Original Article

Virtual Research Environment: New Challenges for Librarians

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Abstract

VRE and VLE are relatively new concept in India like 3rd world countries.

Article provides an overview of the Virtual Research Environment (VRE's). The Generation of VRE's, its relationship with Virtual Research Learning (VRL) discussed. It also indicates the role of Libraries as well as Library Professionals for the development and management of VRE's. Plug and Play approaches, Steps, aims and objectives of VRE are analyzed. Problems are identified and recommendation has been made for the development of VRE Frameworks in the country and abroad. It also highlighted the recommendation of JISC for successful implementation of VRE.

Keywords: Digital library; E-learning; Virtual learning environment; Virtual library; Virtual research environment.

Background

The Learning as well as research environment are going through a time of rapid changes where education is shifting from instruction based content delivery on one to many basis to specific learner centric and learner as producer model. Rapid strides over information technology and development, the Information and Communication Tools (ICT) led to a paradigm shift in learning and research environment. Those changes also reflected in every sphere of modern days library activities.

Research and development specially in the field of education directly influenced countries progress. Side by side Distance Education and E-Learning gaining importance among teachers of education institutes day by day. In the present era of information explosion many institutions (virtual) have started offering wide range of courses with (personal contact programme and Workshop, practical) through the web providing multimedia based interactive courseware called online courses or virtual courses. In the present context the concept of traditional library has been changed and shifted from traditional book repository to knowledge centre or virtual library (Library without wall).

The virtual library environment encompasses the concept of Digital Library but is more than a collection of digitized resources. It provides access to an integrated collection of print, electronic and multimedia based resources delivered frequently to end user irrespective of their Physical or geographical location and ownership of the information.

A revolution is taking place in research which is powered by sophisticated ICT tools. The new generation research is characterized by Collaborative, Multidisciplinary (Mega Research) in nature as a result of which huge volume of data generates, processed and retrieved. As E Resource evolves in the field of education so it is inevitable that Virtual Research takes shape. VRE is likely to have huge impact not only on various aspects of R&D but also in the academic and research libraries in various countries. If VREs are to

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fulfill their potential as powerful and effective artifacts the information professionals need to have a pivotal role in their development and application. VRE and VLE are relatively new concept in India like 3rd world countries but VRE framework took a good shape in US, UK like other developed countries.

What is VRE

As Joint Information Systems (JISC)14 VRE programme defines:

" A Set of online tools and other network resources and technologies interoperating with each other to support or enhance the processes of wide range of research practitioners within and across disciplinary and institutional boundaries. A key characteristics of a VRE is that it facilitates collaboration amongst researchers and research terms providing them with more effective means of collaboratively collecting, manipulating and managing data, as well as collaborative knowledge creation".

VRE is defined as a "set of online tools, systems and processes interoperating to facilitate or enhance the research process within and without institutional boundaries."5

Why VRE

The VRE played an important role in learning and research environment. The functions of VREs are as follows.

- Research Administration
- Resource discovery and access management.
- Collaboratively collecting, manipulating and managing data.
- Collaboration and communication
- Research publication, use and presentation
- Facilitate collaborative knowledge creation

Virtual Learning Environment (VLE) vs. VRE

Virtual Learning Environment (VLE) is a learning platform that organizes and provides access to learning services. VRE's have their roots in virtual learning environment also referred to as Learning Management System. Like VLEs, VREs provide wide range of management and administration facilities and some provide teaching and learning functionality unlike VLEs, VREs also provide research and analysis tools. Interoperability, modularity and compatibility with other systems have been recognizes as generic requirements for VRE's. Potential users of VRE's are often virtual community i.e. the group of people who initially or basically communicate via the internet instead of face to face includes Lecturers or tutors actively engaged in providing VLE based learning for their students.15 From the library view point the overlap with VLE's offers a natural entry point to VRE activity . Role of service facilitator for VRE would not necessarily be more 'Technical: than the equivalent role for a VLE. It would rely on the same underlying data management and communication skills in which many libraries already excel.

Librarian's Role

Modern day's librarians played a pivotal role in successful development & optional use of VRE's. The symbiosis between library and VLE could be mirrored by a rich relationship between library and VRE. Judith 15 pointed out that VRE's could evolve without the optional level of library involvement or in some cases without any library involvement at all.

To avoid such cases librarians need to be proactive in identifying and advocating for their potential roles in VRE development and use. They are acting as a part of team to provide VRE's. Successful VRE implementation requires skill and training for the librarians that must be implicated in LIS curriculum offered by various universities through out the nation. Same time it is essential that AICTE, UGC,

ICAR, ICMR like bodies should come forward, emphasized the need of VRE, conducting Seminars, workshops, short term training courses for information professionals. The librarians can play the pivotal role in VRE Environment by Providing:

- Intellectual access to information in any format

- To evaluate available sources of information

- To organize and structure information

- Ensure the presentation of information meaningful to its end user
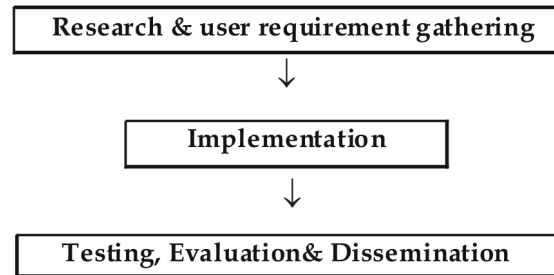
Development and Use aspect of VRE

Following aspects of VRES are identified discussed below:

- *VRE Development:* Librarians are familiar with the issues centering VLE's and have an insight into many of the central issues that will be involved in VRE development including information access and creation of discipline based knowledge. This places them in a unique position to contribute to the evolution of VRE's. Librarians could collaborate with research communities to determine user requirement and to facilitate user evaluation.

- *VRE Use***:** Librarians need to have significant experience of VRE's if they like to teach others how to use them. Researchers are increasingly adopting a range of social networking software including blogs, Wikis and annotation tools to collaborate with other researchers and to share information and ideas. Librarians play the role of collaboration facilitators and managers.

Steps of VRE

Research & user requirement gathering includes the following:

- Tools for finding Information (library catalogues/Databases)

Research & user requirement gathering
↓
Implementation
↓
Testing, Evaluation& Dissemination

- Funding
- Collaborative tools (Web Content, Access to e mail, diaries, and discussion/chat facilities.
- Managing data across the system: These could include Access to VLE.

VRE Frameworks-Plug and Play Approach VRE Frameworks need to be developed with flexibility in mind. Researchers increasingly expect that they will be able to take 'PLUG and PLAY Approach' 7 in order to integrate their own personal choice of collaboration tools, library resources within the VRE framework. It is essential to integrate not only with systems within a single institution but also driven by the diverse nature of research community with a variety of system and resources outside the institution.

These include:

- Collaboration tools at a collaborating institution

- Essential Web 2.0 collaboration tools

- Grid services

- Broader information environment tools and services

- Integration with the emerging institutional and other repositories and other publication mechanism.

Research behaviors are extremely varied and it is unwise to attempt generally and categorize these by discipline. VRE Frameworks therefore need to be built with the flexibility to cater the wide needs and expectations.

In's and Out's of VRE

Scientists identified 4 kinds of following barriers for implementation of successful VRE framework.

- Lack of Government /Autonomous body's appreciation and initiatives

- Lack of funds

- Lack of coordinated efforts and willingness to share the information

- Lack of proper skill and state of the art knowledge. Specially Metadata standards, Web 2.0, grid services etc.

JISC4 Joint information Systems Committee in the year 2010 recommended the following:

- International Cooperation is needed international VRE forum coordinate the activity all around the globe.

- Multi pronged approach to sustainability needs to be implemented from planning stage of VRE to entire cycle.

- Advance planning for engaging broader research community. Such as awareness raising, targeted training of different types, other engagement events are important for managers, librarians, archivists etc for the uptake of VREs.

- Policies, laws that leads to barriers to research should be modified.

Besides this in India like developing countries these recommendations might be beneficial for successful implementation of VRE

- Workshops/seminars by UGC/AICTE/ICMR/ICAR at regular interval

- Online information skills among Library and Information professionals are advisable.

- Major thrust on Multimedia/ICT based course content in different library school

- Adopt and encourage E Publishing

- Digitization of thesis/research report is mandatory.

Conclusion

VRE's are not specific type of technology but used as a way of "matching tools and Technologies to end user".[15]

VRE's can be treated as Web 2.0 tools or E Research tools. As a result of social networking application increasingly used by the researcher's added urgency to the requirement for VRE's adhere to open and published standards & specifications. Some researcher prefer to the provision of set of standard tools within VRE framework that definitely reduce the work in setting up tools and services for themselves. In contrary other likes to personalize the environment using their own tools and services.

The virtual library environment requires a new technical set of competencies and skills creating web pages, maintaining computer networks, Designing search interface, multimedia based technology, grid services etc.

Modern days librarians have important role in VRE development and application and need to be proactive in identifying, advocating to their potential roles in VRE development and use.

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