

# Identification of Nobel Framework for Knowledge Portal in Higher Secondary Education Sector

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**Abstract**— Knowledge portal is highly integrative Knowledge Management System which provides a free and online subscription service. Day by day utility of knowledge portal is increasing. The backbone of education is higher secondary level in which student chooses their stream. Every time a student requires syllabus, books, question papers etc. He/she wastes time as well as money. It is available on the internet but they are confused which is best. We decide to design and develop the knowledge portal for higher secondary sector. This portal will help the student, teachers as well as parents for the above purposes. How it will be more secure and powerful? Students, parents, teachers, syllabus, books, notes, unsold question papers etc are basic elements of the developing knowledge portal. Online lectures will be the root of the portal. Open source software's are license free software. It is freely available on the Internet. In this paper, we will focus on and discuss the fundamental requirements for its development and also discuss portal elements.

**Keywords**— Knowledge repository, Discussion Forum, Software Tools Panel, Knowledge Testing, Virtual Laboratory

## I. INTRODUCTION

The Indian School level education is divided into primary, middle, high and higher secondary. Higher secondary education is started after the completion of high school education. It is very competitive steps for the admission. Some students are admitting to their choice of subjects because their percentages are very high. Some students are compromising to their choice of subjects because their percentage is high and seats are not available for their choice of subjects. Some students are taking admission as no choice and no compromise with subjects. Teaching and learning weakness affects education growth of students. Some students are attending the classes regularly. Irregularly attend the classes generates study weakness. Those students who are absent in that period they need notes and demands help from the classmates or teachers. In this situation, online study materials help them like their classmate or the teacher. An online lecture removes their weakness. For these purposes, we want to decide the development of the knowledge portal for the higher secondary education sector. In this paper, we are discussing the identification of Nobel framework for developing the HSES portal.

In mid of 90's, navigation sites and search engines were developed. India.gov.in is the Indian government's web portal for citizens launched on 10 November 2005. It was a

Mission Mode Project under the National E-Governance Plan (NeGP) and managed by the National Informatics Centre. It was a first web portal of India. The famous Indian railway portal is launched in 2016 with <http://www.kportal.indianrailways.gov.in/> portal address. Recently, Kendriya Mahila Bal Vikas Mantralaya launched Nari portal with URL of <http://nari.nic.in>. It motivates us for the development of the web portal. Knowledge Portal is a combination of two words knowledge and portal. Knowledge is the ability to turn data and information into effective action. Tacit and explicit are two categories of knowledge. The word portal represents a website to provide the knowledge in which a set of related web pages located under a single domain name. A collection of web pages on the World Wide Web contains specific information. A web page is a document which is created in markup languages. Web Designing is known as planning, creation, updating, and maintenance of a web portal. Elements of web portal design are layout, color, graphics, fonts, contents, shape and direction. Knowledge portal is an Internet-based computer program that constitutes a single point of access to applications and information. It is a Tool for Knowledge Management which builds on an information portal. It is a concept in which an education gathers, organizes, shares, and analyzes the knowledge of individuals and groups across the institution. The Key Functions of KP are gathering, organizing, publishing, categorization,

distribution, personalization and Search/Navigate. The main components of KP are E-mail, real-time messaging & awareness, Discussion forums, Knowledge Catalogue, repository, database tools & software and user interface. The knowledge portal laws are KP should be growing organism, KP should save the time of the user, KP resources are for use, Every KP resource its user and KP resources should be available for every user.

## II. RATIONAL OF THE STUDY

Knowledge portal for the higher secondary education sector is designing and developing for the student's welfare purpose. It helps to solve and reduce learning problem of the students, to increase teaching power of the teachers, to promote paperless learning & teaching, to aware Green Education, to save money and time, to provide audio and video lectures, to download & share the study materials and to promote ethical study. In this research, we identify the Novel framework. The main objective of my study is the development of KP for the higher secondary sector to provide online study material and awareness of digital education. It is necessary because a lot of educational materials are available on the Internet. Today Internet-connected device mobile, computer, tablet PC and laptops are including electronic jewelry of the students. Students can access this portal anywhere and anytime. Teacher improves teaching quality with good study materials. Parent helps their ward for the difficulty in the study.

## III. RESEARCH METHODOLOGY

The systematic, theoretical analysis of the methods applied to a field of study is called methodology. It comprises the theoretical analysis of the body of principles and methods associated with a branch of knowledge. It does not set out to provide solutions and specific method. A paradigm is a constructive framework similar to a methodology. The creative processes of knowledge portal are an identification of field & information experts, documentation of Internal Knowledge, the creation of various systems & databases, integration of internal & external knowledge and designing an easy Interface for the users. The Design Steps of an educational knowledge Portal are knowledge extraction from sources, content management, submission & document indexing, search & analysis support, and knowledge dissemination. Knowledge portal for the higher secondary education sector is a combination of 7 components. They are knowledge repository, discussion forum, software tools panel, knowledge test, KP-HSS, virtual memory any knowledge worker.

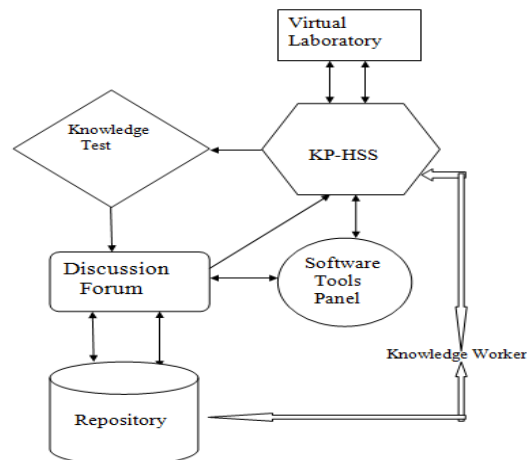


Fig. 1 Model of Nobel framework for Knowledge Portal in HSES

## IV. KNOWLEDGE REPOSITORY

A knowledge repository is the base component of the knowledge portal. A computerized system that systematically captures organizes and categorizes an organization's knowledge is known as a knowledge repository.

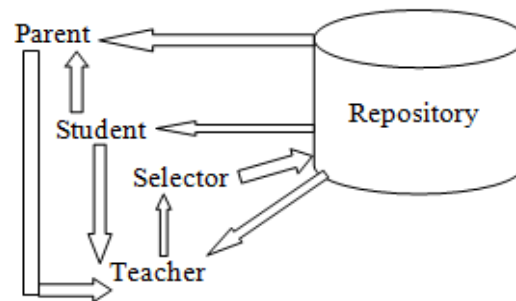


Fig. 2 Knowledge Repository System

A knowledge repository is an online database appears commonly in the literature of knowledge management. It collects knowledge from the selector and sends it for discussion purposes. It is most often private database to manage the enterprise and proprietary information. The knowledge repository can be searched and data can be quickly retrieved. It refers to a system that houses and manages a collection of educational knowledge. An example of knowledge repositories is the "Dynamic Knowledge Repositories" proposed by Doug Engelbart and his group (described in Carroll, 2001). Liebowitz and Beckman (1998) define knowledge repository as an: ...on-line computer-based storehouse of expertise, knowledge, experience, and documentation about a particular domain of expertise. Knowledge is collected, summarized, and integrated across sources in creating a knowledge repository. Building a knowledge repository is heavily dependent on integrating e-libraries in one database system that can enable students,

parents, teachers, and researchers etc to access and upload or publish their works to preserve the knowledge repository in the long-term.

**V. DISCUSSION FORUM & KNOWLEDGE TEST**

The Knowledge repository collects knowledge from the selector and sends it for discussion purpose. A group of individuals with similar interest who gather either formally or informally to bring up ideas, solve problems or give comments called discussion group. A different member of discussion forum discusses the requirement. The Discussion Board is also available as a group tool that is used by smaller groups within a course. This forum finalizes the hypothesis. Student, Teacher, Subject Expert, parent, and Researcher are a member of the forum.

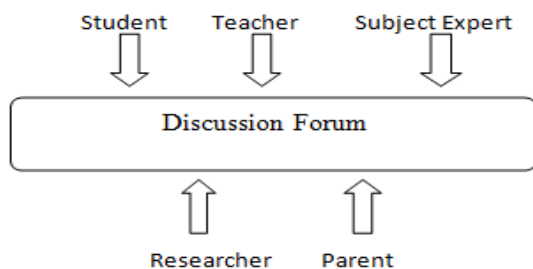


Fig. 3 Discussion Form Interface

Testing of knowledge is the backbone of research for checking the quality of developing KP. It is done by members of the discussion forum. It helps the researcher for providing a chance to add any left decision.

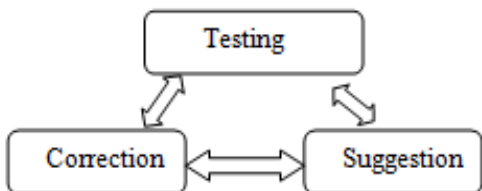


Fig. 4 Knowledge Testing Cycle

**VI. SOFTWARE TOOL PANEL**

Software Tool Panel is a new idea included in this research for the selection of a combination of software’s who are more useful for the knowledge portal development. A portal system is developed for the public or private interface in which a user performs multiple with a personal login. There is a need of client-side Scripting, server-side Scripting, MySQL and web server. In my research, PHP, MySQL and Apache etc are used as software tools. Open source software is made available freely to all and many of them voluntarily contribute developing software for the organization”. Software panel is a group of open source software’s which is used for the knowledge portal development.

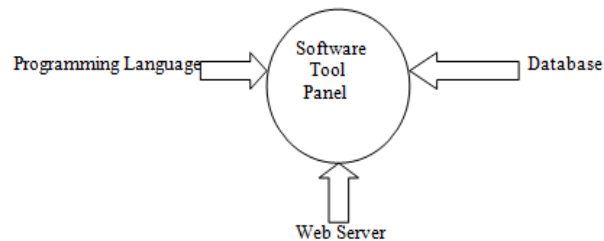


Fig. 5 Relation between softwares to design the HSES portal

Client-side scripting includes HTML and CSS. Hypertext Markup Language and Cascading Style Sheet are the two most basic web development languages. The HTML was firstly introduced in 1991 by Tim Berners-Lee. It is the past, present, and future of the web and mobile applications. It is understood by web browsers like Firefox, Opera, Chrome, Safari, and Internet Explorer. It connects web pages to one another in the portal or website. HTML5 was fascinating with CSS to CSS3. CSS was proposed by Hakon Wium Lie in 1994 and was recommended by W3C in 1996 for using it worldwide with HTML. The presentation of web pages and always works with HTML is managed in Cascading Style-sheet. Cascading means multiple style sheets with one style-sheet inheriting properties from others. JavaScript most commonly used client-side scripts. The original name of JavaScript was LiveScript when JavaScript was invented at Netscape. JavaScript was written by Brendan Eich in May 1995 who was working at Netscape. JavaScript makes a web page more interactive simply. Client-side scripting does all validation operation to the browser side and saves data from mismatching to the server side. With the help of JavaScript, HTML canvas is used for drawing graphics on the web page. jQuery is a well-written compact JavaScript code released in January 2006 by John Resig. It is a small, mostly is a used JavaScript library. It increases the productivity of the developer. It enables them to handle critical UI functionality in websites by writing a very small amount of code. jQuery is the most used library of JavaScript.

PHP is a server-side scripting language and general-purpose programming language designed by Rasmus Lerdorf in 1994 for web development. It can be used in combination with various web template systems, web frameworks, and web content management systems. PHP code may be embedded into HTML code which is usually processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server combines the interpreted and executed PHP code. The PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical applications. The standard PHP interpreter is free software released under the PHP License and powered by the Zend Engine. PHP has been widely ported and deployed on most web servers on almost every operating system and platform, free of charge.

The organized collection of data which helps a user to populate different data in a well-structured format is called a database. A database system interacts with the user, middleware application, and database to capture and analyze data. It helps to deliver solutions with the kind of different approaches. Well, known Database systems include Oracle, PostgreSQL, MySQL, MongoDB, Microsoft SQL Server, Sybase, SAP HANA etc. The database system is generally portable for different DBMS systems as well as incorporates with others system using SQL standard. Every system or application needs to work with a large amount of data sets which may be in, rough or unstructured formats. The MySQL is the open source database software system which helps the developer to develop the user-friendly environment. Every working application and provides developers work in flexible systems are available for the scope of the MySQL system. The MySQL system is open for every soft-technology with a flexible and strong database.

All websites need to be hosted in a database on a web server. Server-side scripting refers to any code that facilitates the transfer of data from that web server to a browser. It also refers to any code used to manage data or build a database on the web server itself. Server-side scripts run on the web server. It has the power and resources to run programs which are run by a web browser. The source code remains on the web server rather than temporarily stored on an individual's computer, so Server-side scripts are more secure. A Web server uses Hypertext Transfer Protocol to serve the files that form Web pages to users, in response to their requests, which are forwarded by their computers' HTTP clients. Dedicated computers and appliances may be referred to as the Web servers. A computer that hosts Web sites must have a Web server program. An example of the client/server model is a process. Some Web servers are Apache (the most widely-installed Web server), Microsoft's Internet Information Server (IIS), NGINX, Novell's NetWare server, Google Web Server and Domino servers. Web servers comes as part of a larger package of Internet- and intranet-related programs for serving email, downloading requests for File Transfer Protocol files, and building and publishing Web pages.

A content management system supports multiple users in a collaborative environment which manages the creation and modification of digital content. A CMS designed to support the management of the content of Web pages called a web content management system. It helps users create, manage, and modify content on a website. WordPress is a Content Management System that allows the user to create and publish the content on the web. Drupal is a free and most popular open source content management framework written in PHP and distributed under the GNU General Public License. Drupal provides a back-end framework for all websites worldwide ranging from personal blogs to

corporate, political, and government sites. It includes user account registration and maintenance, menu management, RSS feeds, taxonomy, page layout customization, and system administration. The Drupal core installation can serve as a simple Web site, a single/multi-user blog, an Internet forum, or a community Web site providing for user-generated content. Drupal describes a Web application framework and runs on any computing platform that supports both a Web server capable of running PHP and a database to store content and configuration. Joomla is a free and open-source content management system for publishing web content which was developed by Open Source Matters, Inc. It can be used independently of the CMS. It is supported by a large ecosystem, powers and built on a model-view-controller web application framework.

TABLE.1 SOFTWARES USED FOR PORTAL DEVELOPMENT

S. No	Softwares	
1	<b>Client Side Scripting Language</b>	HTML, CSS, Java Script
2	<b>Server Side Scripting Language</b>	PHP, C++, ASP.NET, Java and JSP, Ruby, Python.
3	<b>Database</b>	MYSQL, MongoDB, MarioDB, PostgreSQL, SQLite
4	<b>Web Server</b>	XAMPP Apache, IIS Server, Novell's NetWare server, Google Web Server, Domino servers, NGINX, Apache Tomcat
5	<b>Content Management</b>	Drupal, Joomla, WordPress
6	<b>Operating System</b>	Windows/Linux

## VII. KP-HSES & VIRTUAL LABORATORY

In our research, KP-HSES is developing for solving the problem list out by a discussion forum. PHP, MySQL and web server will be used for the development of this portal. This software includes subject wise learning material. Higher secondary level student of Chhattisgarh can be registering their problem or requirement. Learner detail will be mentioned in this software. The developing portal can access material from the internet, ebook, intranet etc. Suggestion facility is also available on this knowledge portal. The teacher can be learning any material available on this software. Objective type, short, medium and long question is present our knowledge portal. Audio and video material is also included. Knowledge Test is done by the portal developer for testing each question and provides a necessary solution of the question. Decisions gave by discussion forum and open source tools help to develop the knowledge portal for higher secondary students. KP-HSES is a central component of the research. It is ready for learning of knowledge.

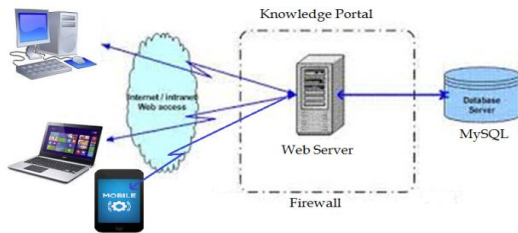


Fig. 6 KP-HSES System

A virtual laboratory is a computer-based activity where students and teachers interact with an experimental apparatus or other activity via a computer interface. It enables the learner to link between the theoretical aspect and the practical one, without papers & pens. Study materials can be collected online in the digital form. The Virtual Lab is an interactive environment for creating and conducting simulated experiments: a playground for experimentation. It is a project initiated by the Ministry of Human Resource Development. It is electronically programmed in the computer in order to simulate the real experiments inside the real laboratories." (Harry & Edward, 2005).



Fig. 7 Virtual Lab Connecting Devices

## REFERENCES

- [1] Zaihisma Che Cob, Nor'Ashikin Ali, Hidayah Sulaiman and Wan Muhammad Ilya Wan Mazuri, "Islamic Knowledge Portal: an analysis on knowledge portal requirements", ARPN journal of engineering and applied sciences, vol. 10, no. 2, February 2015, ISSN 1819-6608, 451-456
- [2] David Kalper, Eduard Hovy, "A taxonomy and a knowledge portal for cyber security" [https://www.researchgate.net/publication/266659372\\_A\\_taxonomy\\_and\\_a\\_knowledge\\_portal\\_for\\_cybersecurity](https://www.researchgate.net/publication/266659372_A_taxonomy_and_a_knowledge_portal_for_cybersecurity)
- [3] D.Venkata Subramanian, Angelina Geetha, "Evaluation Strategy for Ranking and Rating of Knowledge Sharing Portal Usability", IJCSI International Journal of Computer Science Issues, Vol. 9, Issue 1, No 3, January 2012, ISSN (Online): 1694-0814, 395-400 [www.IJCSI.org](http://www.IJCSI.org)
- [4] Hanadi "M.R" Al-Zegaier and Samer M. Barakat, "Mobile Knowledge Portals: A new way of Accessing Corporate Knowledge", American Academic & Scholarly Research Journal Vol. 4, No. 4, July 2012, [www.aasrc.org/aasrj](http://www.aasrc.org/aasrj)
- [5] Nur Razia Mohd Suradi, Hema Subramaniam, Marina Hassan, and Siti Fatimah Omar, "Development of Knowledge Portal using Open Source Tools: A Case Study of FIIT, UNISEL", International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering Vol:4, No:2, 2010, Pg. 94-97, [scholar.waset.org/1999.10/15873](http://scholar.waset.org/1999.10/15873)
- [6] Z. V. Apanovich, P. S. Vinokurov, V. A. Elagin, "An approach to visualization of knowledge portal content", Bull. Nov. Comp. Center, Comp. Science, 29 (2009), 17{32© 2009 NCC Publisher
- [7] Mihaela I. MUNTEAN, "Knowledge Management Approaches in Portal-Based Collaborative Enterprises", Informatica Economică vol. 13, no. 4/2009
- [8] Maria A. Wimmer, "Implementing a knowledge portal for eGovernment based on semantic modelling: the e-government intelligent portal", Proceedings of the 39th Hawaii International Conference on System Sciences – 2006
- [9] Irina Kondratova and Ilia Goldfarb, knowledge portal as a new paradigm for scientific publishing and collaboration, ITcon Vol. 9 (2004), Kondratova et Goldfarb pg 161-174, <http://www.itcon.org/2004/11/>
- [10] Zoltán Baracskaï and Jolán Velencei, "Knowledge on Knowledge in Knowledge Portal", 26th Int. Conf. Information Technology Interfaces ITI 2004, June 7-10, 2004, Cavtat, Croatia, <https://www.researchgate.net/publication/4112728>
- [11] I.T. Hawryszkiewicz, "Customizable Knowledge Portals for Teaching", Informing Science, InSITE - "Where Parallels Intersect" June 2002
- [12] Steffen Staab and Alexander Maedche, Knowledge Portals—Ontologies at Work <http://www.aaai.org/ojs/index.php/aimagazine/article/view/1561/1460>
- [13] Christoph M. JANSEN, Volker BACH, Hubert ÖSTERLE, "Knowledge Portals: Using the Internet to Enable Business Transformation", 2000, [https://www.isoc.org/inet2000/cdproceedings/7d/7d\\_2.htm](https://www.isoc.org/inet2000/cdproceedings/7d/7d_2.htm)
- [14] Alhawary A. Faleh, Irtameh J. Hani, Hamdan Bany Khaled, "Building a Knowledge Repository: Linking Jordanian Universities E-library in an Integrated Database System", International Journal of Business and Management, Vol. 6, No. 4; April 2011, Pp:129-133, [www.ccsenet.org/ijbm](http://www.ccsenet.org/ijbm)

## VIII. CONCLUSIONS

A computerized system that systematically captures organizes and categorizes an organization's knowledge is known as a knowledge repository. Testing of knowledge is the backbone of research for checking the quality of developing KP. A group of individuals with similar interest who gather either formally or informally to bring up ideas, solve problems or give comments called discussion group. Software Tool Panel is a new idea included in this research for the selection of a combination of software's who are more useful for the knowledge portal development. KP-HSES is developing for solving the problem list out by a discussion forum. A content management system supports multiple users in a collaborative environment which manages the creation and modification of digital content. A virtual laboratory is a computer-based activity where students and teachers interact with an experimental apparatus or other activity via a computer interface. Knowledge Dissemination is the stage of knowledge distribution. The portal includes subject wise learning materials for the higher secondary education sector. Students, parents and teachers can use it through computer, laptop, tablet-pc and mobile with the Internet. This research promotes green education as well as paperless work.