An Efficient Approach for the Design, Development, Enhancement and Regular Updations on Mewar University Web Based Information System

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ABSTRACT

In the today’s competitive educational world, top Universities & Engineering colleges have to focus on their processes in order to deliver high-quality education & information related to work done by them. Internet is now the vital source of gathering important information related to educational world for students, parents & other visitors. Many top Universities have display their work and achievements by creating dynamic web based information system to improve their businesses. The challenges of dynamic web solution lie in implementation because they are complex, time consuming and expensive too. The aim of this research work is to design and develop a new web based information system for Mewar University which provide latest services to end users as per national and international level after comparing it with several world class educational web sites of National & International level including MIT, IITs, IIMs. This research work will remove all the flaws from Mewar University website that we have find out after comparing it with top national and international level universities. The proposed system should be responsive, secure, social media integrated, SEO friendly, dynamic and on latest frame-work like word press. We will also propose a theoretical framework for regular and timely updations of all relevant information on Mewar University.

Keywords - Website, Responsive web design, SSL, Balance, Harmony and Aesthetic.

I. INTRODUCTION

The World Wide Web has rapidly become the dominant Internet tool, combining hypertext and multimedia to provide a network of multidisciplinary resources. It is important to make sure that all parts of a web site are useful. A user will come to a site expecting to be able to perform a particular task, or read a particular piece of information. When we are designing a web site we want to make sure that the user can find that resource quickly and easily. If they can't find the information quickly then they may leave our site, and proceed to another site where they can find the resource [1]. There are a set off design principles that may be called aesthetic principles and includes concerns such as balance, harmony and unity [2]. In fact “Balance, unity, and harmony are three primary properties that designers manipulate in order to create aesthetic experience. When these properties are manipulated in such a way that the effects satisfy people's natural (and conflicting) cravings for order, predictability, surprise and novelty, then designers are creating aesthetically pleasing objects or experiences.” Consequently, some general principles derived from multimedia design include simplicity, consistency, and clarity of design. In fact “Keep it simple; be clear; and be consistent - these three bits of advice are the foundations of good layout [3]. We will be designing Mewar University website on keeping this design principles in mind.

II. LITERATURE REVIEW

An educational web design can be regarded as a multi-disciplinary project which is not an easy task. A competent web designer is expected to equip knowledge and skills in a lot of domains so as to develop a high-quality educational website. Even though web design software has been developed to simplify the web design technical process in recent years, it is still a challenging task to develop a high-quality website for educational purposes. The main idea of the basic principles of RWD and Rich Internet Applications (RIA) is given by Karolić, 2013 [4] in his paper “Web for All and Web on Everything”, see (Karolić, 2013.). The essence of this idea
is to enable access to the web content for all existing media. According to J. Mills & J. Smith (1999) [5], the graphic design theory explains the different features of design which are considered when composing a piece of art or creating a graphic layout in an educational website. According to R. Schwier, & E. Misanchuk (1993) [6], there are a set of principles that may be called aesthetic principles and includes concerns such as balance, harmony and unity. E. Misanchuk, R. Schwier, & E. Boling (2000) [7] stated that “Balance, unity, and harmony are three primary properties that designers manipulate in order to create aesthetic experience. According to E. Misanchuk, R. Schwier, & E. Boling (2000) [7], there are some general principles derived from multimedia design include simplicity, consistency, and clarity of design. In fact “Keep it simple; be clear; and be consistent - these three bits of advice are the foundations of good layout.

III. PROBLEM STATEMENT

After comparing current Mewar University website with other national and international universities websites like MIT, IITs, IIMs, we have found that Mewar University website is not having sufficient information which is needed as per the basic requirement for end users. After comparing Mewar university website with these top educational websites following flaws were discovered.

- Mewar university website is not responsive i.e. website is not adaptive to different screen dimensions and the content is not visible on all devices and resolutions.
- Not having end user services as per the national and international levels.
- Web pages are not designed as per web design principles.
- No online enquiry forms, admission forms, feedback forms, alumni forms are available on website.
- No social media integration.
- Mewar University website in not secure.

IV. OBJECTIVE

The Objective of this research work is to design and develop a new web based information system for Mewar University which will provide end users services as per national and international level & according to web design principles. We will also compare Mewar University website with top educational websites like MIT, IITs, IIMs and national and international level universities which are following standard web design principles. We will also propose a system for regular and timely updations of all relevant information on Mewar university web system.

- Providing end user services as per the national and international level.
- Designing web pages as per web principles..
- Frame work.
- To design a new internal website updation system for regular, fast, easier and timely updations of all relevant information’s on Mewar university website.

V. PROPOSED SYSTEM

We will design and develop a new web based information system for Mewar University as per web design principles, this system will provide latest services to end users as per the national and international level and it will be dynamic and responsive. We will remove all flaws from Mewar university website by comparing it with other world class universities web systems. We will theoretically propose a system for regular and timely updations of all relevant information on Mewar university web system. Following is the theoretical proposed system with roles and responsibilities of different website In-charges.

Points to be taken care for new internal website updating system for regular updates on website

Regular Updates of departments information i.e. Faculty information, Facilities in department, Academic Calendar, Student Kit, Faculty and Student Achievements, Cells Information i.e. Placement Cell, Women Cell, Events etc.

Roles & responsibilities of Department website representatives

Department website representative is the person from any department of particular course who will provide data with correct spelling, grammar after permission from HOD/ Placement Officer / Chairman Person/ to Course website In-charge cum administrator who will upload it on website.

- All the departmental website representatives will be responsible to coordinate with Course website In-Charge for sharing information (s) news, events etc.
- Departmental Website representative is supposed to send information through mail related to events, achievements, activity etc. with due consultation and approval by HOD latest by 4th date of every month so as to get uploaded by 8th date of the same month.
Figure 1: Block diagram for Regular updation plan

**Regular work of Department Website Representatives**

- Regular and timely updates on website. (Such as information(s), news, announcements, events, media, photographs and all important information on website.)
- Information of newly joined faculty members along with photograph and information related to faculty members who left the job for timely updations on website.
- Any Events (with matter, photos and paper cuttings), Reports of enquiry generated.
- Time Tables of Respective semesters etc.

**Roles and Responsibilities of Course Website In-charge**

Course Website In-charge cum Website Administrator is the person who will be responsible for updations on website;

- All important information provided by website representatives of each department should be uploaded on website, if information sent is incomplete Course website In-Charge can send this information back to respective departments HOD for further improvements.

**Roles and Responsibilities of University Website Controller**

University Website Controller is a person who will see the regular updates done by each Course website In-charge cum website administrator. His roles will be

- Communication with all Course website In-charge for smooth and timely updations on website.
- Renewal of all old domains, Transfer of domains (if needed) and purchase of new domain names as per the need.
- Working of each website In-charge will be audited by Group Website Controller on regular basis.

VI. IMPLEMENTATION

We have implemented the Mewar University website required changes in content management system based on PHP and MySQL. We have removed all the flaws of Mewar University website in the implementation phase. We have completely implemented required pages under each module. We have designed these pages as per national and international level standards and according to web design principles like balance, harmony, unity, simplicity, consistency and clarity. We will show some of the pages that we have designed and developed.

Following is the home page of Proposed Mewar University website having all important modules necessary for any educational website:

Figure 2: Mewar University Website Home page
The new Mewar University web system is made dynamic and responsive. Now Mewar University website is completely adaptive to different screen dimensions and the content is visible on all devices and resolutions (mobile phones, tablets, laptops and PCs).

In the same above mentioned way implementation of Faculties Module include services like About the Department, Facilities, Academic Calendar, Events, Student Kit along with Online Enquiry Form for Admission Enquires, Complete Departmental Information’s, Events Section (Workshops, Conferences, Talks and Seminars, Technical, Cultural, Social, Sports Events), Social media integration, Gallery Section (Academics, Cultural, Infrastructure, National Festivals, Sports). Achievements (Department, Faculty & Students), Online feedback form (Visitors/Students.) are implemented as per national and international level standards and according to web design principles like balance, harmony, unity, simplicity, consistency and clarity. We had also taken care of design areas like color, graphics, web navigation, fonts, web usability, video etc on our website. We will analyze this module to show the final results and outcome as per national and international level web services and on web design principles. After that we will show the final result through a table and a graph. We have done analysis in two phases. In the first phase analysis, web services as per International & National level standards & as per various web design principles are chosen for website assessment & website development. In the second phase analysis we have compared frequency of web design areas chosen for educational website design with current Mewar University Website. It shows the shortcomings of Current Mewar University website as compared to web design areas such as color, Web Navigation, Graphics, Fonts & Typography, Web Usability, Video, Web Accessibility, Texture and Audio.

**First Level Analysis**

Following table shows a comparative analysis of various web services of Mewar University Website with top International & National level educational websites & the final outcome that we have achieved by following International & National level standards & web-design principles:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Website Features</th>
<th>M U</th>
<th>E 1</th>
<th>E 2</th>
<th>E 3</th>
<th>Objective Achieved or Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Complete Departmental Information</td>
<td>Yes*</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Departmental Facilities</td>
<td>Yes*</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Faculty Members</td>
<td>Yes*</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

VII. RESULT AND ANALYSIS

We have completely implemented one module named “Faculties” having various departments with number of pages under each department. We had designed these pages as per national and international level standards and according to web design principles. As per the national and international level requirements we have included services like About the Department, Facilities, Faculty Members, Academic Calendar, Events, Student Kit having Curriculum, Course scheme, Time tables, Student Coordinators, Faculty Coordinators, Achievements including Faculty, Student and Department Achievements along with Gallery Section, Quick links, Online feedback form, Online open registration forms, Resources etc. We had provided these end user requirements on our new Mewar University website and designed and developed each webpage as per the web design principles like balance, harmony, unity, simplicity, consistency and clarity.
Table 1: Web features implemented and Comparative Analysis

<table>
<thead>
<tr>
<th>Design Area</th>
<th>On the basis of Web Design Areas (Frequency Range: 1 – 100)</th>
<th>Current Mewar University Website (Frequency Range: 1 – 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td>Web Navigation</td>
<td>89</td>
<td>40</td>
</tr>
<tr>
<td>Graphic</td>
<td>83</td>
<td>45</td>
</tr>
<tr>
<td>Fonts and Typography</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Web Usability</td>
<td>65</td>
<td>40</td>
</tr>
<tr>
<td>Video</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>Web Accessibility</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Texture</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>Audio</td>
<td>10</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2: Critical Frequency Analysis as per Web Design Area

**Abbreviations used in the above table are:**
MU: Mewar University Website
E2: Massachusetts institute of technology, United States.
E3: Savitribai Phule Pune University, Devi Ahilya Vishwavidyalaya, Indore, Symbiosis International University, NMIMS Deemed University.
*: Content available on old Mewar University website but in unstructured way.

**Second Level Analysis**

There are various critical web design areas which are very important for Mewar University website assessment & creation. These web design areas include color, web navigation, graphic, fonts & typography, web usability, video, texture, audio etc. In the second level analysis, frequency of web design areas chosen are compared with current Mewar University website design & the result is shown in the form of a Table 2 and in graphical format as shown in Figure 4.

The frequency is ranged from 1 to 100 for better comparison of their difference. Color was considered as the most important design factor in developing a website. Web navigation, graphic, fonts and typography, web usability, video, web accessibility are also considered relatively important in the design of educational websites [8].
Following figure shows the Comparison frequency of web design area with current Mewar University Website. It shows the shortcomings of Current Mewar University website as compared to web design areas such as color, Web Navigation, Graphics, Fonts & Typography, Web Usability, Video, Web Accessibility, Texture and Audio.

Figure 4: Comparison frequency analysis on the basis of web design area with current Mewar University website.

VIII. CONCLUSION & FUTURE SCOPE

This study suggested some guidelines for web designers to create high-quality educational websites in the future. We should first of all consider the User Oriented Aspect to make the educational website more usable to target users. In this research work we have design and develop a new web based information system for Mewar University which provide latest services to end users and should be dynamic and responsive. Now Mewar University website is completely adaptive to different screen dimensions and the content is visible on all devices and resolutions. All major flaws from Mewar university website is removed after comparing it with other world class universities web systems. We had also proposed a new internal website updation system for regular, fast, easier and timely updations of all relevant information’s on Mewar university website. The website can be used to post updates and to promote different activities of the University. This web system will act as a medium of connection between the Mewar University and everybody else. We have also studied various critical web design areas which are very important for any educational website assessment & creation. These web design areas include color, web navigation, graphic, fonts & typography, web usability, video, texture, audio etc. On the basis of these design areas we have done analysis to show priority wise contribution of these design area. We had also used this web design areas in designing and development of Mewar University website. There is always scope of improvement in any web system. So as and when the requirement of the Mewar University changes the university has to accommodate their requirements. We can also implement an internal web base updation system that we have proposed for Mewar University for regular and timely updations of all relevant information’s which can also be tracked by higher authorities of Mewar University.

REFERENCES