

# Web 2.0 Technology: An Excellent Platform for Educational Researchers

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**Abstract:** The Web 2.0 technology is a new finding tool in online education to help make it more interactive and user friendly. In this study, a blog was used as a platform for developing Web Based Learning Portfolio (WBLP). In the Web Based Learning Portfolio (WBLP), the researcher introduced an online portfolio for the research students. Here, the portfolio was used to gather learning resources for various research aspects and also to put together the work of other researchers. The main objective of this research was to develop and evaluate a Web Based Learning Portfolio (WBLP). Samples for this study have been taken from M.Phil and Ph.D students enrolled in education at the University of Mumbai. Quantitative and qualitative mixed method paradigm was used for this research study. Formative and summative evaluation was used for this system. Two types of evaluation systems were used for evaluating the WBLP system. The formative evaluation process was mainly conducted concurrently with the development of the WBLP. The Main purpose of formative evaluation is to gather the information required for system development, its revisions and improvements. In contrast to formative evaluation, summative evaluation is purely a way to measure the performance of the WBLP system in the educational research field. For the summative evaluation, for experts, an open ended criterion had been given and for the students, a structured questionnaire and an open ended reflective question were given. The data collected from the students and experts was then used as a reference for further system revision and improvement. Structured questionnaire items were analysed by mean percentage of agreement and the comments received in the open ended question and the comment box was analyzed through qualitative coding process. Both the experts and the students were satisfied with the WBLP system and they also gave some suggestions for improving.

**Keywords:** Web Based Learning Portfolio, Formative evaluation, Summative evaluation.

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## I. INTRODUCTION

Science and technology changes the world into an information rich environment. The advancement in science and technology leads to a revolutionary change in the field of education. It enhances the availability and accessibility of information to the learning community and thus enhances the lifelong learning process. The Web 2.0 technology gives a new role in the online education to makes it more interactive and user friendly. With the introduction of Web 2.0 technology, blogging, social networking, wikis etc. are used widely in education that enhances the learning process in an information rich environment.

A blog is an on-line diary. It may be authored by an individual or a group wishing to communicate their research and/or opinions on one particular topic. The periodical entries may use mixed-media as they include text, images, audio and video to portrait their message. The main characteristic of blogs that set them apart from the average website is that bloggers (blog author/s) can choose to allow public comments on their blog -thus creating an avenue for ideas to expand and increase reader understanding. In addition, users can subscribe to blogs and have new content delivered to them as it is published, making it easier for them to locate, organize, and follow the information.

In Web Based Learning Portfolio (WBLP), the researcher introduced an online portfolio for the research students. Here, the Portfolio was used to gather the learning resources of various research aspects as well as to put together the work of other researchers. Some of the digital contents were directly linked with the original sources by using hyperlinks. In this

project, a blog was used as a platform for developing Web Based Learning Portfolio. The database of this blog has been connected to online storage system. In the Web Based Learning Portfolio, the researcher had provided an opportunity to reflect on their own learning experiences.

**A. Statement of the Problem:**

Development and Evaluation of Web Based Learning Portfolio.

**B. Aim of the Research:**

The main aim of the research was to examine educational use of Blog in the field of educational research. The researcher attempted to develop a Web Based Learning Portfolio (WBLP) with help of blog as a platform.

**C. Objective of the Study:**

To evaluate Web Based Learning Portfolio with respect to

- a) Authority and Accuracy
- b) Purpose
- c) Content and Currency
- d) Screen and Interface design
- e) System Function
- f) Impact on Research study

**D. Methodology of the Research:**

Quantitative and qualitative mixed method paradigm was used for this research study. In quantitative analysis, mean percentage of agreement was used and in qualitative analysis, coding techniques was used.

**E. Evaluation of Web Based Learning Portfolio:**

Two types of evaluation system were used for this system

**a. Formative Evaluation:**

In this study, formative evaluation was typically done during the development of system. The Formative evaluation process was mainly conducted concurrently with the development of the WBLP. Suggestions had been given by the guiding professor and experts. Main purpose of formative evaluation is to gather the information required for system development, its revisions and improvements.

**b. Summative Evaluation:**

The researcher modified the WBLP system after the formative evaluation given by the experts. Then the researcher published WBLP system for the final run. For the summative evaluation for the students, the researcher had designed own questionnaire for user evaluation to examine the content and function of WBLP system. Then items were presented based on rating scale of 1,2,3,4 and 5. Here the maximum rating was 5 and minimum rating was 1. In contrast to formative evaluation, summative evaluation is purely a way to measure the performance of WBLP system in the educational research field. For the summative evaluation for experts, open ended criteria had given. Experts were supposed to write detailed comments about WBLP on the basis of these criteria. The data collected from students and experts were then used as the reference for future system revision and improvements.

**F. Sample of the Study:**

The researcher developed a WBLP system and implemented this system practically in M.Phil and Ph.D level students. The content of the WBLP system was designed for M.Phil and Ph.D level students, so the researcher purposefully selected only 35 M.Phil and Ph.D students from University of Mumbai. Hence, in this study, purposive sampling technique was used by the researcher.

**G. Tool used for the Study:**

WBLP evaluation questionnaire was used for summative evaluation of WBLP system. Questionnaire to assess the feedback of research students about WBLP was based on the following criteria.

- a) Authority and Accuracy
- b) Purpose
- c) Content and Currency
- d) Screen and Interface design
- e) System Function
- f) Impact on research study

The questions were presented on a rating scale of 5 to 1. So research students rated each item based on this scale. In order to understand the relevant questions and suggestions for WBLP system in depth especially in terms of system function and impact on research study, there was an open question included in this questionnaire. The internal consistency reliability of the tool by using Cronbach's alpha was found to be 0.75, showing that the reliability level of this research was high. Open ended questions were analysed using qualitative approach.

## II. MAJOR FINDINGS AND DISCUSSIONS

### a. Formative Evaluation Analysis:

Summary of feedback received from the experts during formative evaluation

- “Adding link related to review of related literature, links for further study and links to different online libraries enhances effectiveness of WBLP”
- “Adding a Back to top button is suitable for easy navigation of portfolio pages, especially the Edujournal page and the Read More E-books page”
- “The Comment box should be an integral part of each page in a portfolio, so that students can reflect about their learning experience immediately after going through these pages”

### b. Summative Evaluation Analysis:

#### b. 1. Result of Expert Evaluation:

After the implementation of the WBLP, experts were invited to access the WBLP system for 20 days. They gave their comments after 20 days in a qualitative manner based on the content and its accuracy, purpose of WBLP, screen and interface design, system use and impact on research study.

#### 1. Content and its Accuracy:

After reviewing the Web Based Learning Program, all the experts had concluded that, WBLP is an excellent platform for providing an opportunity to develop information literacy, research and technological skills among research students and it provides a rich collection of information about research and technology by focusing on user centered (research students) learning experiences.

*“I am highly inspired by the author's development of this research related portfolio. It is a great boon for upcoming researchers who can easily avail of the required information with great ease”.*

They also commented that the content or information and external links are reliable and is displayed in WBLP with proper copyright rules and regulations. Proper credits have been given to the original sources by providing references. Another expert commented that content of WBLP system is primarily ‘US’ centric.

*“The content is primarily US centric is what my impression was. Is that intentional?”*

#### 2. Screen and Interface Design:

All the experts were satisfied with the overall configuration and colour combination of WBLP. Some difficulties had been mentioned regarding the screen and interface design. The experts suggested that hyperlinks at the beginning of all pages would enhance the accessibility of WBLP system.

*“Maybe, quick hyperlinks at the beginning of all the pages would be useful. Right now, they appear in some of the pages.”*

### **3. WBLP System Function:**

All the experts gave positive remarks on implementation and accessibility of this program in a secure way. They suggested that some diagrams, audios and videos would make the WBLP more attractive and useful and that it would be better to combine the many tabs into new groups

*“A few more diagrams (say, of conceptual frameworks, processes), audios and videos would be useful to make the Web pages more inclusive and attractive.”*

### **4. Impact on Research Studies:**

All the experts commented that, the content has met the basic needs of portfolio, but it can be improved by including some interesting material, videos to motivate the students to use it. Content included interesting web information (search strategies, web links related to research etc.), relevant literature related to the educational that may also enrich the experiences of research students in the field of education (list of open journals, e books, thesis etc).

*“It is a real innovative research, which is really contribution in the field of education of all levels”*

Suggestions by one of the experts stated that the main points of a page should be stated first followed by explanation in detail.

*“Why is this page important? A few lines on the essential aspects of this page. Contents on top”*

## **b. 2. Result of Students' Evaluation:**

### **A. Quantitative Analysis:**

For arriving at an understanding of the agreement between the respondents (35 research students) for the various dimensions of WBLP evaluation questionnaire, the researcher calculated the Mean Percentage of agreement. Then items were presented based on rating scale of 1,2,3,4 and 5. Here the maximum rating was 5 and minimum rating was 1.

#### **1. Authority and Accuracy:**

On an average, 67.75 % of the research students have concluded that the authority of the information and title of WBLP, author's qualification, technical details, development process of WBLP system are clearly specified and title of the system is relevant. Since the mean score of overall percentage of agreement is 4.05, the researcher concluded that research students are satisfied with the authority of WBLP system.

#### **2. Purpose of WBLP system:**

On an average, 93.15 % of the research students concluded that the aims and objectives of the WBLP system are clearly specified and the content specified in the WBLP system is matching with the objectives. Since the mean score of overall percentage of agreement is 4.58, the researcher concluded that research students are satisfied with the objectives of WBLP system.

#### **3. Content and Currency:**

On an average, 82.37% (Sum of percentage mean score of students rating the items 4 and 5 scores) of the research students concluded that the content specified in the WBLP system is relevant, objective, accurate, organized and have not violated the copyright laws. The graphics have been effectively integrated. Since the mean score of overall percentage of agreement is 4.26, the researcher concluded that research students are satisfied with the content of WBLP system.

#### **4. Screen and Interface Design:**

On an average, 84.52% (Sum of percentage mean score of students rating the items 4 and 5 scores) of the research students concluded that the screen and interface design in the WBLP is appropriate. The screen and interface design include the overall configuration of colour, screen layout, consistency of design between the pages, size of the font and graphics etc. The maximum score that can be given for each item is 5 and minimum score allotted is one. Since the mean

score of overall percentage of agreement is 4.20, the researcher concluded that research students are satisfied with screen and interface design of WBLP system.

#### **5. WBLP System Use:**

On an average, 85.22% (Sum of percentage mean score of students rating the items 4 and 5 scores) of research students have concluded that WBLP is easy to use. Since the mean score of overall percentage of agreement is 4.17, the researcher concluded that aspects of function of different options, use and accessibility of comment box, navigation points, functionality of external links are easy to accessible by the students.

#### **6. Impact on Research Study:**

On an average, 86.4% (Sum of percentage mean score of students rating the items 4 and 5 scores) of the research students concluded that, WBLP is an excellent platform for improving the research, technical and information literacy skills. From the survey results, it appears that most of the users agree that this system has been helpful for their learning process or learning outcomes, and thus, have come out with positive appraisal for this system. Since the mean score of overall percentage of agreement is 4.45, the researcher concluded that WBLP has been helpful for research students to browse research information in the field of education and research.

Among six evaluation criteria, research students rated Purpose of WBLP system (mean =4.58) as the highest. The research students agree that objectives of WBLP system are clearly mentioned and system function is matching with these objectives. The next high is impact on learning process (mean=4.45). All the evaluation criteria are rated by research students with a percentage of agreement above 4.0.

#### **A. Qualitative Analysis:**

The Comments received through open questions and via comment box was analyzed through coding process. Each student wrote a report reflecting the learning they had learned during the implementation of WBLP system. The comments of the students contained their reflections on the need of development of WBLP system, motivational aspect; improvement in the quality of research, their feelings and expressions and the future impact of WBLP system.

#### **B. Revision of the WBLP System:**

Through their feedback, experts and students had also given some suggestions for improvement. Some of the suggestions are:

1. List of EduJournals and e books could again sub-categorized. This would help the research students to access the journals and books more easily and systematically.
2. Systematic maintenance and regular checking of the functionality of hyperlinks could done.
3. Detailed report of the technical features of WBLP system should be provided as a separate category. The students can now use these features for their learning process.
4. Detailed procedure of WBLP system creation could include. This would help the research students to develop e portfolio system in their academic system.

### **III. CONCLUSION**

This study certainly found that the research students are positively responded to WBLP system. WBLP system is mainly used by the research students for gathering information related to technology and educational research. This system had also given some guidelines about the various web based resources, effective searching strategies, evaluating the information and disseminating the knowledge. The people become aware of “learn how to use the web resources in educational research”. The WBLP system presents rich, authentic information about the research and technology. The number of web resources included in the system is unlimited and WBLP system had given freedom to the research students to choose the information according to their need. Thus content may be adapted to the pupil’s desires and needs. Thus WBLP system contributed to innovative pupil centred learning environment that stimulate active learning.

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