classroom type online learning, Massive open online courses (MOOCs), ADDIE Model, Online Collaborative Learning (OCL), Community of Inquiry (COI), Competency-based learning (CbL), Communities of practice (CoP). Their merits, demerits and potentials for being used in a regular mode teacher education course had been explored. The study concluded that the best suiting model was the Community of Inquiry (COI). Templates for designing blended and online courses based on COI had been suggested.

Keywords: Models of online learning, Community of Inquiry (COI), teacher education, Online module design

Introduction

Online and blended learning modes are being adopted in professional courses world over. They have several features that support the fast-changing needs of professional education. The teaching profession is a profession where the changes in content (for pre-service education) happen at a relatively slow pace. In India, since independence, the first serious change in curriculum, content, and duration happened in 2015, and many among the stakeholders are reportedly not happy about it. The slow pace of change is one of the reasons that online and blended education has not been adopted in teacher education in India.

There are other challenges also for educators in adopting online mode. They

need to understand the potentials of the new mode and adapt their teaching content and teaching strategies to realize them. For example, they need to change the linear, logical structure of contents as given in textbooks. They also need to identify a useful model or design for constructing e-learning and blended learning courses. There are several course designs available for creating online learning modules. The differences among them are related to their differences in epistemological perspectives, technologies in use, teaching methods, and objectives of learning.

These variations in models of online teaching-learning are also due to a unique feature regarding the development of online mode. The changes here were brought by the technological advances, and with the

accumulating experience of teaching in the mode, people developed pedagogical understanding regarding it. In other words, we first get a new technology or technological advancement, then think about their various implementations.

In the beginning, the designing of online teaching-learning had only two influences: there were designs replicated from classroom teaching, and there were designs adapted from print or multimedia distance education courses. With time, several new designs have emerged which are capable of exploiting the potentials of online learning, but the primary forms have also survived. This study attempted to explore the models of online learning.

Objectives and method of study

The objectives of the study were to

- O₁** Explore the merits and demerits of the different models of designing online courses.
- O₂** Identify their potential for using them in a regular teacher education programme.
- O₃** Develop templates for designing online and blended mode teaching.

This work is based on information and observations about the models in secondary sources. For the first and second objectives (**O₁ & O₂**), the literature on the subject was explored, and the merit and demerits of the models were identified. The researcher created a checklist for determining the usability of the different models for a regular mode teacher education course. The templates for designing online and blended modules as per the third objective (**O₃**) were developed by the researcher.

Online Models

Online learning is a changed learning environment as compared to the formal atmosphere of classrooms. The focus here shifts from teaching methods or strategy to designing models in such a way that arises, holds and directs the students' interest in meaningful learning. The seven models in purview here are Classroom type online learning, Massive open online courses (MOOCs), ADDIE Model, Online Collaborative Learning (OCL), Community of Inquiry (COI), Competency-based learning (CbL), Communities of practice (CoP). They were explored with the purpose of using them in a regular mode teacher education course.

Classroom Type Online Learning

Automatically recorded classrooms and flipped classrooms are two main forms of this design. They primarily focus on serving the needs of revision, absentees, and for better use of classroom time. Assessments in this model are almost at the same patterns as of the face-to-face classrooms. An example of this model is MIT classroom lectures recorded and made available through MIT's Open Course Ware.

The merit of the classroom type design is that it gets assimilated well with the traditional teaching practices. But, due to this reason only, many of the commentators consider it inadequate to meet the challenges of the digital age. Especially, it is considered incapable of supporting higher-level learning. At the same time, a simple imitation of the classroom, in the form of recordings, is inferior to the actual classes at least for the less motivated learners. It may merely increase cost without contributing anything significant. An indication of the features of the model is given in Table 1. It suggests that it is not very cost-effective. It also needs a higher level of technological skills.

Table 1: Identification of the potentials of Classroom Type Online Learning

Cost-effective	Blend with Face-to-face Mode	Individualised Learning	Increased Peer Interaction	Increased Teacher Interaction	Skills/ Tools Required
High cost of recording equipment and editing work hours	Needs high-level technical skills to earmark video minutes	Difficult and Costly	Only when used in an LMS environment like Moodle	Only when used in an LMS environment like Moodle	Recording with high video audio quality, Using editing software, Managing Online LMS/ YouTube Channel

Massive Open Online Courses (MOOCs)

Massive Open Online Courses (MOOCs) can also be considered as an advanced format of classroom type online learning. Due to the variations in the epistemological perspectives, the MOOCs deserve a separate treatment as online course design. In its most popular form, Massive Open and Online Course (MOOC) is a behaviourist oriented information transmission model. The mode of teaching is mainly through online short lectures in the form of recorded videos. It is combined with automated online testing, and sometimes the peer assessment is also used (Bates and Bates, 2015). This initial form is known as 'xMOOCs'. There are other variations like cMOOCs (Connectivist MOOCs).

The key design feature of cMOOCs as identified by Downes (2014) is the autonomy of the learners which means that the

learners choose what content or skills they want to learn and there may be no formal curriculum. The second feature is diversity. There are variations in tools used, variety of participants, their knowledge level, and variety of content. Another feature is interactivity which is in forms of cooperative learning. It provides ample scope for communication among participants, and this interaction is the base of emerging knowledge among the students. Transparency is maintained regarding access to information, content, activities and assessment. The structure of cMOOCs is not predetermined. They evolve through the process of interaction and discourse. Online platforms like Qura.com is one such example. Even more designs of MOOCs are still evolving. Hence, there is some confusion about the definition and goals of MOOCs. An indication of the features of the model is given in Table 2. It suggests that it is not very cost-effective. It also needs a higher level of technological skills.

Table 2: Identification of the potentials of MOOCs

Cost-effective	Blend with Face-to-face Mode	Individualised Learning	Increased Peer Interaction	Increased Teacher Interaction	Skills/ Tools Required
High cost of equipment and editing work hours	Less flexibility if the only recorded class are used	In some variations of MOOCs	When used in an LMS environment like Moodle	When used in an LMS environment like Moodle	Recording with high video-audio quality, Using editing software, Managing Online LMS/ YouTube Channel

The ADDIE Model

ADDIE stands for five steps modelling and implementing of learning design. ADDIE is **Analyse, Design, Develop, Implement, and Evaluate**. In the analyse phase of ADDIE, the variables like learner characteristics, learners' prior knowledge, resources available, etc. are considered. In the design phase, the learning objectives for the course and creation and designing of material is decided, and decisions about content and their format of presentation (video, audio, text, audio-visuals) are taken. The development stage includes identification of activities to fulfil the course objectives, analysis of textbooks, content module development and content chunking, the creation of new content, development of learning objects, development of tools for student assessment and additional resources to support learning. The Implementation stage starts with the announcement of the course. The instructor should provide ample scope for communications among the learners and for the learner-instructor communication. The evaluation is the last stage of the cycle of the ADDIE model, but it is advised to keep

getting feedback on each of the stages as far as possible.

There are certain limitations to the ADDIE model. It is good for large and complicated courses. Still, it may be expensive and redundant for a small or traditional class because it focuses more on the design and development of content. Another limitation is that the extensive application of the model results in a sharp division of labour. It may involve faculty members, instructional designers, editors, web designers. It becomes costly and expensive. Due to the substantial infrastructural, human resource requirements, this model may not respond to rapidly developing new content, new technologies or apps being launched daily, and to a continually changing student base. Thus, the ADDIE model provides a good foundation for designing teaching and learning. Still, it is a predetermined, linear and inflexible model that may fail to handle more volatile learning contexts. An indication of the features of the model is given in Table 1. It suggests that there are certain limitations relating to cost. It also needs a higher level of technological skills and a bigger group of members.

Table 3: Identification of the potentials of ADDIE

Cost-effective	Blend with Face-to-face Mode	Individualized Learning	Increased Peer Interaction	Increased Teacher Interaction	Skills/ Tools Required
Not cost effective for small part of a traditional courses	Flexible	Possible if planned. By accounting previous knowledge of learners and providing different learning paths	Possible if adopted in the design	Possible	Planning and management skills, Pedagogic knowledge, Managing online LMS

Competency-based Learning

Competency-based learning is a model that is based on identifying relevant specific competencies or skills and supports the learners to master them at their own pace. Learners work individually rather than in a group. They can do it just for learning sake or for some form of certification.

Competency-based learning is a four-step model. Starting with defining the

competencies in forms of overt or covert behaviour, it develops up to evaluation. Learner support or mentoring is a crucial part of the model. Learning is designed in a progressive manner. They are also coherent as they all constitute a specific job-related ability. It supports the learners to learn at their own pace.

There are certain limitations to this model. It is more focused on job orientated teaching. So non-job specific learning is not

convenient in this model. It is not suitable for the subject areas where it is difficult to identify specific competencies. It is not suitable for a constructivist approach. It also ignores social learning. It is also less effective for developing the higher-level skills

requiring creativity, high-level problem-solving and critical thinking. An indication of the features of the model is given in Table 4. It suggests that it is cost-effective but not if individual mentoring is included. It needs less number of technological skills.

Table 4: Identification of the potentials of Competency-based Learning

Cost-effective	Blend with Face-to-face Mode	Individualised Learning	Increased Peer Interaction	Increased Teacher Interaction	Skills/ Tools Required
Yes But Individual mentoring is costly	Flexible but fit for job orientated courses	Yes, Inherent in the design	Yes, Possible	Yes, Inherent in the design	Leadership, Guiding skills, IT skills

Online Collaborative Learning (OCL)

The constructivist approaches to learning and the growing uses of the Internet have led to the development of computer-mediated communication (CMC), or networked learning. In a developed form, it is now called the Online Collaborative Learning (OCL) theory. Harasim (2012, p. 90) describes the OCL as a model of learning which encourages to support the students to create knowledge

together. They are invited to invent, to explore the ways to innovate. During the process of exploration, they seek the conceptual knowledge that is needed to solve problems. They are not supposed to recite the right answers. In this theory, teachers play a key role in linking the students to the knowledge community, or to state of the art in the discipline they are working. Learning in this context is defined as conceptual change rather than behavioural change.

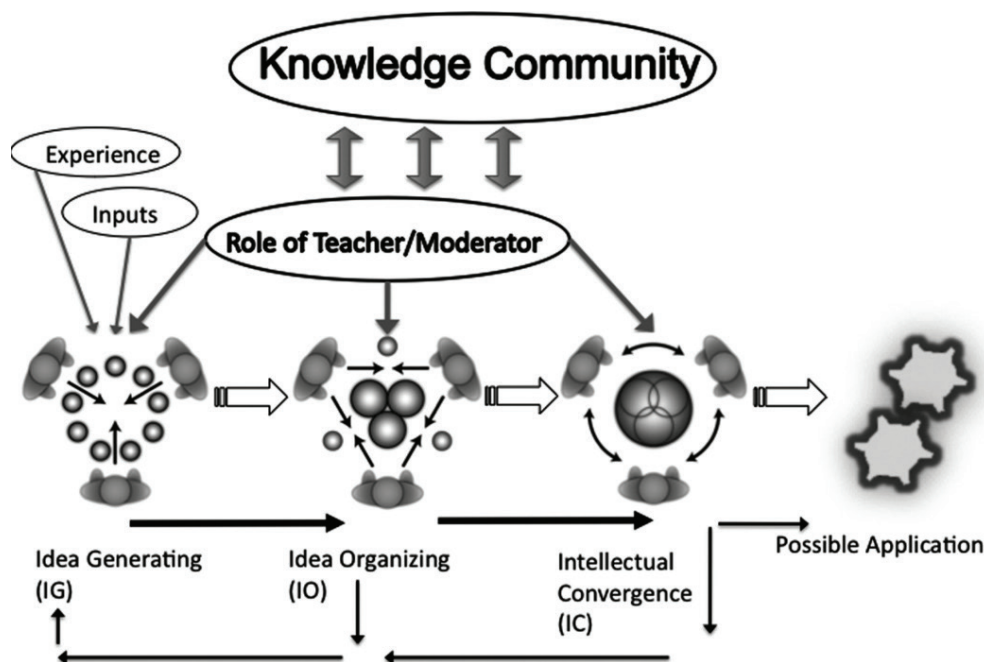


Figure 1: Three phases of online collaborative learning

Harasim (2012) discussed three key phases of knowledge construction, as depicted in Figure.1:

- **Idea generating (IG):** Participants do brainstorming to collect the divergent thinking on given topics.
- **Idea organising (IO):** Participants discuss and argue about the ideas generated in the previous phase. They compare, analyse, and categorise the new ideas.
- **Intellectual convergence (IC):** In this phase, the participants reach a level of intellectual synthesis, understanding and consensus (including agreeing to disagree). It is usually achieved through the joint construction of some artifact or

piece of work, such as an essay or assignment. The design is set in such a manner that the participants can go back to the previous phase at any point.

The key design principle of OCL is to make discussion a core activity and supplement it with textbook, videos and other things, not the other way round. The participation in the discussion activities should become an intrinsic desire among the learners, not just a compulsion to fulfil the grade requirements. An indication of the features of the model is given in Table 5. It suggests that it is cost-effective if free software are used. It also needs a higher level of technological skills.

Table 5: Identification of the potentials of Online Collaborative Learning

Cost-effective	Blend with Face-to-face Mode	Individualised Learning	Increased Peer Interaction	Increased Teacher Interaction	Skills/ Tools Required
Cost-effective if free tools like Google Drive are used for collaboration	Fit for higher-level leaning;	Yes, inherently	Yes, inherently	Yes	IT skills, Peer matching, Leadership, Guiding skills, Working knowledge of online software

Community of Practice

The community of practice (CoP) is a model in which experiential learning, social constructivism, and connectivism can be combined. Wenger (2013) defines Communities of practice as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.” According to Wenger, there are three characteristics of a community of practice. They are:

- **Domain:** a common interest that connects and holds together the whole community.
- **Community:** a group of people bound by the shared activities they pursue (for example, meetings, discussions) around their common domain.
- **Practice:** In a community of practice, members are called practitioners. What-

ever they do in the context of the common interest informs their participation in the community, and whatever they learn from the community affects what they do.

CoP is a self-organising system. It does not have a formal design. But in the course of time, the researchers have identified a number of actions that helps in creating CoP. Wenger et al. (2002) have identified seven key design principles to support a community of practice. They are as follows:

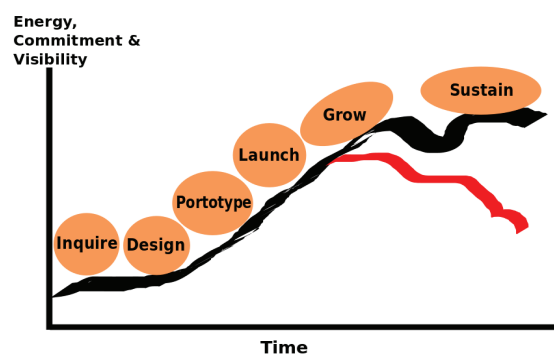
- **Design for evolution:** The community must have the flexibility to accommodate the interests of participants without going too far from the issues of common interests.
- **Dialogue between inside and outside perspective:** New perspectives from outside the community should be introduced

and discussed on a regular basis.

- Encourage and accept the different level of participation: Different levels of engagement should be allowed. For example, some of the participants are core members; some others who participate regularly but do not contribute much; still others who do not participate regularly but contribute significantly at times.
- Develop both public and private community spaces: The participants should be allowed to work in small private groups or if they want they can choose to be more public by initiating general discussion for example by writing on blogs or social media sites.
- Focus on value: The core values of the community should be emphasised through feedback and discussions.
- Combine familiarity and excitement: Besides the discussion on common concerns and perspectives, radical and challenging perspectives have to be introduced at times.
- Create a rhythm for the community: The community should follow a regular schedule of activities while considering the participants time and other constraints.

Researchers also talk about the life cycle of the CoP. They held that it emerges, it grows, and it has a life span. Figure No. 4 depicts these phases. Initially, in the inquiry phase, audience, purpose and vision for the community are identified. In the design phase, the activities, group processes, technologies, and roles to support the community's goals are defined. In the third phase of the prototype, the key stakeholders are identified, and they become committed to the purpose. With this success in hand, the fourth stage of launch opens the community for a wider audience. Proactive engagements

are planned for the community members by creating and increasing the cycle of participation and contribution. This makes the fifth phase of development. The whole activities and inclusion of new blood have to the community have to be maintained for a longer time to sustain it till it gets institutionalized. That is the sixth phase.



The merit of CoP is that it connects people who are otherwise dispersed and disconnected. It provides them with a shared context and enables dialogue among them. It stimulates learning and diffuses existing knowledge to widespread people. It also introduces collaborative processes and helps people organise around purposeful goals. Overall it generates new knowledge for them.

By nature, CoP is outside formal educational organisations, as the participants are not looking forward to getting any kind of degree. Yet, it can be used as informal study groups in formal Settings. In their design, they can be compared to connectivist and constructivist MOOCs. One of the merit as well as demerit of this model is that there is no single right design for it. The specific needs of the community guide its structure and development. An indication of the features of the model is given in Table 6. It suggests that it is cost-effective. It also needs a number of skills.

Table 6: Identification of the potentials of Community of Practice

Cost-effective	Blend with Face-to-face Mode	Individualised Learning	Increased Peer Interaction	Increased Teacher Interaction	Skills/ Tools Required
Yes	Fit for non-academic self-motivated learning	Yes, Inherently	Yes, Inherently	Possible but generally not required	Soft Skills, IT skills, High Emotional Quotient required, Leadership,

Community of Inquiry (COI)

The Community of Inquiry (CoI) framework was developed by Garrison et al. (2000). It provides a framework that helps in addressing the challenges of online and blended learning environments. Its elements are depicted in Figure No. 2. They are named as social presence, cognitive presence, and teaching presence. As depicted in the figure, set in a communication medium, the educational experience is possible when all three 'presence' intersect. The teacher plays a role by selecting content and setting the climate for learning. A supporting discourse for creating a rationale for social interaction among the students and between teacher and students should be propagated by the teacher.

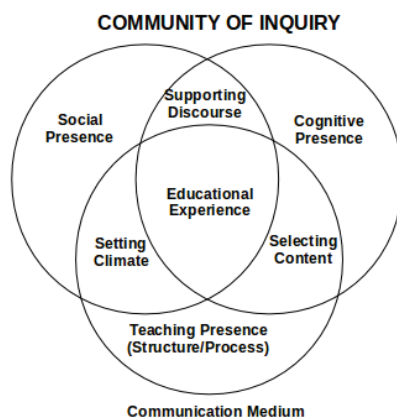


Figure 2: Community of Inquiry Framework

This framework is inspired by John Dewey's philosophy. His approach to teaching and learning is known as Collaborative-Constructivist Approach. The framework holds that an educational experience is embedded within a community of inquiry that is composed of teachers and students. The community is considered as essential for supporting collaborative learning and discourse, providing higher levels of learning. As Garrison and Vaughan (2008, p.9) elaborate, the CoI is based on the two ideas that are essential to a higher level of education: 'community' and 'inquiry'. The community recognises the social nature of education. It stresses the role of interaction, collaboration, and discourse in constructing knowledge.

The inquiry is the process of constructing meaning by the students through personal responsibility and choice. Thus, the cohesiveness and interactive community of learners are two ingredients of COI. The purpose of COI is to "critically analyse, construct, and confirm new knowledge." The framework of COI provides a means to integrate these elements and facilitate the designing for deep and meaningful educational experiences. (Garrison and Vaughan, 2008, p. 9)

6. Table No. 7: Elements of COI (Adopted from Garrison et al, 2000)

ELEMENTS	CATEGORIES	INDICATORS (examples only)
Social Presence	Open communication Group cohesion Affective expression	Risk-free expression Encourage collaboration Emotions
Cognitive Presence	Triggering event Exploration Integration Resolution	Sense of puzzlement Information exchange Connecting ideas Apply new ideas
Teaching Presence	Design & organisation Facilitating discourse Direct instruction	Setting curriculum & methods Sharing personal meaning Focusing discussion

Social Presence

The role of social presence in educational settings has been studied the most extensively, in both online and face-to-face course settings (Garrison and Arbaugh, 2007). Social presence is about the environment of social interaction among students and teachers. The categories of social presence are open communication, group cohesion and affective expression (See Table 5). Garrison and Vaughan (2008, p. 19–20) elaborates that for involving in the community of inquiry, the students must be provided with an open and risk-free environment. They should be respected as individuals, but at the same time, they should feel responsible and committed to the community of inquiry.

Besides social presence, cognitive presence is required for higher levels of learning, purposeful discourse to collaboratively construct, critically reflect, and confirm understanding.

Cognitive Presence

Cognitive presence, in essence, represents the inquiry process. In this process, the reflective and interactive processes are integrated. The cognitive presence has a cyclical inquiry pattern in which learning starts from experience, moving through reflection and conceptualisation to action and again move on to further experience. This is illustrated by the Practical Inquiry

Model (see Figure 3). This model has two dimensions and four phases.

As depicted in Figure 3, the vertical axis defines the deliberation–action dimension. This dimension represents the repetitive nature of inquiry as representing both constructive and collaborative activities. The horizontal axis represents the perception–conception dimension. This process constructs meaning from experience. Although the dimensions are abstracted processes, the phases of inquiry resemble more closely the educational experience.

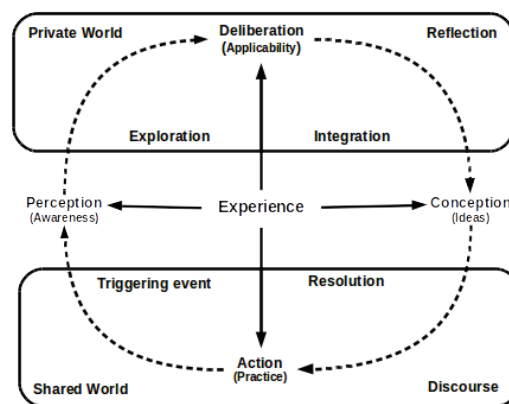


Figure 3: The practical inquiry model

The first phase is the triggering event, whereby an issue or problem is identified and defined. The second phase is the exploration of the problem and the gathering and refinement of relevant information. In the third phase, participants begin to reconcile and make sense of the information. Solutions

are hypothesised and debated. In the final phase, the preferred solution is applied and tested directly or vicariously. It may trigger another cycle of inquiry if the solution is not satisfactory. Cognitive presence is a recursive process that encompasses states of puzzlement, information exchange, connection of ideas, creation of concepts, and the testing of the viability of solutions, but not necessarily in a linear order. (Garrison and Vaughan, 2008).

Teaching Presence

Teaching presence is the presence of an experienced facilitator. It is essential for creating and sustaining a community of inquiry. It provides the design, facilitation, and direction for a worthwhile educational experience. Regarding online teaching effectiveness, Conrad (2005) reports in her research that students stated simply that “Good instructors created community, poor instructors didn’t” (p. 12). Students perceive a strong connection between a successful learning experience and teaching presence. The unifying force of teaching presence is essential to create and sustain a community of inquiry in a blended environment when students are shifting between direct and mediated communication.

Strengths and weaknesses of CoI

Like OCL, CoI also uses a constructivist approach in computer-assisted learning.

Table 8: Identification of the potentials of Communities of Inquiry (COI)

Cost-effective	Blend with Face-to-face Mode	Individualised Learning	Increased Peer Interaction	Increased Teacher Interaction	Skills/ Tools Required
Yes	Fit for blended learning	Yes, Possible	Yes, Possible	Yes, Inherently	IT skills, Peer matching, Leadership, Guiding skills,

Summary of findings

We examined the structure and merits of various models of online and blended learning. Some of them can be blended with a regular

They use technology to increase and facilitate communication among learners and teachers. Their approach to learning is based on knowledge construction through social discourse.

They can help in creating deep and transformative learning as achieved by classroom discussions. They also assist in developing critical thinking, analytical thinking, synthesis, and evaluation. These high-level intellectual skills are considered significant for learners in a digital age.

These models require highly knowledgeable and skilled instructors. Its limitation, as discussed by Bates and Bates (2015), is about epistemological positions. He states that these models are “more likely to accommodate to the epistemological positions of faculty and instructors in humanities, social sciences, education and some areas of business studies and health and conversely it is likely to be less accommodating to the epistemological positions of faculty in science, computer science and engineering. However, if combined with a problem-based or inquiry-based approach, it might have acceptance even in some of these subject domains.” An indication of the features of the model is given in Table 8. It suggests that it is cost-effective. It also needs less number of skills.

mode teacher education course. They are cost-effective and promote interaction among the learners. Community of Inquiry (COI) model is more suitable for a formal setup. Though Competency-based Learning can be

used for enhancing the skills of teaching-learning, COI is suitable for philosophical, psychological, and sociological aspects of the teaching curriculum. It is cost-effective. It also promotes peer and teacher interaction. It is not too demanding regarding the skills. Another merit of this model is that it can be used for both blended and fully online mode of teaching.

Implications of COI for teacher education in India

In a democratic nation, education as a social institution is responsible for inculcating a democratic ethos among citizens. But in Indian education, the democratic spirit is missing in the functioning of classrooms itself. We are yet to shed off the colonial legacy of producing obedient and 'civics-ised' citizens for the British Empire. With the legacy of John Dewey, the COI can provide a framework of practices to support responsible citizenship. In a study on a similar concept of the classroom community of inquiry, Brubaker (2012) found that such endeavours can provide a framework for negotiating authority and generate knowledge that "is important for informing efforts to foster democratic teacher education practices and prepare future teachers to teach reflectively." Another research related to Garrison's Community of Inquiry has found that social presence as an important factor for engagement with the new concepts, sense-making and peer support. Based on the patterns identified in the study, in his paper Armellini (2016, p.1202), suggests that in Community of Inquiry framework, social presence is more prominent than it was thought earlier, thus emphasising the discussion and collaborative decision-making process.

Another significant factor is the issue of evaluation raised for all levels of education in India. An obsession with educational outcomes and a focus on the examination have distorted learning environments and thereby, the learning experiences of the

students. It is underlined in this model that the focus on assimilating measurable, although trivial, information should be minimised. Garrison and Cleveland-Innes (2005) state that higher educational outcomes are very difficult to define and measure. He says that outcomes change as students engage in the educational process and activities are modified. Garrison and Cleveland-Innes quote Burbules (2004) as, "Outcomes are constituted and reconstituted in active processes of inquiry, not taken as static endpoints" (p. 7). Unintended learning outcomes can be most educational. True inquiry is exploratory and often unpredictable. Burbules (2004) goes on to say that the "question of educational quality should be sought. . . in the reflexively critical and liberating activities of the classroom itself" (p. 9).

COI attempts to engage students fully in the educational process. It provides students with an interactive succession of learning experiences in the form of an inquiry cycle that leads to the resolution of an issue or a problem. Student's awareness of the inquiry process is crucial to complete the inquiry cycle and to prevent its premature closure. Thus, it ensures the learner-centric nature.

Another important issue relating to learning is metacognitive skills. Metacognitive awareness must be a goal of higher education for students to monitor and manage their learning. Metacognition is the regulation of cognition, which includes self-appraisal (assessing what needs to be done) and self-management (successfully carrying out the learning task). Engaging students in a higher-order learning experience requires that students have some metacognitive understanding of the inquiry process. In other words, students should learn how to learn. The teaching presence is expected to shape cognitive and metacognitive processes for the students. Thus, roles and responsibilities are well defined in this system.

In order to fulfil her role, the teacher is expected to be aware of the potentials and possibilities of the software support in the

teaching-learning process. She should also have a well-developed plan to exploit those potentials.

The Teacher Technologist

The phrase ‘teacher technologist’ is not to scare away the non-technical or less techno-savvy persons. It is not to say that every teacher using CoI should be a software engineer. On the contrary, it is to say that they should only know about the potentials of the content management system (CMS) like Wordpress or learning management system (LMS) like MOODLE. The following steps are suggested for the teachers for implementing blended or online mode:

- The teacher should read in-depth about the LMS or CMS used in the institution.
- It is also not necessary that the teacher should wait for the institutional initiative in this direction. The teacher can implement them at the individual level also. Both Wordpress and MOODLE provide installed setup on their servers. There is no need of knowing about any programming language or commands. They provide graphical user interface (GUI), where the teacher will need to fill information, upload images etc.
- In institutional conditions, there are various other options available, like editor teacher and non-editor teacher. A non-editing teacher can send her content to the administrator for creating the course and only supervise the student’s activities.
- MOODLE also provide a free online instructor supervised course for new and budding MOODLERS each year.
- The teacher should explore the available designs for the courses. For example, MOODLE course can be designed in many ways like topical basis or weekly basis. It means that the teacher can design a class where student have to complete the learning task on weekly basis

or she can design a class where they will complete the learning task topic-wise.

- The skill of writing a course in the MOODLE or Wordpress software is marginally above the skills required for writing an e-mail and preparing a word file. No programming code knowledge is needed.
- The CMS and LMS systems run on plug-ins. Plug-ins are added software to the main implementation to enhance their functionalities and user facilities. The teacher should explore the plug-ins to find out what can be useful for her and request the site administrator to activate them.
- There is a huge community of the users related to Wordpress and MOODLE. They provide support through forums. The teacher can get help there. She can also develop a local user group.

Thus, it is not too challenging to use a MOODLE or Wordpress site. But for implementing a CoI based program, the teacher should have a plan. Some suggestions regarding that are provided in the next section.

Template for course modules for blended and online mode teaching

For the third Objective (O₃), a set of course designs based on the Community of Inquiry Model is illustrated. The template identifies five aspects of the course design. The first aspect is the element of the COI that is in focus. As discussed above, the three elements of COI are complementary to each other, but they are not separate events. They overlap when the learning event is executed. The second element is the mode that is being used for the execution of the event. They can be face-to-face or online. There are two options for online interaction: synchronous and asynchronous. For synchronous interaction, the students and instructor have to be present for online discussion on the

stipulated time. It can be conducted through online instant messaging. The asynchronous strategies have no such compulsion. The next element is strategies for conducting the activity. They can be classroom-based or

online. Next two elements are the nature of execution and expected result of the event. In Table No. 9, a template for blended mode teaching is depicted.

Table 9: Template of the blended teaching for a regular teacher education course

Day No.	Element	Mode	Strategy	Nature of Execution	Expected Result
Day 1	Social Presence Cognitive Presence	Face-to-face	Classroom Discussion	General discussion relating to the topic, Open and fearless expression, Without hesitation	Creation of general opinion. Identification of elements for discussion by the teacher
Day 2	Teacher Presence Cognitive Presence	Face-to-face	Classroom Discussion	Discussion of the broader context of the issue by the teacher (social, technical, philosophical)	Awareness of broader contexts of the content of the study
Day 3 to 5	Cognitive Presence	Online asynchronous	Programmed Learning	Browsing of course pages; Monitoring of online activity by the teacher (in LMS environment)	Mastering over Content
Day 3 to 5	Social Presence & Teacher Presence	Online asynchronous	Forum Discussion	Interaction in forum: asking questions, sharing observations	Analysing the content
Day 6	Social Presence Teacher Presence Cognitive Presence	Face-to-face	Classroom Discussion	General doubt clearing, Raising questions by teacher, Generalisation by teacher	Consolidation of knowledge
Day 7	Cognitive Presence	Self-work	Assignment relating to topic	Assignment by the students on a selected topic	Elaboration of new knowledge

The design for online teaching is not sharply different for online learning. The main differences are regarding the mode and strategies of the design. In online mode, we used the parallel strategies we use in

face-to-face mode. For example, classroom discussion is substituted by forum discussion. The description of online design is depicted in Table No. 10.

Table 10: Template of online teaching for a regular teacher education course

Day No.	Element	Mode	Strategy	Nature of Execution	Expected Result
Day 1	Social Presence Cognitive Presence	Online asynchronous	Online Forum Discussion	General discussion relating to the topic, Open and fearless expression, Without hesitation	Creation of general opinion. Identification of elements for discussion by the teacher
Day 2	Teacher Presence Cognitive Presence	Online asynchronous	Online Forum Discussion	Discussion of broader context of the issue by the teacher (social, technical, philosophical)	Awareness of broader contexts of the content of study

Day No.	Element	Mode	Strategy	Nature of Execution	Expected Result
Day 3 to 5	Cognitive Presence	Online asynchronous	Programmed Learning	Browsing of course pages; Monitoring of online activity by teacher (in LMS environment)	Mastering over Content
Day 3 to 5	Social Presence & Teacher Presence	Online asynchronous	Online Forum Discussion	Interaction in forum: asking questions, sharing observations	Analysing the content
Day 6	Social Presence Teacher Presence Cognitive Presence	Online synchronous	Online Forum Discussion	General doubt clearing, Raising questions by teacher, Generalisation by teacher	Consolidation of knowledge
Day 7	Cognitive Presence		Assignment relating to the topic	Assignment by the students on a selected topic	Elaboration of new knowledge

Suggestions for implementation of CoI in Indian condition

Implementing CoI in teacher education institution is a challenging task. The following suggestions are useful for practicing CoI in Indian conditions.

- **Motivating the learners:** One important challenge is to motivate the learners to take up the responsibility of learning. They are habituated to information feeding through their previous learning experiences. The cooperation of all the faculty members is needed here. If some of them are following the old system of providing content, it may create a discontent about the new method.
- **Changing the curriculum:** The curriculum of most of the teacher education institution is oriented towards the teacher-centric lecture method. In this method, the learning content is divided into small lessons, and the teacher delivers it to the students in class. CoI works in a different order. Once, the teacher completes motivational activity relating to a broad topic, It is expected that the learner will engage themselves with the learning content with a zeal to explore and inquire. They will interact with peers and teachers to construct their knowledge. This kind of requirement cannot be filled with a short

duration class period of 50-60 minutes. They ought to work for at least a week or a fortnight to complete a list of task in their preferred sequence and manner.

- **Including process evaluation:** Evaluation is another challenge in CoI. Just giving projects and assignment are not sufficient. The students will only work during the closing dates of submission. The strategy is to put markers on different activities to be done by the students during the phase. For example, if they are to visit the library, they can give or get a token signed by the librarian. If they have to conduct a group activity, a record should be maintained and undersigned by all of the participants. These clues can be assigned some scores, and each of them have to achieve a minimum score for successful completion of the task.

Conclusion

This study noted the structure, functions and limitations of different online and blended models. But these models are products of western academic cultures that have integrated ICT into their regular practices. In Indian conditions, the expansion of ICT is yet to influence mainstream education practices in a serious way. The work culture of educational institutions is yet to consider

digital technologies as a reliable partner in transacting new knowledge. The students too are only slowly turning to the ICT for addressing the gaps in their learning. The attempts by governments have resulted in only Classroom type and behaviourist MOOCs. They are far from reaping the full potential the technologies. For a better result, the faculty have to come forward and take the initiative to change the pattern of teaching-learning practices. CMS like Wordpress and LMS like MOODLE are very user-friendly. They are intuitive, and teaching faculty can use them without much effort.

1. Figure 1 Source: <https://opentextbc.ca/teachinginadigitalage/wp-content/uploads/sites/29/2014/11/Harasim-Figure-6.3.jpg>

2. Figure 2 Source: Redesigned from <https://library.educause.edu/files/library/2005/1/nli0531-pdf.pdf>

Acknowledgement

This work is a part of experimental study relating to a PhD work 'A Study of Effectiveness of e-Learning and Blended Learning Among B.Ed Students' under supervision of Dr Lalit Kumar, Professor, Faculty of Education, Patna University, Patna. I thank my guide for his advice and encouragement to excel. I thank the management of Patna Women's College; Head and Dean, Dr. Upasana Singh; and all the faculty members who supported the research project. I also thank the B.Ed. Students of session 2015-17 to 2017-19 for their willing support and participation.

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