

e-Learning: Initiatives in India

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Abstract

The rapid growth in the e-content development using web technology and its ever increasing usage has given unprecedented opportunities to educators to extend teaching material to students not only within the four-walls of their class rooms but also in the comforts of their home all over the globe. Indian Government has taken a number of initiatives, and awarded a no. of e-content development projects under NME-ICT for the growth and development of e-learning environment. The targeted users are not fully availing the e-learning opportunity of such initiatives. The bigger challenge is to get the attention of target users or in the other word to spread the awareness amongst its target users so that the e-learners not only get the maximum benefits from the projects but also participate in its creation and evolution through interactive Learning Management System (LMS) platforms. With increases use of ICT in education and setting up of National Mission in Education through ICT (NMEICT) in 2009, e-learning has become the most popular learning method that helps a learner to learn at his own place. In this article we have defined the e-learning and studied about the major initiatives taken by Government of India for e-learning & self education. The article also develop upon the categories of the learner and their respective e-Learning choices among the e-GyanKosh, Sakshat, FlexiLearn, NPTEL, CEC, Institute of Lifelong Learning (ILLL), and e-PG Pathshala

Keywords: Sakshat, e-GyanKosh, FlexiLearn, NPTEL, CEC, Institute of Lifelong Learning (ILLL), e-PG Pathshala, SCORM

1. Introduction

e-Learning or electronic learning is a kind of non-conventional education method where regular physical attendance and eye-to-eye contact with the instructor is not required and learning can be done from anywhere, at anytime according to convenience of student and at a place suitable to him/her. e-Learning is a technology which support education and learning via ICT like internet, CD ROM or a standalone computer. It is an online teaching method of interactive presentations, videos, chat, online lectures, notes, quiz, tests etc.

e-Learning educate students using learning material that is fully enriched with multimedia content. Students get self learning experience through the e-text, audio-video materials, online lectures etc. and assess themselves by online self assessment tests like quiz, online exams etc. e-learning can become more popular in current scenario where students are more inclined to use ICT equipments for their daily life. e-Learning can be engaging and even addictive for social network and google generation students.

2. Ideal Component of e-Learning

The content prepared for e-learning aims at delivering a course in an interesting manner with help of all possible media support such as text, animation, simulation, graphics, etc. As such, the task of designing e-learning material is highly specialized and requires domain knowledge, expertise in different types of software tools that can be used to enhance the content with multimedia and expertise in instructional technology. As such, the process of content creation requires marriage of two types of expertise, i.e. domain knowledge/subject matter experts and web / instructional designers or multimedia script writer. A combined team of these personnel can make the content livelier and also facilitate representation of the content in logical sequence. The logical sequencing and delivery of content is as important as the content itself since the objective is to assemble content that is easy to comprehend and easier to remember. The content should not be a copy of a books or lecture notes delivered in a class. The National Mission on Education through ICT (NME-ICT), that funds projects on content development across several disciplines, prescribes four quadrant approach for effective and efficient development of e-content. These four quadrants are given below and depicted in figure 1:

- i) **First Quadrant:** First quadrant defines the structure of course along with textual content. It comprises of basic description of a module, prerequisites (in terms of knowledge background of a user before taking-up a module), introduction, objectives, keywords, summary, textual content (details of textual content on the topic, subtopics with examples and applications from day-today life, illustrations and chunk text).
- ii) **Second Quadrant:** The second quadrant comprises of multimedia enrichment of content that may include audio or video clips, animation, simulations, virtual labs, etc.
- iii) **Third Quadrant:** The third quadrant provides links for external resources available on the Web as well as supporting material. For example: Did You Know? Points to Ponder, Glossary, FAQs, link to Wikipedia, other websites, blogs, discussion forum, etc.
- iv) **Fourth Quadrant:** Fourth quadrant includes the self assessment material. Assessment and evaluation questions may be in different format like multiple choice questions, true & false statements, sequencing, match the columns, problems, quizzes etc.

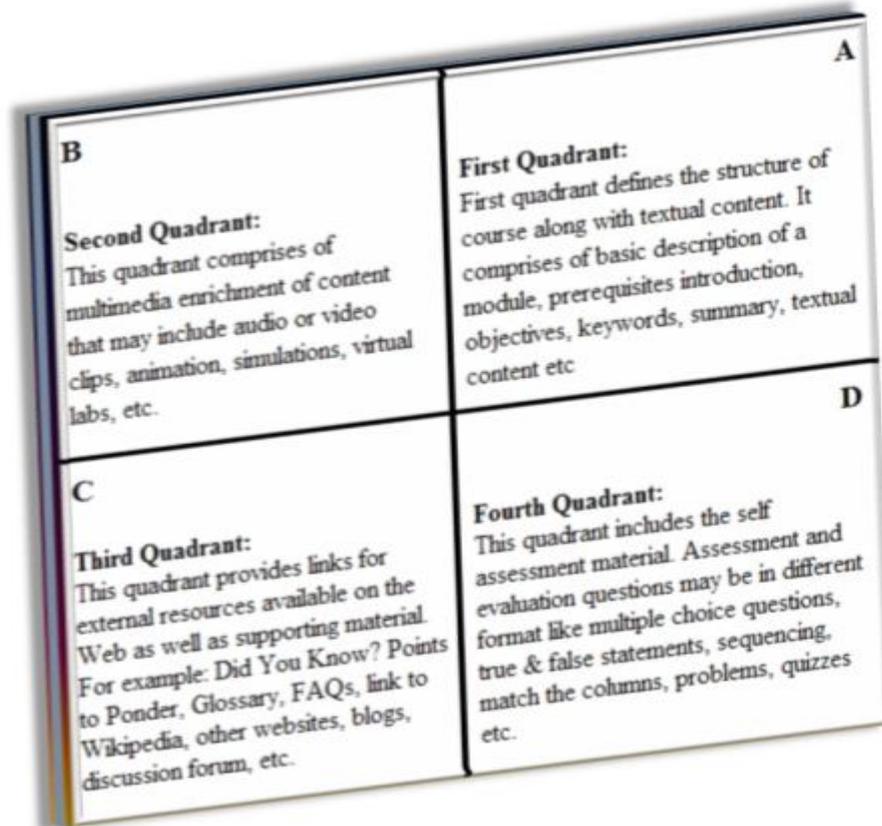


Fig.-1- Four quadrant approach for effective and efficient development of e-content

4. Stakeholder / Entities for Content Creation of e-Learning

e-Content can be defined as digital learning material that is specifically prepared for imparting education online. e-Teaching or blended-learning is combination of conventional teaching and e-Learning which uses digital media. The following two entities are involved in the process of content creation:

- i) **Content Writer (CW) / Domain Expert (DE) / Subject Matter Expert (SME):** Content writer is the domain expert who plays a central role in the process of content development. Content writer delivers on the subject of his/ her expertise. He / she possess domain knowledge of the subject and are responsible for packaging the content in an interesting way imbining frills and frolics of web technology. While preparing the content the content writer should keep in mind the learner's profile, expectations from the course and the time available for e-learning.
- ii) **Instructional Designer / Technical Experts:** The following two types of technical expertise are required in the process of e-content development for multimedia enrichment and make interactive content of the static content developed by the domain experts.

- a) **Multimedia Experts:** Multimedia experts, has rich experience of graphic design (images, animation and simulation) as well as in converting the storyboard provided by the content writers into real multimedia content in different formats such as animation, simulation, etc.
- b) **Web Experts:** Web expert install/develop and maintain the Learning Management Software (LMS) where all the content would uploaded in pre-defined pedagogical framework.

5. Misconception about e-Learning

- ◆ **Learner will not get opportunity to exchange ideas-** It is a wrong notation that e-learning is self centric kind of learning and learner will not get opportunity to exchange his/her ideas since the learner is interacting through computer for learning instead of teacher and classroom environment. It's not true. However just as the social networks like Facebook and Twitter etc provides platform for interaction. Elearning platform also provide platform similar interactions amongst learners and instructors. In fact, in e-learning student will get opportunity to connect with other learners through forum and other discussion board, blogs and different guides all over the world, which is not possible in traditional classroom learning.
- ◆ **It cerate risk for teaching profession-** most of the professional think that e-Learning will removes their role as teacher. However computers will not replaced people, it can only enhance classroom teaching method because e-Learning create more opportunity to reach to students and help local school to reach the global market.
- ◆ **After sometime e-Learning courses become boring-** it's not true because after the boom of ICT equipments like-mobile, internet, tab etc eLearning can be engaging and even addictive for today's generation of students.
- ◆ **e-Learning is just reading text on the screen-** e-learning is not only page turning activity of e-content on web. It is more than that because most of the e-learning course designed with the aim for learner interactivity with the course material.

6. Growth of ICT and e-Learning in India

India has taken a very long leap in last few years to improve its educational system and structure, no. of colleges and no. of students has increased dramatically which helps educate a large no of student in different ways. Government set up lots of bodies, centers and started different project to educate its large no of population, government have started lots of distance and online learning programs. After the establishment of University Grant Commission (UGC) in 1956, UGC started the coordination, determination and maintenance of standards of university education, even IGNOU and other open schools offering distance education degree programs in different disciplines and providing rich study material in textual or audio-visual format through its eGyankosh, sakshat, Gyandarshan etc programs.

Government also came with the idea of promontory use of ICTs in education in its Eleventh five year plan (2007-2012) and set up a National Mission in Education through ICT. To promote technology driven education,

the country launched a dedicated satellite EDUSAT on September 20, 2004 with the expectation to bring both quantitative and qualitative revolution in education and help in e-learning or self education. There are plenty of e-learning projects launched in India which helps and motivate learners to learn on a computer. Currently there are several projects to promote education learning environment. Some of the major projects are eGyanKosh, Flexilearn, NPTEL, CEC, Institute of Lifelong Learning (ILL), e-PG Pathshala.

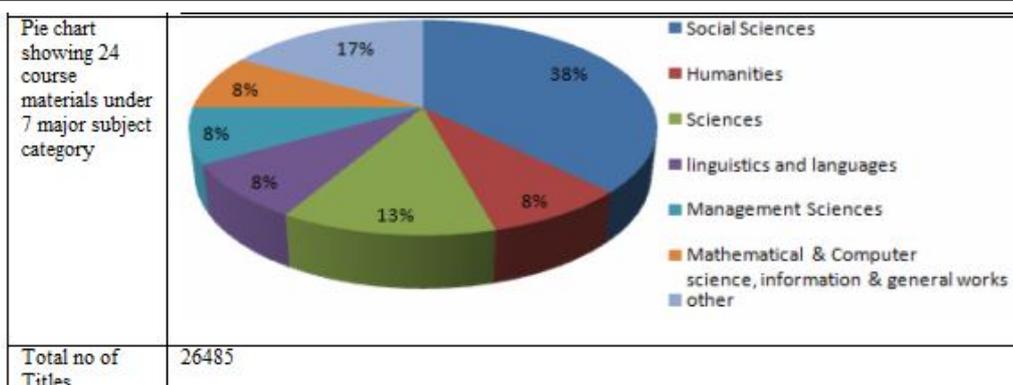
6.1 Projects

The Ministry of Human Resource Development has created a platform / portal named 'SAKSHAT' as part of the National Mission in Education through Information and Communication Technology. E-Content Projects sanctioned by NME-ICT, MHRD including some other e-Learning platform are as follows:

i. e-GyanKosh (<http://egyankosh.ac.in/>)

The meaning driven from e-GyanKosh is E=Electronic, Gyan=Knowledge and Kosh. eGyanKosh is a national digital repository to store, index, preserve, distribute & share digital learning resources developed by the Open and Distance Learning Institutions in the country. It is implemented and maintained by Indira Gandhi National Open University (IGNOU). All course materials of IGNOU can now be accessed & downloaded free of cost. The collection comprises print & video based contents. Access of all materials are open to all through the one time registration process. The brief description in tabular form is as follow.

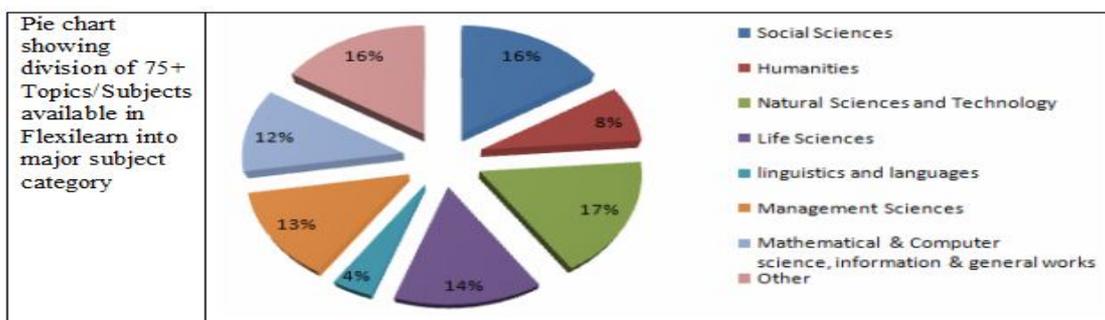
Target user	Under Graduate and Post Graduate	
Maintain by	IGNOU	
Subjects (Department)	Course materials for 24 different courses available in eGyanKosh (IGNOU) into 7 major subject category	
	Social Sciences	School of Continuing Education, School of Education, School of Extension & Development Studies, School of Gender and Development Studies, School of Health Sciences, School of Inter-Disciplinary and Trans-Disciplinary Studies, School of Law, School of Social Sciences, School of Social Work
	Humanities	School of Humanities, School of Performing and Visual Arts
	Sciences	School of Engineering and Technology, School of Sciences, School of Agriculture
	linguistics and languages	School of Foreign Languages, Indian Sign Language Research & Training Centre (ISLRTC)
	Management Sciences	School of Management Studies, School of Tourism and Hospitality Service Sectoral Management
	Mathematical & Computer science, information & general works	School of Computer and Information Sciences, School of Journalism and New Media Studies
Other	School of Translation Studies and Training (SOTST), School of Vocational Education and Training, Staff Training and Research Institute of Distance Education (STRIDE), Centre for Extension Education (CEE)	



ii. **FlexiLearn** (<http://www.ignouflexilearn.ac.in>)

IGNOU has introduced a open course portal called FlexiLearn which provides a self-learning environment with a list of academic advisors / course guides to act as mentors. FlexiLearn provides free and easy access to IGNOU's courses without any charges.

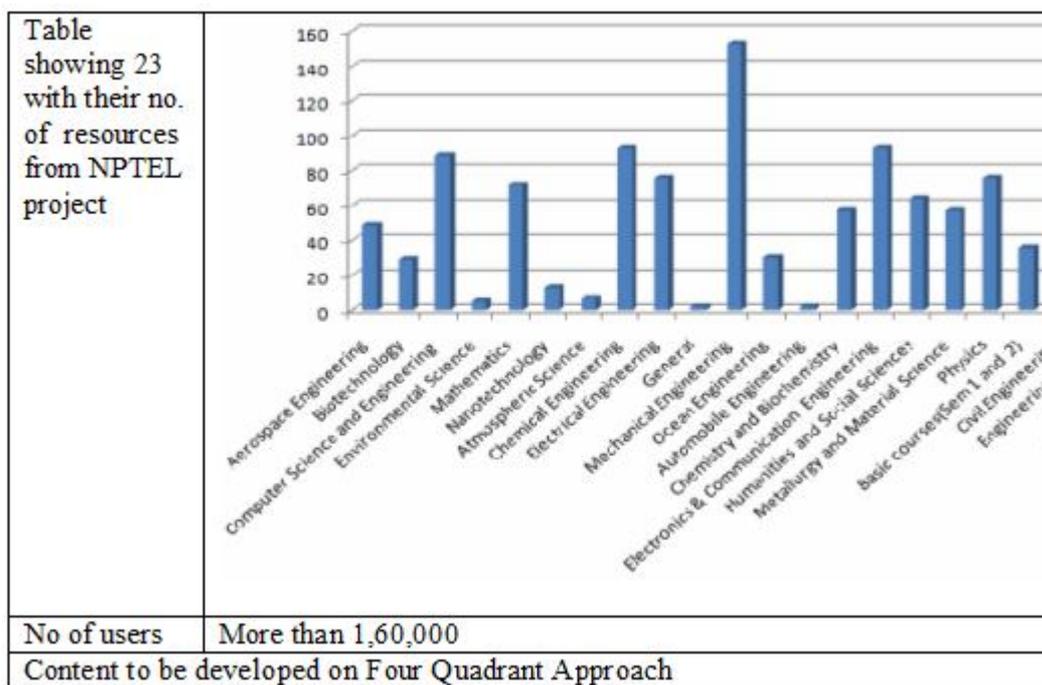
Target user	Under Graduate and Post Graduate	
Maintain by	IGNOU	
75+ Topics / Subjects available in Flexilearn	Social Sciences	Adult Education, Child Development, Education, Educational Technology, Health Sciences, History, Law, Political Science, Psychology, Public Health Science, Social Work (SW), Sociology
	Humanities	Architecture and Design, Arts, Communication Skill, Fine Arts, Humanities, Vedic Studies
	Natural Sciences and Technology	Aeronautical Engineering, Aerospace Engineering, Chemistry, Civil Engineering, Dairy Engineering, Engineering Science, Geography, Geology, Home Science, Mechanical Engineering, Nanoscience and Nanotechnology, Nautical Science, Physics
	Life Sciences	Agriculture, Anthropology, Biochemistry, Clinical Research, Environment Science, Food Technology, Life Sciences, Medical Science, Nutritional Sciences, Poultry Farming, Sericulture
	linguistics and languages	English, Hindi, Regional Language
	Management Sciences	Commerce, Economics, Finance, Hospital and Health Management, Hotel Management, Management, Public Administration, Security Management, Security Operations, Tourism Management
	Mathematical & Computer science, information & general works	Commerce, Computer Science, Information Technology, Journalism, Library and Information Science, Mathematics, Media Production & Marketing, Statistics
	Other	Centre for Extension Education, Distance Education, Extension & Development Studies, Fashion Communications, Fashion Design, Garment Technology, Integral Studies, Marine Studies, Meat Technology, Preparatory, Preparatory Programme, Rural Development



iii. National Programme on Technology Enhanced Learning (NPTEL) (www.nptel.iitm.ac.in/)

The National Programme on Technology Enhanced Learning (NPTEL) is a project funded by the Ministry of Human Resource Development (MHRD). The operational objective of NPTEL is to make high quality learning material available to students of engineering institutions across the country by exploiting the advances in information and communication technology.

Target user	Engineering under graduate students																																														
Funded by	Ministry of Human Resource Development (MHRD)																																														
Partner Institutions	Seven IITs and IISc Bangalore																																														
List of 23 stream from NPTEL project	<p>There are 125 web courses and 136 video courses available which cover five major engineering disciplines and the core science curriculum</p> <table border="1"> <tbody> <tr><td>Aerospace Engineering</td><td>49</td></tr> <tr><td>Biotechnology</td><td>29</td></tr> <tr><td>Computer Science and Engineering</td><td>89</td></tr> <tr><td>Environmental Science</td><td>5</td></tr> <tr><td>Mathematics</td><td>72</td></tr> <tr><td>Nanotechnology</td><td>13</td></tr> <tr><td>Atmospheric Science</td><td>7</td></tr> <tr><td>Chemical Engineering</td><td>93</td></tr> <tr><td>Electrical Engineering</td><td>76</td></tr> <tr><td>General</td><td>2</td></tr> <tr><td>Mechanical Engineering</td><td>153</td></tr> <tr><td>Ocean Engineering</td><td>30</td></tr> <tr><td>Automobile Engineering</td><td>2</td></tr> <tr><td>Chemistry and Biochemistry</td><td>57</td></tr> <tr><td>Electronics & Communication Engineering</td><td>93</td></tr> <tr><td>Humanities and Social Sciences</td><td>64</td></tr> <tr><td>Metallurgy and Material Science</td><td>57</td></tr> <tr><td>Physics</td><td>76</td></tr> <tr><td>Basic courses(Sem. 1 and 2)</td><td>36</td></tr> <tr><td>Civil Engineering</td><td>128</td></tr> <tr><td>Engineering Design</td><td>13</td></tr> <tr><td>Management</td><td>46</td></tr> <tr><td>Mining Engineering</td><td>2</td></tr> </tbody> </table> <p>Source: http://nptel.iitm.ac.in</p>	Aerospace Engineering	49	Biotechnology	29	Computer Science and Engineering	89	Environmental Science	5	Mathematics	72	Nanotechnology	13	Atmospheric Science	7	Chemical Engineering	93	Electrical Engineering	76	General	2	Mechanical Engineering	153	Ocean Engineering	30	Automobile Engineering	2	Chemistry and Biochemistry	57	Electronics & Communication Engineering	93	Humanities and Social Sciences	64	Metallurgy and Material Science	57	Physics	76	Basic courses(Sem. 1 and 2)	36	Civil Engineering	128	Engineering Design	13	Management	46	Mining Engineering	2
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iv. Consortium for Educational Communication (CEC) (www.cec-ugc.org/)

Consortium for Educational Communication (CEC) was set-up as a nodal agency at the national level to address the educational needs of the country through the use of electronic media. CEC has about more than 15000 educational video programmes in 50 subjects developed by different Educational Multimedia Research Centers spread in Universities and Institutions of Higher Education across India. 22 Media Centers are working towards achieving this goal under the umbrella of CEC. NME-ICT, MHRD awarded the project named “Development of Courseware e-Content for Undergraduate”. e-Learning Type Audio/Visual and Web Based material. CEC project basically concentrates on creation and dissemination of multimedia-based learning resources.

e-Learning Type	Audio/Visual and Web Based material. CEC project basically concentrates on creation and dissemination of multimedia-based learning resources.
Target user	Undergraduate
Maintain by	Inter University Centres set up by the University Grants Commission of India
Subjects	Phase-I : 19 Subjects Phase –II: 68 Subjects

v Virtual Learning Environment, Institute of Lifelong Learning (ILL) (www.vle.du.ac.in)

The Virtual Learning Environment, Institute of Lifelong Learning (ILL) is a unique and innovative initiative of the University of Delhi to provide Open Educational Resources (OER) to the teaching and learning

community. VLE provides the courses in Commerce, Humanities and Social Sciences, History, Sciences, Interviews and Podcast.

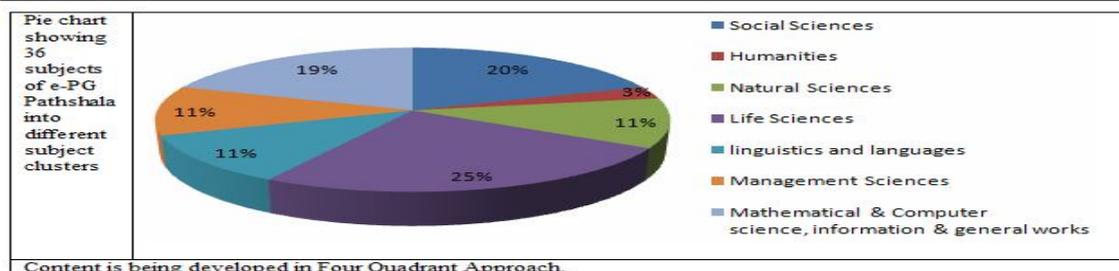
vi. Creation of e-Contents of Fermentation Technology (<http://www.elearnmicrobiology.com/>)

e-Content of Fermentation Technology is a dedicated project for student of microbiology specifically in the area of industrial microbiology. The illustrations related to dynamic textbook, lesson plans, self-assessment quiz, and interactive demonstrations given in the content has been developed by core team of the subject experts.

vii. e-PGPathshala (<http://www.inflibnet.ac.in/epgp/>)

The MHRD, under its National Mission on Education through ICT (NME-ICT), has assigned work to the UGC for development of e-content in 77 subjects at postgraduate level. The content and its quality is the key component of education system. High quality, curriculum-based, interactive content in different subjects across all disciplines of social sciences, arts, fine arts & humanities, natural & mathematical sciences, linguistics and languages is being developed under this initiative named e-PG Pathshala. E-content so developed would be available in open access through a Learning Management System (LMS) set-up at the INFLIBNET Centre as well as through Sakshat portal.

Target users	PG students	
Subjects	77 Subjects	
Maintain by	INFLIBNET Centre	
List of 36 subject identified for 1 st phase to create e-content	There are 77 subjects identified at postgraduate level on which e-PG Pathshala to develop e-content. The e-contents are being developed for 35 subjects.	
	Social Sciences	Education, History, Law, Political Science, Psychology, Social Work Education, Sociology
	Humanities	Philosophy
	Natural Sciences	Chemistry, Earth Sciences, Geography, Physics
	Life Sciences	Anthropology, Biochemistry, Biotechnology, Botany, Environmental Sciences, Food Technology, Forensic Science, Microbiology, Zoology
	linguistics and languages	English, Hindi, Linguistics, Sanskrit
	Management Sciences	Commerce, Economics, Management, Public Administration
	Mathematical & Computer science, information & general works	Computational Social Science, Computational Sciences, Computer Science, Library and Information Science, Mass Communication and Journalism, Mathematics, Statistics



7. e-Learning Learner and Medical Patient

With platform of e-learning material available on the web. There would be a time when learning would be comparable to medical treatment as is practice from years. As in case of medical treatment, if a patient has minor ailment he/she goes to chemist buy medicine/drugs and cure himself/herself, if the ailment is bigger that what he can handle he goes to medical practitioner as an outdoor patient and get medicine to treat himself. It is only in the worst kind of ailment that the patients get admitted and get hospitalized for the treatment. Following the same analyze a learner would learn himself by using platform of e-learning material available on the web, he would take assistance of tutor using live chat, voice chat in case of difficulties only in the worst cases a learner would go to traditional classroom for face to face learning.

7.1 Effective Source of Learning: User Perspective

There are different types of students / users / learners are roaming for the course materials. The following diagram explains that why and how user will approach to a particular course material under different project. There are three kind of learners facing problem of digital divide. They have different type of needs.

Learner 1- These learners are belongs from that part of society where is, lack of infrastructure and scarcity of ICT equipments. So they are lacking in source of all learning material so they approach for syllabus, course material, technique, etc.

Learner Type-1	Need	Preferable e-Learning Platform	
 Lack of sources of Reading Material	<ul style="list-style-type: none"> • ICT equipments • Syllabus, Course/Reading material • Good content etc. 	e-GyanKosh	
		FlexiLearn	
		CEC	
		Institute of Lifelong Learning (ILLL)	
		E-contents of Fermentation Technology	
		e-PG Pathshala	

Learners 2- Such kind of learners have facilities to cover their course curriculum but they need some add on material i.e. reading content highly enriched by multimedia.

Learner Type-2	Needs	Preferable e-Learning Platform	
 Have Basic Reading Material	<ul style="list-style-type: none"> • More add- on • Audio/Visual material • Online self assessment test • Online lecture 	NPTEL	
		CEC	
		Institute of Lifelong Learning (ILL)	
		E-contents of Fermentation Technology	
		e-PG Pathshala	

Learners 3- Such kind of learners have each and everything but they want a collaborative or discussion platform.

Learner Type-3	Needs	Preferred eLearning Projects	
 Have everything But want collaborative learning environment	<ul style="list-style-type: none"> • End to end communication • Collaborative/ Discussion platform • Forum • Participation etc. 	NPTEL	
		E-contents of Fermentation Technology	
		e-PG Pathshala	

8. Conclusion

The article has suggested the meaning and importance of e-learning in recent education. At present we have lots of e-learning projects in India but there is lack of awareness among learners they are not able to get the benefits from it. This study aims to thorough some light and investigates the growth and development of some of the popular e-Learning project running in India. e-Learning involves almost all forms of ICT technologies which able to covers a wide range of users. But it is also remarkable thing that the future of e-learning will depend upon its management, the platform, its content, entities for Content Creation of e-learning and their expertise.

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