

Impact of Select E-Content Projects Developed by the MHRD

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Abstract

Purpose: Measuring the newly created e-content by the UGC to enhance education, and establishing high-quality e-content, with experience in the long-term production of such material are the purposes of this research work. **Design/Methodology:** For this research, the secondary data of the NPTEL and E-PGP is used to measure the e-content availability for the students. This paper analyses the difference in e-content developed across subject categories and a comparison of e-content developed by NPTEL and E-PGP. **Approach:** This programme offers financial assistance and professional help for the creation of e-content for teachers and other specialists located at various colleges and universities. The approach of the paper is empirical, with an analysis of the data gathered from secondary sources. **Originality/Value:** e-content development by two major content development projects (NPTEL and E-PGP) across multiple subject categories and courses are analysed in the research; further, it measures whether sufficient course material is available in all the subjects from the NPTEL and E-PGP. **Findings:** The results, with ANOVA and chi-square test by SPSS software, revealed significant disparity in the subject and category; further, the E-PGP has more, and significantly high quality e-content.

Keywords: E-Content, NPTEL, E-PGP, No. of Courses, No. of Projects, MHRD, IITs

Introduction

The Human Resource Development Ministry, headed by MHRD's cabinet-ranked minister, is the authority for human resource expansion in India. The two departments

under the ministry are the School Education and Literacy Division. These departments are made to control and uplift elementary, intermediate, and higher secondary education, adult education, and literacy. Further, the higher education department deals with university education, vocational education, scholarship, and so on. Under Section 3 of the University Grants Commission (UGC) Act, 1956, the department is authorised to award deemed university status to educational institutions on the recommendation of the UGC of India.

To improve and add the new modes for making experts available through remote access, the UGC has developed an online method of education called e-content. This e-content system intends to establish high-quality e-content and experience in the long-term production of such material. The programme offers financial assistance and professional help for the creation of e-content for teachers and other specialists located at colleges and universities. The development of e-content and the associated Web-based learning described here is not meant to substitute traditional teaching and learning, but should be complementary. The integration of e-content into education is now vital, and the UGC scheme is intended to connect current demands and enable India to take on the control in this rapidly developing market. The e-content will be hosted on the mirror pages of UGC Information Network (UGC INFONET) when designed, and will be available on the website of the Consortium for Educational Communication (CEC). The content will be made manageable to all the educators and scholars of the Indian college system worldwide. The objective of this system is to inspire different teachers, groups of teachers

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in schools and universities, and IT industry leaders in curriculum development and digital development, to create instructional content in electronic format, appropriate for use in numerous teaching and learning programmes. This scheme is available to teachers of all subjects and disciplines. These programmes include NPTEL and E-PGP.

About E-PG Pathshala and NPTEL

Seven Indian Institutes of Technology (Delhi, Bombay, Kharagpur, Kanpur, Guwahati, Madras, and Roorkee), in 2003, launched National Program on Technology Enhanced Education (NPTEL), along with the Indian Institute of Science, Bangalore (Ravi & Jani, 2011). Five core disciplines have been developed during this phase, namely civil engineering, informatics and architecture, electronics and communication engineering, electrical engineering, and mechanical engineering, and 235 Web/video courses have been produced (Kattimani & Naik, 2012). The critical goal of NPTEL Phase II (2009-14) was to build on the previously implemented engineering and core science courses in NPTEL Phase I. An additional 600 online and video courses were established in all major divisions of engineering, undergraduate and postgraduate physical sciences, and graduate management courses. Many enhancements, such as indexing both video and online courses and keyword quest, have been introduced (Saravan & Esmail, 2014).

E-PG Pathshala is an ICT (NME-ICT) MHRD project carried out by the UGC as part of the National Project on Education; it has a wide impact in developing, promoting, and advancing e-learning in India (Panda, 2020). Quality and quantity are the core components of education programmes; high-quality, curriculum-based, immersive e-content in 70 disciplines in all social sciences, natural and mathematical sciences, music, performing arts, and humanities are offered. The website provides a variety of educational resources, including Classes 1-12 NCERT textbooks, NCERT audio-visual aids, periodicals, manuals, instructor training classes, and several other print and non-print materials (Ravi & Jani, 2012). The user accesses these tools for offline use, without any limitations on data (India Press Trust, 2015; ToI, 2015). The program supports the flipbook style to provide a more immersive experience.

Other programmes are also offered by MHRD under ICT mission, but the above two are the major programmes. The plans have gained momentum, and now the registration in each programme is increasing day by day. Sheorey (2014) clarified that it is crucial in this age of information economy to make high-quality professional education available and affordable to anyone utilising the new distance learning technologies. In recent years, the growth of distance learning has been related to information and communication technology (ICTs) (Mishra, 2009). In addition, several authors suggested that there has been a recent change from conventional perceptions of teaching and learning to constructivist forms of information exchange (e.g., Dickey, 2003), when several digital platforms tend to provide different and broader possibilities (Jones, 2004). It has almost become an established mantra, and while useful in increasing consciousness about diverse styles and learning approaches, it has only contributed to the naivety in deep application in reality of learning technology. This paper analyses the development of the e-contents project developed by MHRD in the context of the e-contents formed under the NPTEL and E-PG Pathshala (Mishra, 2010).

The Objective of the Paper is:

To measure that sufficient course material is available in all the subjects under the NPTEL and E-PGP projects.

Reviews of Literature

An essential advantage of an e-learning method is that students can conveniently engage at their ease with the learning atmosphere and tools (Talebian, Mohammadi & Rezvanfar, 2014). Venkataraman and Sivakumar (2015) engaged students in a student-centred group-based learning scenario, utilising e-learning strategies. They realised that the method causes a tremendous impact on the success and thriving learning atmosphere of the students. Benta et al. (2014) are researching the use of the e-learning framework to facilitate conventional face-to-face instruction, and their findings suggest enhanced teacher-learner connectivity and increased overall satisfaction among students. The advent of e-learning offers exposure to efficient and contextual education, both pervasive and transparent (Mishra, 2009). The effectiveness of information and communication technologies, however,

depends on the manner and purpose for which they are being used. Educators (Ajadi, 2008) believed that the goal is the key to achievement and effective delivery of results, so e-learning practices in various locations and submissions have its benefits, as well as its disadvantages and limitations.

Web-based learning provides many benefits over traditional classroom-based instruction, including digital technologies. The main benefits are decreased expenses, as physical space is no longer needed, and the fact that it can be utilised for the comfort of the student at any time and location. Besides, the learning material is easy to update, and the teacher may also incorporate multimedia content to provide a robust framework and facilitate conceptual understanding. Finally, it can be viewed as a learner-centred approach that can address the differences between teachers, so that they can all check the confidence of their material to assess and reuse common areas of knowledge (Jolliffe, Ritter & Stevens, 2001).

Many higher education institutions (HEIs) ventures, writers, and managers saw e-learning as providing strong potential for market growth and quality enhancement. On the one hand, e-learning offers the ability to plan teaching and learning activities not only on the premises of institutes and educational centres, but also from distant regions (Mishra, 2009). With the significant developments in ICTs, teaching and learning types are evolving increasingly and learning conditions are being profoundly affected and changed. E-learning is one such advancement, which refers to the use of online tools to facilitate learning practices, which are increasing in prominence and becoming a dominant phenomenon with the tremendous benefits it provides to learning environments (Mishra, 2009).

HEIs are prone to a variety of stresses, but have a high tolerance to shifting. We are awash with abundant capital in the form of knowledgeable, sharp individuals. Still, we are never adequately guided towards pedagogical creativity, nor are we self-motivated to change the teaching dramatically. When paired with other ways of

teaching and studying, e-learning is multifaceted and requires changes in both perception and actions. The bulk of educators in charge of both the programme and the pedagogical mechanisms resulting from e-learning have not made such improvements. It is highly difficult to 're-engineer' a whole university (Brown, 2002) to meet the significant adjustments correlated with e-learning. Many scholars already find e-learning to be impersonal, oppressive, and insufficiently sensitive to the needs of a wide variety of learners. This perception emerged in the earlier days, primarily due to the over-simplistic strategies. To date, much of the emphasis has focused on technology advancement or top-down government goals, not on human aspects, scaling up and embedding creativity, and the resulting implementation of transition (Tham & Werner, 2005).

Research Methodology

Approach: The present research uses deductive research approach. In the deductive research approach, the researchers generate hypothesis from theory.

Data Collection: Secondary data were gathered from the websites of NPTEL, E-PGP, files, newspapers, reports, records, policies, government publications, magazines, company publications, journals, books, articles, websites, and so on.

Sampling Technique: Convenience sampling (selection of NPTEL and E-PGP).

Data Analysis

To analyse the data of both the sites regarding e-content development, the following hypothesis is developed to test the difference in e-content developed across subject categories.

H₁: There is a significant difference in e-content developed across subject categories.

For testing the hypothesis, ANOVA test was used by the SPSS-19 software. The results are provided in Table 1.

Table 1: Subject-Wise E-Content Developed

a. Subject Statistics						
Subjects			No. of Courses	No. of Projects	E-Content	
Social Sciences			831	80	21759	
Engineering and Technology			941	45	21364	
Arts and Humanities			612	56	15109	
Medical and Health Sciences			261	28	5449	
Physical Sciences			229	16	5437	
Agricultural Sciences			209	13	2711	
Chemical Sciences			120	8	2289	
Biological Sciences			43	4	617	
Total			3246	250	74735	
b. Descriptive Statistics						
	N	Mean	Std. Dev.	Std. Error	Min.	Max.
Courses	8	405.750	341.010	120.565	43.000	941.000
Projects	8	31.250	26.826	9.484	4.000	80.000
e-Content	8	9341.875	8719.549	3082.826	617.000	21759.000
Total	24	3259.625	6519.266	1330.740	4.000	21759.000
c. ANOVA Result						
	Sum of Squares		df	Mean Square	F	Sig.
Between Groups	444486181.75		2.00	222243090.88	8.76	.00
Within Groups	533032781.88		21.00	25382513.42		
Total	977518963.63		23.00			

Table 1 shows the output of the ANOVA analysis and whether we have a statistically significant difference between our group means ($F = 8.76$, $p < 0.05$). Therefore, there is a substantial difference in e-contents developed across different subject categories.

The following hypothesis is developed to test the difference in e-content between NPTEL and E-PGP.

H_2 : *There is a significant difference in e-content developed between NPTEL and E-PGP.*

For testing the hypothesis, the Independent Sample 't' test was used by the SPSS-19 software. The results are provided in Table 2.

Table 2: Project-Wise E-Content

<i>a. Project Statistics</i>		
<i>Project Category</i>	<i>No. of Courses</i>	<i>No. of Subjects</i>
E-PGP	982	70
NPTEL	934	24
Total	1916	94

<i>b. Chi-Square Tests</i>			
	<i>Value</i>	<i>df</i>	<i>Sig. (2-sided)</i>
Pearson Chi-Square	22.511	1	0.000
N of Valid Cases	94		

The chi-square value $\chi^2(1) = 22.511$, $p = .000$. This table concludes that there is a statistically significant difference between courses and the number of subjects for which e-content is developed under the NPTEL and E-PGP projects.

Conclusion

The goal of the UGC e-content scheme is to increase high-quality e-content, as well as the expertise to produce content in the long term. The programme offers financial aid and professional resources for the production of e-content to teachers and other professionals located in colleges and universities. The development of e-content and associated Web-based learning described here is

not intended to replace, but is expected to complement, traditional teaching and learning. The incorporation of e-content in education is now imminent, and the UGC initiative plans to tackle new problems and enable India to take the lead in this developing sector. The content will be made handy to all teachers and students of the Indian university system throughout the world (Benta et al., 2014). This scheme aims to encourage individual teachers, faculty and university groups, and IT industry experts in content development and multimedia production, to develop educational content in electronic format, which is suitable for use in various fields of teaching. The present study aims to study the status of e-content development by two major content development projects (NPTEL and E-PGP) across multiple subject categories and courses. This study determined that there is a significant difference in e-content developed across subject classes, directions, and e-content development projects. E-contents were developed the highest by E-PGP initiative (982 courses of 70 subjects), followed by NPTEL (934 sessions of 24 items). Thus, under NPTEL, more sessions need to be developed with others. Further, it can be concluded that sufficient course material is not available in all the subjects (Tham & Werner, 2005). Across the subjects, a majority of e-contents was developed in the area of engineering and technology, followed by social science. The lowest e-contents were developed in the field of biological sciences, followed by chemical sciences. Thus, e-contents should be developed in other categories (Ajadi et al., 2008). Further, there is non-availability of regional language-based course materials.

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