



# ‘Learners’ Trove’: A Learner Centric Initiative Using DSpace

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**Abstract--** At a time when the learner is occupying the center stage in the whole process of knowledge dissemination and assimilation, it is time for the centers of learning, particularly the Higher Education Institutions (HEIs) to provide learning resources in multiple formats that are fully mapped to their course curricula. ‘Learners’ Trove’ is one such innovation that takes advantage of the power of Information and Communication Technologies to provide digital platform of learning resources to the students and teachers. **Objective:** The paper discusses the challenges faced by the students of a semi-urban college in conventional methods in accessing suitable content for their studies and how the introduction of ‘Learners’ Trove’ – a digital platform of learning resources enabled better access to learning resources in multiple formats. **Technology or Method:** DSpace, a popular open access repository software is used as a platform to host various formats of learning resources. **Results:** Multimedia learning resources such as ebooks, e journal articles, videos, audios, presentations, scanned copies of the notes distributed by the teachers in the classrooms, simulations, previous years’ question papers, etc., are mapped to the syllabi of respective programs and hosted on a searchable platform, resulting in greater student satisfaction and better performance of the students. **Conclusions:** There is a palpable sense of optimism among students and teachers about this digital platform and more and more users are actively making use of this platform for their academics. **Clinical Impact:** Owing to the ready acceptance of Learners’ Trove by the college students, many colleges run by the Society and other colleges in vicinity are now considering designing and developing a similar platform for their faculty and students.

**Keywords--** Learners’ Trove, digital platform, e-resources, tutelage.

## I. INTRODUCTION

THE technology enabled learning in the last three decades has been transforming the teaching and learning environment to such an extent that for the first time in the modern history, pedagogy has become learner centric in its true sense. Though significance of the learner occupying the center stage in teaching and learning has been mooted for many decades it is the technology in education that actually brought this transformation.

Yet the percolation of technology into academics,

particularly in college and university campuses has been slow in developing countries than in developed countries owing to the digital divide. While modern teaching methodologies have been evolved, experimented and improved to suit the needs of the learners in the developed West, the developing East has been relatively a passive consumer rather than an innovator.

Technology, particularly the internet technology is a great equalizer and leveler. Certain technologies provide an ability to customize the technological intervention to suit the local needs without actually being a designer and developer of that technology. The open access movement has proved to be a great boon for the developing countries and regions enabling them to transform their classroom environment with greater ease and convenience and bring them on par with their global counterparts.

Open access digital platforms are great interventions that have the potential to altogether transform how students are engaged in their quest for knowledge, skills and attitudes.

Of late, the traditional libraries of the HEIs are rechristened as Knowledge Resource Centers imbuing them with greater motivation and hence, they are now taking proactive approach in providing suitable learning resources, instead of being passive storehouses of books in physical formats.

Open digital platforms, particularly in the context of academic environment of a Higher Education Institute (HEI) are online repositories where educational resources are hosted and delivered to the prospective learners with greater effectiveness. They enable administration of learning resources, organize them, deploy them to the learners, in multiple formats. The easy access of resources 24/7, 365 days and integration of such digital platforms with mobile phones enable the learners to be *learners on the go* anytime and anywhere. Added to it is the advantage of learning the content not just in the form of textual material but also in video, audio, simulation and plethora of other multimedia formats, thus engaging more senses of the learners for greater effectivity.

DSpace, an open-source repository software package is used for creating this digital platform named ‘Learners’ Trove’.

## II. DIGITAL PLATFORMS - A BOON FOR LEARNER CENTRIC LEARNING

### A. Advantages of Digital Platforms

One of the greatest advantages of deploying a platform with multimedia content is the facility to learn asynchronously at the pace chosen by the learner. Unlike the traditional library, a digital platform offers access to multiple formats of learning resources at any time and place. This provides greater freedom to the learner to choose the time of his learning depending on his mood and readiness, independent of the working hours of the library. Digital platforms also provide the advantages of blended learning, enabling learners across the spectrum – slow learners, gifted learners and those anywhere in between to be kept engaged with suitable content. Digital repository software packages come in a variety – starting from one time subscription, periodic renewal, free trial to free and open-source software. The deployment can be either on cloud or can be hosted on the local servers.

Though online repositories and digital platforms have been around for well over two decades in the developed West and for about a decade in the premier HEIs in India their prevalence is rather very limited in other HEIs particularly in semi urban and rural areas. Thus the power of educational technology in the form of digital platforms has not yet been tapped by a large section.

### B. Overview of DSpace: An Open Digital Platform

DSpace is a popular open access repository for hosting scholarly and/or published digital content. It is a digital archives system, focused on the long-term storage, access and preservation of digital content [1]. The first public version of DSpace was released in November 2002, as a joint effort between developers from MIT and HP Labs[2].

The popular version of DSpace is built using Java. However, DSpace 7.x onwards is based on angular, a development platform and supports faceted search and browse functionality using Apache Solr [3]. This web-based application provides several interfaces such as administration, deposit, ingest, search, and access. The chief strength of this application is its metadata which enable searching of the content based on several parameters. The asset store is maintained on a file system or similar storage system and the metadata, including access and configuration information are stored in a relational database supporting PostgreSQL and Oracle database [4].

### C. Moolji Jaitha (Autonomous) College: A Case Study

Moolji Jaitha (Autonomous) College is a renowned educational institution which has celebrated its Semi-sesquicentennial year (75 years) in 2019 [5]. The college received coveted status of College with Potential for Excellence (2003-2012) twice and College of Excellence (2013-18) from the University Grants Commission. It was awarded 'A' grade successively for three consecutive terms owing to which the college was eligible to become an Autonomous college. The college opted for Autonomy in 2019. The college was an ISO 9001:2008 and ISO 9001:2015 institution during 2012-2019. It offers undergraduate and postgraduate programs in Humanities, Sciences, Commerce & Professional Management and Interdisciplinary studies. About five and half thousand students receive education from this institution, a majority of which hail from lower middle

class economic group. A large number of students are just second-generation literates. With the decision to go autonomous from the academic year 2019-20, the college has embarked on introducing modern educational technologies to transform its teaching and learning environment. One such initiative is introduction of 'Learners' Trove', a digital repository of learning resources.

## III. Methods and Procedures

The Learners' Trove is developed on the DSpace 7.2 platform and installed on the college web server. Since a lot of content hosted on this digital platform is likely to be copyright protected, user authentication is mandated for accessing the actual resources under various sub-communities.



Fig 1: 'Learners' Trove' Home Page

The homepage gives an overview of the structure of the digital platform to the visitors [6]. The main community of the Learners' Trove is named World of E-Resources and displays the copyright disclaimer.

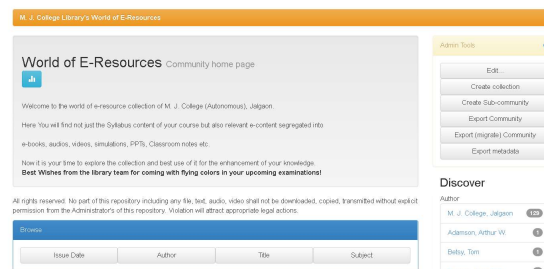


Fig2: Learners' Trove: World of E-Resources

Under the main community of World of E-Resources are eight sub-communities as under:

#### Arts & Humanities

All Subjects relating to Languages, Arts, Humanities & Social Sciences

#### Commerce & Management

All subjects relating to Commerce & Professional Programs including Batchelor of Computer Applications.

#### Fine Arts

Subjects including Music, Dance, Drama, Painting, Sculpture, Theatre, Film & TV, etc.

#### Interdisciplinary Studies

Subjects including Yogic Science, Sports, Philosophy, Education, Library & Information Science, etc.

#### Manuscripts

The heritage wealth of this timeless nation embodied in the form of written documents and manuscripts.

### Personality Development

All that you require to groom your personality including those that enhance your etiquettes, Interview skills, Presentation Skills, Group Discussion, Body language, Negotiations skills, etc.

### Research

All and sundry relating to Research Methodologies.

### Science & Technology

All Subjects relating to Science and Technology

Each main Sub-Community is further segregated into smaller Sub-Communities corresponding to various departments of the college. There are 10 departments in Arts and Humanities Faculty, 11 departments in Science Faculty, and 6 departments in Commerce and Management Faculty. 7 sub-heads are displayed under Fine Arts section. 5 categories are displayed under Interdisciplinary Studies. The Manuscript sub-community showcases various collections of manuscripts received from individual/institutional donors. The sub-community 'Personality Development' hosts a plethora of resources that are helpful for grooming one's personality and perform well in social situations. Research Methodology is another important Sub-Community that provides very useful material for postgraduate students and research scholars in pursuing their research activities. An example of sub-communities is displayed hereunder by taking the example of Science and Technology Sub-Community.

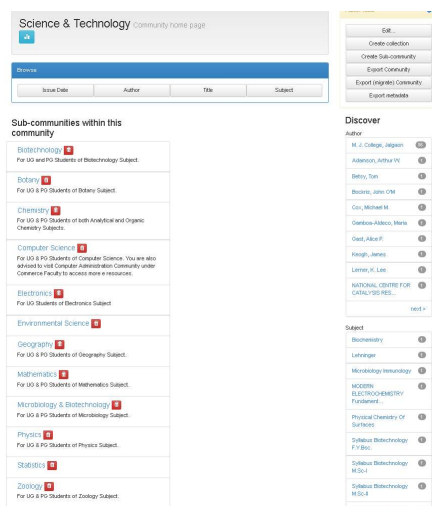


Fig3: Sub Communities within Science and Technology

Each sub-community representing a department hosts the actual e-content segregated into various collections. The main collections under each sub-category include Audios, Ebooks, PPTs and Classroom Notes, Syllabus, Videos including simulations.

The KRC has about one thousand rare manuscripts in its collection which are being digitized and uploaded on to the 'Learners' Trove'. Similarly, there are about twenty thousand ebooks, about five thousand videos and two thousand audio books that are being prepared for uploading.

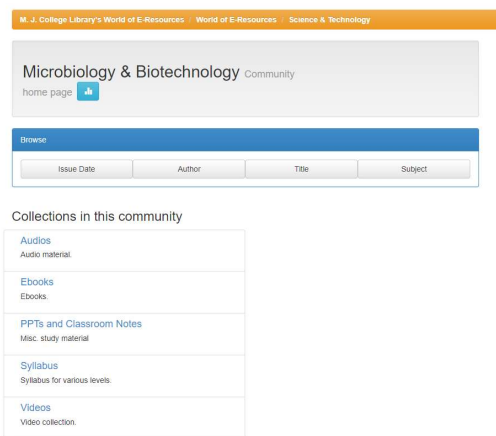


Fig4: Main Collection under each Sub Community

For bulk uploading files in various formats into the DSpace database, an xml file with descriptors of the content based on Dublin Core Metadata is created and using an ingenious yet ingenious application, the files are being uploaded.

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Apart from the above digital platform, the Knowledge Resource Center (KRC) also initiated a unique venture to sensitize the learners towards three important aspects, through a relatively old technique called *programmed learning*. These three core values include Scientific Temperament, Human Values and Philosophical tenets of various world religions [7]. Programmed learning, also known as programmed instruction, is a research-based system that presents the material in a logical and tested sequence [8]. Edward Thorndike, a well-known education psychologist succinctly described what programmed learning is: "If, by a miracle of mechanical ingenuity, a book could be so arranged that only to him who had done what was directed on page one would page two become visible, and so on, much that now requires personal instruction could be managed by print" [9, p. 165]. Taking cue from this research done by a variety of applied psychologists and educators in the early twentieth century, the KRC has innovated to introduce learning material on these pre-identified important aspect through the programmed learning technique. To start with, the home page of the Programmed Learning introduces the concept and explains how the learners can benefit from it.

Each topic presented is divided into several sections comprising of simple and assimilable paragraphs and at the end of each such section, the learner is encountered with objective questions to assess his/her understanding of the topic presented. The learner is allowed to proceed to the next section only when he/she answers all the questions correctly, lest he/she would be returned to the beginning of the same section so as to enable him/her to comprehend the topic better. Thus programmed learning technique for these core aspects of human life ensures that the learner is actually imbued with these ideas thoroughly.

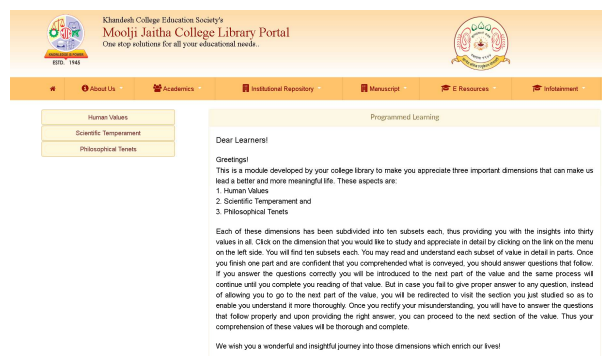


Fig5: Programmed Learning for Three Core Values

The KRC has identified ten core values each under Human Values and Scientific Temperament categories, fifteen under the category of Philosophical Tenets of Various World Religions. The sub topics under human values include: 1. Patriotism/Nationalism 2. National Integration 3. Religious Tolerance and the Idea of Secularism 4. Gender Equality 5. Dignity of Labor 6. Scientific Temperament 7. Fraternity 8. Empathy 9. Punctuality and 10. Discipline. These are the Human Values identified by the Government of Maharashtra to be inculcated in the school children. The sub topics under Scientific Temperament are: 1. Evolution of Science 2. Six Ws and one H 3. Scientific Attitude 4. Confluence of Spirituality and Science 5. Superstition and Science 6. Scientific Method 7. Scientific tools 8. Astronomy 9. Scientific Research 10. Modern Scientific Advancements: Human Cloning Project. Lastly, the Philosophical Tenets of Various World Religions identified are: 1. The Purpose of our Living and its Objectives 2. Religion and Philosophy and the Interrelation 3. Occam's Razor 4. Sources of Knowledge: How do things Come into our Experience? 5. The Secret of Physical Reality 6. Philosophical Tenets of Buddhism 7. Philosophical Tenets of Judaism 8. Philosophical Tenets of Christianity 9. Philosophical Tenets of Islam 10. Philosophical Tenets of Jainism 11. Philosophical Tenets of Sanatana Dharma 12. Philosophical Tenets of Zoroastrianism 13. Philosophical Tenets of Sikhism 14. Philosophical Tenets of Taoism 15. Philosophical Tenets of Shintoism.

Needless to say, each of these core values are vital for an expanded view of the world and one's own self.

#### IV. CONCLUSION

The advent of digital learning environment in the modern times has created a demand for accessibility of knowledge resources in multiple formats. The learners look for content on the go that can be accessed at their own pace and convenience. 'Learners' Trove' together with the programmed learning technique is one such initiative started by the Knowledge Resource Center of the Moolji Jaitha Autonomous College, Jalgaon to precisely address this demand. It is a comprehensive and innovative approach for the provision and management of educational resources.

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