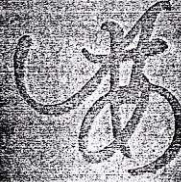




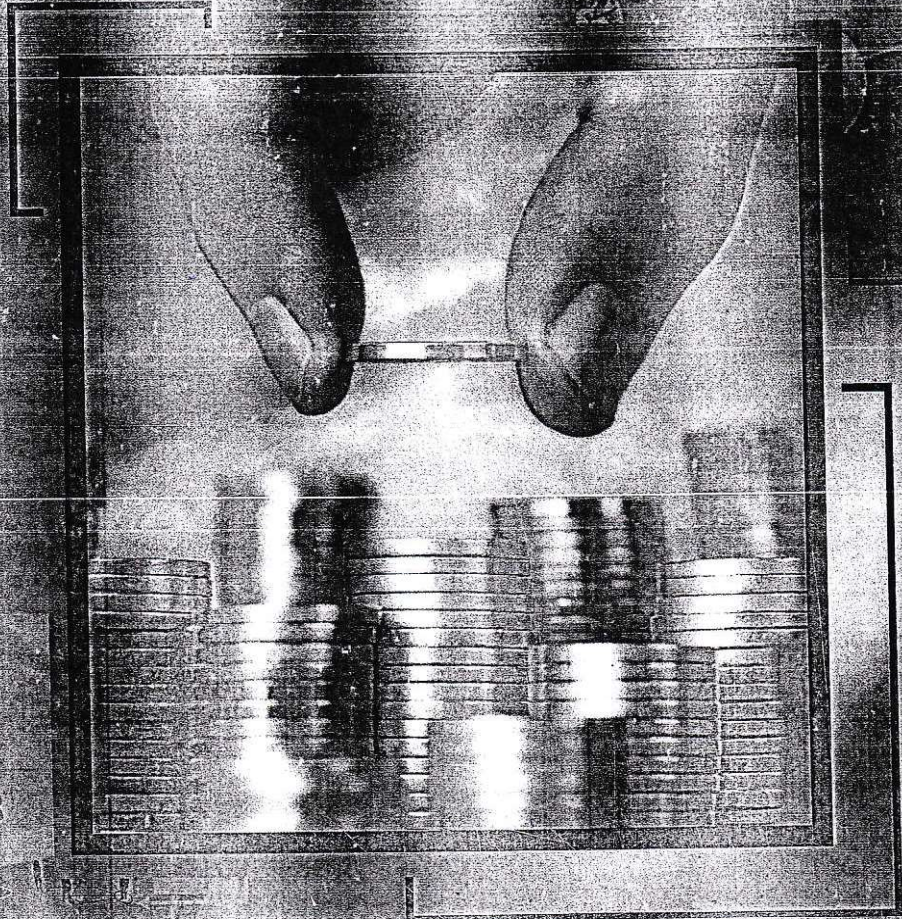
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डॉ. नंदकिशोर मुळे

अर्थशास्त्र विभाग प्रमुख व संशोधक मार्गदर्शक, सुंदररावजी सोळंके महाविद्यालय, माजलगाव, जि. बीड.

### प्रस्तावना

कॅरोल स्ट्रीटरने ज्याचे वर्णन 'one of the most amazing agricultural stories of all time' असे केले ती हरित क्रांती म्हणजे शेतीच्या विकासासाठी लागू केलेले नवीन तंत्रज्ञान होय. स्वातंत्र्योत्तर काळात पंचवार्षिक योजनेमार्फत शेती विकास कार्यक्रम आखले गेले परंतु भारतामध्ये अन्नधान्य वाढीचा वेग हा लोकसंख्या वाढीच्या वेगापेक्षा कमी होता अशा स्थितीत पिकाच्या उत्पादनात वाढ होण्याच्या दृष्टीने एक धाडसी कार्यक्रम हाती घेण्यात आला. तो म्हणजे हरितक्रांती. "हरितक्रांती ही संज्ञा १९६० पासून प्रचलित आहे. १९७० चे नोबेल पारितोषिक विजेते डॉ.नॉर्मन बोरलॉंग यांच्यामुळे जगातील हरितक्रांतीला सुरुवात झाली, तर भारतातील हरितक्रांतीचे श्रेय प्रोफेसर एम.एस.स्वामीनाथन यांना दिले जाते. भारतात १९६६-७० साली हरितक्रांती अंमलात आणली गेली."

हरित क्रांतीचा अभ्यास करण्याच्या अगोदर आपण क्रांती या शब्दाचा अर्थ लक्षात घेऊ. क्रांती ह्या शब्दात दोन बाबी समाविष्ट असतात. एक- कोणत्याही घटनेत तीव्र परिवर्तन होणे हे परिवर्तन इतके तीव्र असते की ते आपणास स्पष्ट जाणवते. दोन ह्या परिवर्तनाचे परिणाम दीर्घकालीन असतात आणि ते निरंतर होत राहतात. जर आपण क्रांती हा शब्दाच्या अगोदर हरित हा शब्द जोडला तर सलग शब्द तयार होतो 'हरितक्रांती'.

### हरितक्रांतीचा अर्थ

'एक- अल्पकाळात कृषि उत्पादनात जलद गतीने वाढ होणे, ही वाढ स्पष्ट जाणवण्याइतकी मोठी राहाणे आणि दोन- कृषि उत्पादनात दीर्घकाळातही निरंतर वाढ होत राहणे होय'.

भारतात हरित क्रांती व्यापक स्वरूपात नंतर घडून आली असली तरी १९६०-६१ मध्ये सरकारने जो, 'सघन शेतीचा जिल्हा कार्यक्रम' (IADP) लागू केला तेव्हापासून या क्रांतीची चाहूल लागली. पुढे १९९३-९४ मध्ये संकरित जाणांचा प्रवेश झाला धान व गव्हाच्या जाणांचे यशस्वी प्रयोग पाहुन सुधारित बियाण्यांची आयात करणे व लागवड करणे सुरू झाले. हे जाण इतक्या लवकर लोकप्रिय झाले की, केवळ दोनच वर्षात गव्हाच्या उत्पादनात ४५ प्रतिशत वाढ घडून आली. अशा तऱ्हेने भारतात अनेक पिकांच्या बाबतीत हरित क्रांती घडून आली. त्याचा भारतातील शेतीवर फार मोठ्या प्रमाणावर उत्पन्न वाढीचा परिणाम झाला. परंतु या हरितक्रांतीचे काही परिणाम भारतीय अर्थव्यवस्थेवर दिसून आले ते पुढील प्रमाणे-

## हरितक्रांतीचे परिणाम

ज्यावेळी शेतीमध्ये आधुनिक तंत्रज्ञानाचा वापर सुरु झाला तेव्हा त्याचे वर्णन 'शेतीमधील क्रांतीकारक बदल असे करण्यात आले. हरित क्रांतीमुळे संपूर्ण शेतीचे स्वरूपच बदलून जाईल अशी अपेक्षा होती. भारतामध्ये असा बदल किती प्रमाणात घडून आला याचे विवेचन आपण थोडक्यात केलेले आहे. परंतु हरित क्रांतीमुळे जे काही गंभीर परिणाम घडून आले त्यांच्याकडे दुर्लक्ष करता येणार नाही. हरित क्रांतीची उज्वल बाजू मान्य करुनही या परिणामांचे गांभीर्य कमी होत नाही.'

### १. केवळ गव्हाची क्रांती

लोकांच्या उपभोगाच्या आणि उद्योगांच्या उपयोगाच्या दृष्टीकोणातून अनेक प्रकारचा शेतमाल महत्त्वाचा असतो. आर्थिक विकासाच्या काळात या सर्व मालाचे उत्पादन व उत्पादकता वाढविणे आवश्यक असते. परंतु गव्हाचा अपवाद वगळता इतर पिकांचा प्रतिसाद अतिशय मंद आहे. धान, बाजरी, मका व ज्वारी यांच्या उत्पादनात काहीसा बदल झाला. परंतु 'क्रांती' असे म्हणण्याइतका नाही.

### २. उत्पादनातील वाढतील विषमता

कृषि क्षेत्रातील तांत्रिक बदलामुळे ग्रामीण भागातील उत्पादनाच्या वितरणावर अत्यंत प्रतिकूल परिणाम झाला आहे. त्यामुळे निरनिराळ्या प्रदेशातील विषमताचे नव्हे तर छोटे आणि मोठे शेतकरी, जमीन मालक आणि भूमिहीन मजूर तसेच शेतीवरील कुळे यांच्यातील असमाताही आणखीनच वाढली आहे.

### ३. मर्यादित प्रभावक्षेत्र

ही क्रांती ठरावीक आणि लहानशा भागांमध्येच यशस्वी ठरली. पंजाब, हरियाणा, पश्चिम उत्तर प्रदेश, आंध्र प्रदेश या राज्यातील काही जिल्हे तसेच महाराष्ट्रातील पश्चिम भाग आणि तमिळनाडू या राज्यांमध्ये ही क्रांती यशस्वी झाली. परिणामी इतर ठिकाणी शेतीत वाईट दिवस येतांना दिसतात.

### ४. मोठ्या भूधारकांचा फायदा

हरित क्रांती ही मुळात तांत्रिक बदल दर्शविते तिचा आंगीकार करण्यासाठी बऱ्याच गोष्टी माहित आसायला हव्यात. तसेच पाणी पुरवठ्याच्या सोयी, प्रत्ययपुरवठा, खते व रसायने, अवजारे यांच्या उपलब्धदेशिवाय नवीन तंत्रज्ञान लागू करता येत नाही. हे सर्व घटक असे आहेत की जे फक्त मोठ्या भूधारकांनाच अनुकूल असू शकतात. व त्यांच्यातच बदल घडून येतो परिणाम छोट्या कास्तकारांचा वर्ग यापासून कोसोदुर राहतो.

### ५. विषमतेत वाढ

हरित क्रांतीमुळे प्रादेशिक आणि ग्रामीण उत्पादनाच्या विषमतेत झालेली वाढ हा तिचा सर्वात गंभीर परिणाम आहे. हे नवीन तंत्रज्ञान प्रामुख्याने ओलीताच्या सोयीवर अवलंबून असल्याने ज्या प्रदेशांमध्ये सिंचनाचा विकास झाला आहे त प्रदेशांना या सुधारणांचा जास्त फायदा मिळणे अपरिहार्य आहे. परिणामी जो प्रदेश सिंचनापासून मागासलेले आहे ते हरित क्रांतीपासून दूर राहिले.

#### ६. हरित बेटांची निर्मिती

हरित क्रांतीमुळे देशातील विकसित राज्यांमध्ये हरित बेटांची निर्मिती झाली. देशातील अल्प भागात बेटांची निर्मिती आणि सिंचन सुविधा नसलेला भाग उजाड माळरानाचा अशी विचित्र परिस्थिती भारतात निर्माण झाली.

#### ७. रोजगारावरील परिणाम

भारतातील ग्रामीण रोजगाराचा प्रश्न अत्यंत महत्त्वाचा असल्यामुळे शेतीच्या नवीन तंत्रज्ञानामुळे त्यावर विपरित परिणाम होतांना दिसत आहे. हरित क्रांतीमुळे ५५% श्रमिक केवळ ट्रॅक्टर पंपसेटमुळे बेकार झाले होते. म्हणून तांत्रिक सुधारणांच्या बरोबरीने पर्यायी रोजगाराच्या सोयी निर्माण न केल्यास 'शेतमजुरांची बेकारी' आपल्या आर्थिक व राजकीय दृष्ट्या स्फोटक परिस्थितीमध्ये नेऊ शकते.'

#### ८. शोषणाचे साधन

हरितक्रांतीमध्ये प्रामुख्याने रासायनिक खते व किटकनाशके, तणनाशके यांचा वापर करण्यावर भर दिला जातो. या वस्तुंचे उत्पादन विकसित देशातील कंपन्या करत आहेत, असे विकसित देश विकसनशिल देशातील लोकांचे शोषण करून घेतात. परिणामी अशा कंपन्या 'जीवशास्त्रीय साम्राज्यवाद' करत असल्याचे दिसून येते व तो पसरविण्याचे कार्य या कंपन्या करीत आहेत व हरितक्रांती हे त्याचे प्रमुख साधन आहे.

#### ९. दोषपूर्ण विकास धोरण

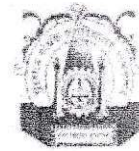
भारतातील हरितक्रांतीचे प्रतिमान अमेरिकन प्रतिमानावर आधारित होते. या प्रतिमानात गहु उत्पादनावरच लक्ष केंद्रीत करण्यात आले. वस्तुतः भारतात गहु उत्पादनापेक्षा तांदूळ उत्पादनास नैसर्गिक परिस्थिती जास्त अनुकूल आहे जर नविन विकासाचे प्रतिमान जपानी प्रतिमानावर आधारित राहिले असले तर कदाचित जास्त चांगला परिणाम झाला असता.

#### सारांश

हरितक्रांती ही उत्पादन वाढीचे माध्यम जरूर आहे, पण तिचे जे इतर परिणाम संभावतात ते टाळणे आवश्यक आहे. यासाठी निरनिराळ्या आदानांच्या वाजवी वापर, कोरडवाहु शेतीच्या तंत्राचा विकास, संख्यात्मक सुधारणा, सिंचनाचा विस्तार, शेतमजुरांसाठी योजना, अविवेकी यांत्रिकीकरणावर निर्बंध, तज्ञ मार्गदर्शन इतर पिकांचा समावेश इत्यादी घटक विचारात घेऊन उपाययोजना करायाला हवी.

#### संदर्भ सूची

१. डॉ.विजय कविमंडन- कृषी अर्थशास्त्र
२. प्रा.एन.एल.चव्हाण- भारतीय अर्थव्यवस्था
३. श्रीधर व विनायक देशपांडे- भारतीय अर्थव्यवस्था
४. "शेतकऱ्यांच्या आत्महत्या : वास्तव, कारणे व उपाय"- आंतरविद्याशाखीय राष्ट्रीय परिषद.



## Role of ICT in Quality Enhancement of Teaching at Higher Educational Institutions

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**Abstract:** All education is on the one side a search for truth; on the other side, it is a pursuit of social betterment. You may discover truth but you should apply it for the betterment of the status of society. It is important to be open to learning and be equipped to manage change. There are different modes of learning. Modes of learning are a set of guidelines that describe the methods that we humans use to acquire, process, and maintain knowledge. Individuals differ in how they learn them most effectively. ICT based teaching innovations has brought revolutionary educational experiences. The manifestation of these revolutionary changes can be experienced in the design and development of teaching strategies, assessment strategies, instructional leadership, vibrant and dynamic classrooms with the use of ICT in higher educational institutions.

**Key words:** Education, Modes of Learning, Knowledge, ICT, Higher Educational Institutions

**Introduction:** Since technology has been introduced into education system, it brought revolutionary changes into teaching system. From pre-primary schools to secondary schools, colleges and in universities, almost all the staff uses technology: Using technology for teaching purpose is not a difficult task. Use of technology has resulted into engagement of students. Traditional chalk and board teaching method and teaching style with use of ICT are totally two different things. Both have the same motive of making the courses stimulating to the students



and keeping them engaged. More than the buildings and equipments, the real strength of education lies in the quality of teaching and therefore, that of the teachers. To strengthen the quality of teaching, teachers have to update with the knowledge of use of ICT. Teachers can make a difference by the use of ICT. Chasing new ideas and broadening your horizons will pave the way for personal growth. There may not be enough time to do everything, but there is always enough time to do the most important revolutionary things. Technology had greater impact on motivation, teaching style and interactivity. There may be different teaching tools used in teaching. ICT has a great impact on teaching as well as learning style. As there are different teaching styles, there are learning styles too. Basically, there are seven learning styles as given below.

#### The Seven Learning Styles

- Visual (spatial): we prefer using pictures, images, and spatial understanding.
- Aural (auditory-musical): in this the learner prefers using sound and music.
- Verbal (linguistic): we prefer using words, both in speech and writing.
- Physical (kinesthetic): we prefer using our body, hands and sense of touch.
- Logical (mathematical): we prefer using logic, reasoning and systems.
- Social (interpersonal): we prefer to learn in groups or with other people.
- Solitary (intrapersonal): we prefer to work alone and use self-study

ICT supported teaching have noteworthy effect on students perception in 21st century education. The modern practices in the form of online courses, e-learning technologies, social networking tools, and many other emerging technologies are becoming accepted among the youth. There are enormous digital tools and technologies available in higher education institutions being used frequently for the design and planning instructional practice for excellent educational experiences. Here we will throw light upon some digital tools being used in this regard.

#### Virtual learning environment TOOLS:

**Learning Management system:** Nowadays, there is hardly a soul under this sky who is unaware of the use of internet. In this method, learners get learning experiences and material from internet



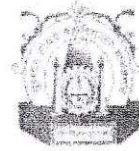
or web; it is called Virtual Learning Environment. This is alternatively called as Learning Management System and Content Learning Management System. This system comprises of learning resources, evaluation assessment, discussion forum and student tracking. These virtual learning environment tools can be accessed in campus as well as remote places. These tools are proved to be useful supporting students in leaning at any place and pace. Using these tools in Higher Educational Institutions, teacher can teach their students with the traditional form as well as through flipped classroom approach. Learning Management System as a Virtual Learning Environment Tool is an application of software being used for delivery and management of e-content information of video, text etc. The main feature of this LMS are Rubrics, a discussion board, teacher and student active participation, resources of education along with variety of functionality. In this, the students are urged to be actively involved in their own process of learning. It also gives the teacher an opportunity to work efficiently to create a positive learning environment in the classroom. It is available in the paid form and many are free of cost.

Example:

- Moodle
- Course builder
- Google Classroom
- Edmodo
- Balckboard

**MOODLE:** - Modular Object Oriented Dynamic Learning Environment abbreviated as MOODLE was designed by educators for the purpose of creation of online courses. Moodle is both “an open source and free source of learning management system” and it has a common public license. Its design and development rests on the educational principles for the provision of collaborative construction of content. Moodle may be utilized in diverse ways in the classroom for blended learning, flipped classroom, distance learning, e-learning projects in schools, and other workplace, universities, institutions, and various other sectors. Moodle offers an enormous



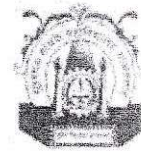


opportunities to design and develop a upgraded course with an automatic mechanism. It may have become a problem for them who do not have any knowledge of using these features but with its use the efficiency is enhanced. It has got ample innovative and standard features for a simple developer. It may be used for the creation of private websites by new trainers to accomplish learning goals. On 20 August 2002, the first version of Moodle was released and has been evolving continuously with the modernization of the society. At the present time, an Australian company of 50 developers, financially supported by a network of eighty-four Moodle Partner service companies worldwide renowned as the Moodle Head Quarter leads and coordinates the Moodle Project. Moreover, Open Source programmers also lend a hand in the development of Moodle. Moodle provides a platform for the virtual learning environment enhancing the existing learning environment.

**Lecture Capture:** The broad term Lecture capture is connected with a process used for recording classroom lectures as a video lesson. These videos can be reviewed by the students, after the class is over. It comprises of a variety of software, hardware, solutions and applications. For Virtual Learning Environment Lecture capture is an excellent tool. It permits the instructors to create recordings of presentations, classroom lectures including screen content, audio, video and share them online with students. Some of the lecture capture tools are given below.

- ❖ Screencastify
- ❖ CamStudio
- ❖ Webinaria
- ❖ Panopato
- ❖ Presenataion Tube

**ICT to support teaching and learning:** ICT can be frequently used in higher education institutions to support teaching and learning. Digital portfolios, learning games, electronic grade books, and concurrent feedback on students and teachers performance can be utilized to strengthen learning. ICT or e-Learning technology has begot to different tools that teachers use



on and off campus to improve student learning experiences. Here are some examples of digital tools to support teaching and learning.

**Presentation Programme:** This software package is used to reveal or exhibit information in the form of video or slideshow. Fundamentally, it has three key features as text editor, music tune and graphic images that support teaching learning tools in an outstanding way. Examples: Power Point, Powtoon, PREZZI, Keynote, Slide share, Adobe spark.

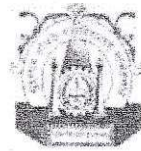
**Use of YouTube Video in education system:** Research has revealed that after effective use of videos for educational purposes, students understand the concept with no trouble and preserve maximum information. By optimum use of YouTube video as educational resources, students can discover new connections between curriculum topics and the society outside from the classroom.

**Storyboard:** It is used with the intention of animation, pre-visualizing of motion picture, motion graphic or interactive media sequence. It's a graphic organizer in the form of images or illustrations displayed in succession for the purpose (Wikipedia). Alternatively, it is known as a pictorial framework for the creation of video. It comprises of a sequence of thumbnail images that express whole story from beginning to end. A written script also exists giving idea of what's going on in each frame. When it ends, the storyboard resembles a comic strip. Storyboards vary from simple to complex. It may be hand-drawn, or one can use story board software for creation of images or videos.

A storyboard is like a script, but both have some difference – former is visual, while later is text-based. Tools of Story Board are given as: Plot, Boards, Story boarder etc.

### Conclusion:

One key lesson that can be drawn from this paper is that the acknowledged Higher Educational Institutions are perhaps nowadays interested in many facets of ICT competencies framework that need to align with the Education policies of concerned countries.. In this connection, the Higher Educational Institutions need to tackle many issues such as teacher competencies, learning materials, ICT equipment, student and teacher motivation, so that it



strengthens socio-economic development of the respective countries or societies. Adopting a cross-sectoral approach through an ICT in Education Master Plan may certainly help countries to successfully address all relevant dimensions, which have become necessities of teachers and students in 21st century teaching learning process. In this context, the awareness of ICT use is aimed at helping teachers to develop ICT skills.

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## **Creativity and Digital literacy for quality enhancement in Higher Education**

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### **Abstract**

Challenges of current scenario put emphasis on the relevance of developing the ability of future manpower to think out of the box and to offer better solutions to the complex issues. Simply, we can say that creative thinking is the key to success in future. Creativity could also be seen as a skill that enables an individual to survive in uncertain environment. Brainstorming is a method of effectively using one's brain to churn out a probable solution to a problem. Creativity hand to hand digital literacy will definitely enhance quality in higher education. Technology has remained instrumental in making teaching and learning more efficient and effective. Teachers must build digital literacy skills to nurture their own competencies in order to adapt with changing scenario.

**Key words:** creativity, brainstorming, digital literacy, quality enhancement, technology

### **Introduction**

Creativity is just the mental characteristic that makes a person to think outside of the box, which sometimes may result in novel approach to a particular task. Creative thinking may provide a different perspective or dimension to an issue that leads to an innovative solution. In today's teaching, teachers need to incorporate newer ways to generate interest and develop critical thinking skills among the students. Brainstorming is a method of effectively using one's



brain to churn out a probable solution to a problem. The approach of brainstorming aims at getting maximum number of ideas to resolve an issue or solve a problem irrespective of immediate rationality behind the idea. We should understand the root causes of the problem and brainstorm all the potential causes of a problem and then reducing them to the factors that is the main cause of the issue.

Though there are many factors associated with the qualities of a good teacher, 'digital literacy' is the major notion on everyone's tongue. It is the ability to use digital devices effectively for collaboration, expression and communication over internet and social media. The word 'Literacy' means the ability to read and write, however, when word digital is added before it then the term 'Digital Literacy' encompasses much broader range of skills. Digital literacy may be understood as the knowledge, understanding and skills requisite for using new technology and media. Since the world is shrinking in terms of time and space, Digital literacy is gaining importance these days.

#### **Role of 'Creativity' in quality enhancement**

We cannot deny the role of Creativity in modern day classroom. There are a large number of justifying proofs that creativity in classroom generates a conducive environment for effective teaching and learning. Creative thinking may provide a different perspective or dimension to an issue that leads to an innovative solution. In current days' complex scenario, teachers need to incorporate newer ways to generate interest and develop critical thinking skills among the students. Generally, when we discuss creativity in classroom, we restrict ourselves to school level teaching. But globally it has been accepted that infusing creativity combined with critical thinking is must at higher education level. Although, educators at higher education are trying to incorporate creativity in their teaching methodology, curricula, and policy still a lot needs to be done. According to a school of thought, creativity should be taught at higher education level and an all-round effort is required for that. Such need is felt as it is proposed that less creative tasks are either outsourced or automated. This signifies that in future the individuals that are creative and think out of the box to offer a unique solution to the given problem would survive. Presence



of creativity in the classroom has certain advantages to students as well as teachers. Some of the advantages are:

- We should change our daily routine; if we always do what we always did, we always get what we always got.
- Using various techniques, students feel free in creative environment and increase their attention span to receive the information conveyed hence improved learning happens.
- Freedom of expression of ideas, thoughts nurtures creative thinking and creative classroom enables more logical and constructive discussions.
- Make it habit that student look a problem from different perspectives hence developing a better understanding of the issue at hand.
- Introducing novel techniques to enhance creativity can advance the problem solving capabilities of the students. It develops strong analytical thinking among the students. Due to this, they do not tie themselves to the problem but start working on the solutions.
- Providing creative opportunities in the classroom enable teacher to experiment more through offering newer challenges to students. Such opportunities also enhance the thinking capabilities of students and help them in developing innovative mind set.
- We should be a very keen observer; while meeting with different personalities who have excelled in their life, we can learn a lot from them; imbibe some good qualities from how they have achieved excellence or success in their lives.
- As creativity improve the power of expression among the students, they become better communicators. In present scenario, communication is considered as one of the most important skill in the professional arena.
- Students should not focus on rote learning and scoring high marks. Student involved in a creative teaching learning process actually remembers his or her learning for a longer period of time. Also, such students do not hesitate to apply their knowledge and skills in their future endeavours that in turn open gates for future opportunities.

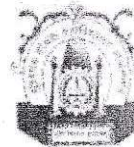
**Role of 'Digital Literacy' in quality enhancement**



It had been 40 years now that personal computers were introduced in our lives, the wave of digitalization started and now it has grown up with the arrival of internet and smart phone. This wave of digitalization has demanded renewal and expansion of teachers' competencies especially digital competencies. Several teachers as well as students are already using digital tools for different purposes, but this does not mean that they can use the same tool for teaching and learning effectively. Learning technology is a perennial process which demands continuous learning and practice. It involves lots of trial and errors in the path of gaining mastery. There are many digital skills which are helpful for teachers and students in utilizing technology efficiently and productively.

From research studies it has been reported that good teachers are the key elements in the overall development of students. It means quality of teacher influences the learner's ability to learn. There are several indicators which determine the quality of teacher; however, the roles and responsibilities of the teacher keep on changing with every new stage of development in education. Similarly, with the advent of 21st century, numerous opportunities have opened their doors for the teachers in constructing educational experiences more fruitful and enjoyable. But technology integration must not be seen as opponent of traditional approaches of teaching and a teacher must learn to maintain a balance between traditional methods of teaching and ICT integration. We know that every teacher is required to learn how and when to use technology for achieving excellence and improvement in teaching. Teachers should focus on achieving professional excellence by learning different skills associated with digital literacy.

While understanding the concept of digital literacy, teachers should not create confusion about few terms like Information Technology, Information and Communication Technology, Digital Natives, Digital Immigrants and Digital Divide etc. which are closely related with the concept of digital literacy. A digitally literate teacher is able to search, find, compose, analyze and evaluate the information retrieved from different digital platforms. Digitally literate teachers are able to understand the use of search engines, email, wikis, blogs, power point, web browsers, able to create video and knowledge of different educational softwares etc.



## Conclusion

In nutshell, we say that teachers at higher education level are expected to use creativity in their classroom as well as curricula. A sincere effort is required to design the course curriculum in a manner that enables a teacher to incorporate creativity. A need is there to break the monotony of one way lecturing resulting into boring, less interesting, and half cooked learning. To do so educators are required to incorporate newer tools and techniques in their teaching that generates the interest among the students. Any technique that fosters creativity and critical thinking among students must be used in the classroom. One such method to improve creativity and critical thinking skill among students is brainstorming. One should focus on understanding and using the method of brainstorming for developing creative and critical thinking.

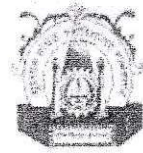
But the most important thing that teachers should note that creativity cannot come in one day; it needs to be nurtured amongst students from childhood so that it becomes their habit to create or to do out-of-box thinking. So, our education system needs to be changed with respect to the focus of teaching and learning. Creativity basically means conceiving new idea. Innovation is implementing this idea to get something - new service or some new product, etc. *Creativity is the pillar of innovation and innovation is the key to any nation development.*

At the end, we can say that a teacher must develop necessary competencies in order to adapt with changing scenario. And one can acquire requisite digital skills for creating and sharing knowledge with the understanding of digital literacy and other related concepts. From this paper, we conclude that creativity and digital literacy both are important in quality enhancement in Higher Education.

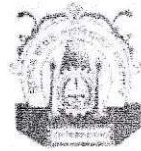
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# Role of MOOC in Higher Education for the Quality Enhancement of Teaching, Learning and Evaluation

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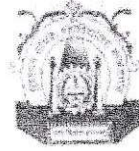
## Abstract

The advantage of MOOCs is it's 4 A's - anytime, anywhere, anyone, any number of times. MOOCs are made free of host hence highly economical. MOOCs will be like mini smart colleges and the most important thing about MOOC is that one can decide one's own pace of learning, you don't need to be present physically in the classroom; at any convenient time, you can learn from it. SWAYAM is the acronym for "Study webs of active learning for young aspiring minds" and this platform hosts various MOOCs. All the MOOCs on SWAYAM have same generic structure.

**Key words:** MOOC, smart college, SWAYAM,

## Introduction

Teaching and learning is the most important component of the education process. At present, most of us have been teaching through chalk and talk method. No doubt this method has many advantages but then it's also not without limitation. For example, this method of face to face teaching is a teacher centric approach. It presumes that all students will learn in an identical fashion - that may not be true. Mainly it's a monologue method, teacher is speaking and generally the students are at the receiving end. This process is slow and time consuming - you have to write every time on the board and then students take down the notes. It takes a lot of time



and then there are many complex concepts which require visual imagination - those cannot be explained on the board.

MOOC is a form of e-learning in a very structured manner. Dave Cormier used the word "MOOC" first time in 2008. MOOC stands for Massive Open Online Course, where **Massive** means there can be no limit or massive enrolments; **Open** means no basic qualifications are required for enrolment in a MOOC until and unless you want to obtain grades/credit. **Online** is the word used since the content of the course are often accessed through web and is available online and the last word **Course** means, the course having specific learning outcomes.

**Massive:** When a large number of people taking part together, it's massive. Massiveness is not just about the number of participants but also it relies on background architectural and server support that actually support thousands to millions of hits from learners.

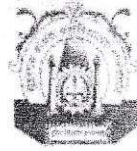
**Open:** Open by means, the content should be available under "Open licenses" or at-least to download. Also, the courses should be open by age and qualification. Anyone can join any course irrespective of their age and qualification.

**Online:** available and accessible 24x7. One can join, attempt from anywhere with a device and working internet connection.

**Courses:** Just like any course of study; curricular or extra-curricular.

### Role of MOOC in Higher Education

MOOCs are the structured courses where e-content is provided to the learner in the form of a virtual class through a web-based portal, preferably LMS (Learning Management System). They can be accessed by any suitable device i.e., desktop, laptop, tablet or smart-phones. The e-content is organized in a logical sequence. It is in topic-wise format or weekly format for learners to meet specific learning outcomes. Moreover, there are various activities provided to the virtual group of learners like online quizzes, discussion forums, live chat and live video. The MOOCs must not be taken as automated delivery of content without a teacher; rather the role of teacher is very important in delivering the MOOCs by providing virtual interaction to the



learners. There can be teacher/s virtually interacting with the group of students to answer their questions, to solve their doubts depending on the number of learners. India stands as the third largest system of education in the world. In the year 2018 we have more than 900 universities in India, nearly 50,000 colleges, 1.5 million teachers and 34.2 million students and if you compare with a corresponding value in the year 1950, there has been a considerable growth by any yardstick. Contrary to this, our gross enrolment ratio is only 25.5%; that means out of our all youth in the age group of 18-23 years, only about 25.5% are able to pursue higher education. And even the International ranking of our higher education institution is not very good; it is rather poor, so here MOOCs can help us a lot because the MOOCs are developed by the top experts. It's like the best of the country addressing to the rest and all these will be available to the entire country. Therefore, MOOCs can help in increasing the gross enrolment ratio in India. Accessibility can be increased through MOOCs because you cannot keep on opening more and more universities and colleges, you require faculties, you require infrastructure etc. So, this is an immediate benefit, which comes from MOOCs. Other than this leaning on MOOC is learner centric and interactive. This is in contrast to our traditional method of teaching, which is basically teacher centric. We can experience that the face of higher education in the country is slowly going to change. We can say that we are going through a transition phase, maybe after ten years education will no longer be limited to physical classrooms, almost everything for self-learning will be available online. Advantages of MOOC are:

**Well-designed courses by famous professors:** MOOCs will provide an opportunity for equitability in education. One may be interested in taking admission in some prestigious institution but in-vain because of various reasons, still have the opportunity to study courses designed by these institutions through MOOCs.

**Supplementary support:** Since, content is available free in MOOCs, MOOCs provide resource support to teacher in addition to the prescribed text book and to learner also if teacher is not available or learner missed the class.



**Engagement:** Although, it depends upon the mentor running the course but there is lot of possibility for teachers to engage the learner. MOOC encourages to both teacher and learner in many ways like telephonically, chat, hangout and discussion over the web.

**Bridging the divide:** One of the best things about MOOCs is it reaches a wider audience and to bridging the divide. Geographically diverse learners can take advantage of the MOOCs and get an opportunity to learn from good institutions.

**Diverse language support:** In multilingual countries like India, MOOCs in different language format can be developed and available to cater the need of diverse learners. In most of the MOOCs transcriptions are available to translate them into various languages rather than to develop new videos.

**Entrance exam:** Tailored made courses specialise to crack various entrance exams are available in MOOCs that will be proven beneficial for the preparation of competitive exams.

**Instant progress:** As assessment is computer graded, learner can check their progress, the moment he/she submit the assessment.

**Multimedia resources:** MOOCs supports a variety of formats like Audio, Video, Animation, Documents, and Interactive. So, learner can enjoy the multimedia resources in a single MOOC.

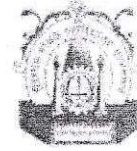
**Variety of courses:** Not just curricular but extra-curricular or co-curricular courses are available through MOOCs.

**Flexibility:** One can do courses as per their choice, speed and domain.

**Self-Pacing:** A large number of self-paced courses are available, which one can do with their own pace and courses come without an end date.

**Interaction with course mates:** Since, MOOCs are attended by large number of peoples across the globe; one can get an opportunity to interact with them.

**MOOCs through SWAYAM portal**



SWAYAM stands for "Study webs of active learning for young aspiring minds" and this platform hosts various MOOCs. All the MOOCs on SWAYAM have same generic structure. Here also there are "four quadrants":

**Quadrant I:** It consists of e-tutorials, including video and audio contents, animations, simulations, video demonstration, etc

**Quadrant II:** It consists of e-content, e-books, self- instructional materials, case studies etc.

**Quadrant III:** It is about assessment - it gives various various e-quizzes, problems and solutions, MCQs, fill in the blanks, etc. and it is to be noted that you get the feedbacks.

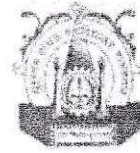
**Quadrant IV:** It consists of discussion forum, where learner clears their doubts and difficulties from the course coordinators.

### Conclusion

One common misconception among the people is that perhaps in future, e-learning will replace teachers; but one should remember that no one can replace a good teacher. At the end, we can say simply that MOOC will ultimately supplement traditional learning; it will empower teachers and definitely not replace them. MOOCs have the potential to make better and stronger India in the field of education. learning is free and can be accessed by anyone and these are available over the globe and joined by many learners to make it "Massive" For assessment also, a large number of institutions are opting for online examination, again it's the integration of technology with examination system. Online examination gives quick results, is uniform in grading and highly economical. ICT tools are used by teachers as well as students for internal assessment and self assessment respectively.

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