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### Comparison of Website Evaluation after Ranking Improvement and Implementation of Components Sub-domain

Randy Joy Magno Ventayen<sup>a\*</sup>

<sup>a</sup>Pangasinan State University, Lingayen Campus, Philippines

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#### Abstract

Continuous improvement is important in web rankings. It is important that the institutional has a website and social media pages because it is the main sources of information from the institution. This study focus on the improvement of web ranking of the Institution and comparison of website evaluation from the panel of experts. In the previous study, the proponent proposed a newly developed website and measured the performance. Meanwhile, this study focused on evaluation before and after improvement of web rankings by implementing subdomains. This is developmental research that aims to improve the online presence of Pangasinan State University thru additional information and domains for the institution, established social media pages. This study answered the following questions which are: What processes are involved in the implementation of components subdomain? What are the needed resources in upgrading the online presence of the university website and social media page? Lastly, what is the evaluation score of the University website before and after? This developmental research aims to continuously improve the web rankings of the institution and measure the improvement based on the evaluation of the experts.

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\* Corresponding author. Tel.: +639186200902  
E-mail address: dayjx@yahoo.com.

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## 1. Introduction

The Pangasinan State University information website (psu.edu.ph) was redesigned last August 2016. Last June 2016, the rank of PSU website in region 1 compared to other SUC is ranked 6th with the global rank of around 9 million. During January to March, the website ranking of PSU went up, from Rank 6 to Rank 2 in the region. As of this day (7/22/2017), the ranking of the website is 2,228,290 (2 million) worldwide being the Top 2 in the region, while the No. 1 competitor is 702,192 which is MMSU. Based on the previous research conducted by the proponent, our website incurred a monthly visitor of 5,000 while MMSU has 17,000 monthly visitors. To increase the monthly visitor of the University website, a subdomain for each campus is proposed, and pages for research and extension will be constructed.

The website was first registered in domain registrar around 2002 based on the first archives of the website [1]. Maintaining a website ranking is a challenge. This developmental research aims to rebuild and increase the web ranking of the University website psu.edu.ph. Thus this study provides three basic information of a project proposal, a problem statement, a proposed solution for improvement of web rankings.

One of the major challenges of a website is its maintenance, and how to continuously improve its online presence. Due to the previous turnover designation, and in the absence of designated web administrator, the psu.edu.ph website was inactive for quite sometimes before, and officials are using email address outside the domain. While it is already corrected from the previous projects that numbers of social media page run by anonymous, there are still pages that available online that provide wrong information about the institution.

### 1.1 Research Objectives

This developmental research has three objectives, first is to create a list subdomains that could utilize for web rankings. Second is to build campus and component website and accredit more social media pages and lastly the proposed structure and content of the website to identify the resources needed for continuous improvement. The study is only limited to one institution in the Philippines, the Pangasinan State University located at Poblacion, Lingayen, Pangasinan. It focused on an institutional website rather than a business website.

Another main objective of this research is to evaluate the website after the development process. Before redesigning the website, the researcher surveyed to determine the perspective of the users based on the adopted criteria. Another survey was six months after the publication of the redesigned website.

### 1.2 The significance of this Study

At present (July 2017), the current ranking of the psu.edu.ph website is 2,126,824 compared to the previous ranking of 8,423,657 (June 2016) worldwide. It is previously placed 6<sup>th</sup> at the whole SUC in the region while it is ranked 2<sup>nd</sup> in the present. Aside from improving the web ranking, the institutional website guides as the main source of information. An institution that has its effective website will have an instant online brochure [2]. Thus, this study will help the designated web administrator of the institution to maintain the web ranking of the website and to determine if there is an improvement.

## 2 Previous Studies

In the previous study, the proponent proposed the development of the university website from scratch. Aside from building the university website, the unit also accredits social media pages to avoid confusion for the visitors and lastly, a full functioning information website with the help of the MIS and PRPIO coordinators of each campus.

There are several proposals conducted in building a website. While in the previous study proposes only a single website. This study is a big challenge to the web administration unit for the development of several pages. Based on related studies, the content varies from the needs of each institution, business or organization. This is true since the institution has nine campuses and information varies from the needs of each campus. According to the book, Cognitive wireless communication networks [3] that websites that provide information seem to have a significant influence on sales and image and are expected to contribute customer satisfaction. Since one goal of the new administration of PSU is overall customer satisfaction, maintaining and increasing the website information and ranking will give a contribution to the goal.

Today, it is very unlikely for an institution not to have an online presence [4]. One article discussed ten importance of having a website. One importance that the researcher emphasize was a website will provide an easier way to handle customer service and communicate with clients [11]. This is true because an online website is available 24/7 and information are available when the network is online.

One contribution of the article by Elling, Lentz and de Jong [8] is the Website Evaluation Questionnaire to evaluate informational websites to avoid the undesirable situation that website quality is often assessed with instruments that are not comparable with each other and are not empirically validated. According to the author, the WEQ was developed by the literature on usability and user satisfaction and was tested and revised in several rounds. The article has resulted in a reliable questionnaire measuring distinct quality dimensions of informational websites. The developed questionnaire was adopted in evaluating the website of Pangasinan State University.

### **3 Methodologies**

This research has four objectives, first is to create a list subdomains that could utilize for web rankings. Second is to build campus and component website and accredit more social media pages. Third, the proposed content and structure of the website and identify the resources needed for continuous improvement and lastly is to evaluate the website based on the perspective of the experts. To create a list of subdomains for web development, collaboration is important. The proponent will call a meeting to all PRPIO coordinators and MIS Staff for collaboration and brainstorming. A list of a subdomain for web development will be the expected output.

#### **3.1 Web Development**

Before the development of the website, the current website is designed under the CMS DNN (DotNetNuke) that runs on a windows server with static IP address under a collocated server, the practice of housing of owned servers and networking equipment in a third-party data center [5]. While a corporate running a system needs the collocated server, the web administration unit shifted to a cloud hosting that is enough for the needs of the single website [12].

On the second objective, the researcher will choose CMS (Content Management System) WordPress to build websites for the campuses and components. It will still adopt 5 Step Methodology for a WordPress design [6]. On the previous web development process, the proponent used Waterfall development model, while in this development process, the proponent will adapt Lean UX development model over a waterfall.

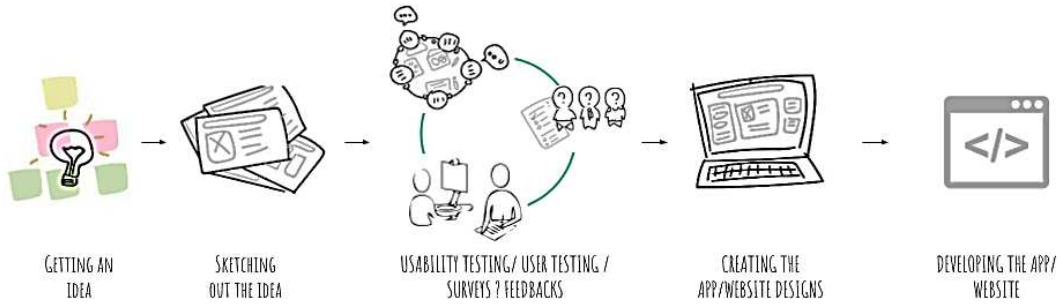


Figure 1 Lean UX [7]

Another way to achieve this goal, the proponent will request a meeting addressed to the campus MIS technical staff or coordinators for the preparation of development.

### 3.2 Content Administration and Evaluation

In the previous study [13], The initial content of the website is gathered from PRPIO (Public Relations and Public Information Office) office as the publication arm of Pangasinan State University. The proponent will also request a separate meeting addressed to the campus PRPIO coordinators to acquire information for each campus websites.

The questionnaire was used to evaluate the website. Before the development of the website, a survey questionnaire was floated to the expert; these experts are mostly web developers and programmers in the field. A rating scale was used to for the respondents to respond based on the statement.

TABLE I: RATING SCALE

Scale	Interpretation
5	Strongly Agree
4	Agree
3	Neutral
2	Somewhat Agree
1	Not Agree

A Total of 102 respondents using convenience sampling was asked to answer a survey questionnaire uploaded using Google Forms. The Website Evaluation Questionnaire to evaluate informational websites was adopted [8] After the development; the questionnaire was used again to evaluate the website of Pangasinan State University based on the perspective of the experts. Previously, there are 102 respondents answered the questionnaire, while they are all invited to participate in the survey, only 93 respondents participated in after development survey. The second question in the adopted questionnaire under the category “Structure” was changed to a negative statement for validation. The result was tabulated in Google Sheets using average weighted mean.

## 4 Results and Discussion

The discussion of this study was based on the implemented proposal entitled “Proposed Hosting Upgrade for the University Website and Establishment of Campuses and Components Web Pages including Research

& Extension Web Services.” The list of the subdomain was created in the Plesk panel of the website hosting. It is divided into four categories, first is the proposed subdomain for the campuses, second is the proposed subdomain for the components (non-campuses), third is the proposed subdomain for the unit (Research and Extension Unit), and lastly to avoid confusion for the student and staff, a new redirected URL for Student and Employee Portal was created.

#### 4.1 Website Development

Because of the proposed upgrade, the proponent proposed to upgrade the web hosting of the intuition from shared hosting to VPS hosting.

The DNS and other domain information were changed to a new IP. While waiting for the full propagation of the Domain Name Services (DNS), the proponent installs the CMS Wordpress under the Plesk Panel of the hosting, which is integrated into the hosting. Lastly, EduTheme was still used as a theme for all campuses [10] which was purchased. The developer used the LEAN UX methodologies in the development of the website. The basic functionalities of the website are menus, content and graphical information was gathered from the information office of the institution.

#### 4.2 Initial Content of the Information Website

A website will not be a completed without content. From the meeting of the MIS and PRPIO coordinators from the different campuses. The website includes content on the homepage with the following menus: About Us, Administration, Latest News, Student Services and Web Services. Most of the Contents are gathered from the Bulletin of Information of the institution published by the PRPIO and from the previous content of the institution’s website.

Uploading of information to the newly installed website does not need programming skills since a Content Management System was installed which provides easy set-up uploading of information simply from drag to drop. The CMS Platform makes the work of a web developer easy. This helps the developer Instead of focusing on development process which was focused on gathering content to be uploaded to the University Website.

#### 4.3 Evaluation of Website

Based on the result of evaluation of the website. A floated questionnaire was tabulated using Google Sheets. A negative statement that was used as validation question was italicized in the presentation of this result. The questionnaire was adopted from Elling, Lentz and de Jong [8] which is called Website Evaluation Questionnaire (WEQ).

Table 2: RESULT OF EVALUATION OF THE WEBSITE

<b>Ease of use</b>		<b>Before</b>	<b>After</b>	<b>Diff.</b>	<b>Interpretation</b>
	I find this website easy to use	3.58	4.04	<b>0.46</b>	<b>Increased</b>
	I had difficulty using this website	4.21	2.54	<b>-1.67</b>	<b>Increased</b>
	I consider this website user-friendly	3.20	4.07	<b>0.87</b>	<b>Increased</b>
<b>Hyperlinks</b>					
	The homepage clearly directs me towards the information I need	3.85	3.98	<b>0.13</b>	<b>Increased</b>
	The homepage immediately points me to the information I need	3.21	4.28	<b>1.07</b>	<b>Increased</b>
	It is unclear which hyperlink will lead to the information I am looking	2.54	2.21	<b>-0.33</b>	<b>Increased</b>

	for				
	Under the hyperlinks, I found the information I expected to find there	3.54	4.52	<b>0.98</b>	<b>Increased</b>
<b>Structure</b>					
	I know where to find the information I need on this website	4.25	4.08	<b>-0.17</b>	<b>Decreased</b>
	I was constantly being redirected to the wrong page while I was looking for information	4.21	4.22	<b>0.01</b>	<b>Decreased</b>
	I find the structure of this website clear	4.01	4.05	<b>0.04</b>	<b>Increased</b>
	The convenient set-up of the website helps me find the information I am looking for	3.82	4.01	<b>0.19</b>	<b>Increased</b>
<b>Relevance</b>					
	I find the information on this website helpful	3.84	3.98	<b>0.14</b>	<b>Increased</b>
	The information in this website is of little use to me	3.25	3.22	<b>-0.03</b>	<b>Increased</b>
	This website offers information that I find useful	4.02	4.05	<b>0.03</b>	<b>Increased</b>
<b>Comprehension</b>					
	The language used in this website is clear to me	4.49	4.21	<b>-0.28</b>	<b>Decreased</b>
	I find the information in this website easy to understand	4.01	3.85	<b>-0.16</b>	<b>Decreased</b>
	I find many words in this website difficult to understand	2.85	3.05	<b>0.20</b>	<b>Decreased</b>
<b>Completeness</b>					
	This website provides me with sufficient information	2.87	4.24	<b>1.37</b>	<b>Increased</b>
	I find the information in this website incomplete	4.28	2.54	<b>-1.74</b>	<b>Increased</b>
	I find the information in this website precise	2.98	3.54	<b>0.56</b>	<b>Increased</b>
<b>Layout</b>					
	I think this website looks unattractive	3.98	1.52	<b>-2.46</b>	<b>Increased</b>
	I like the way this website looks	3.27	4.82	<b>1.55</b>	<b>Increased</b>
	I find the design of this website appealing	3.56	4.62	<b>1.06</b>	<b>Increased</b>
<b>Search option</b>					
	The search option on this website helps me to find the right information quickly	4.04	4.42	<b>0.38</b>	<b>Increased</b>

	The search option on this website gives me useful results	3.85	4.05	<b>0.20</b>	<b>Increased</b>
	The search option on this website gives me too many irrelevant results	3.45	2.45	<b>-1.00</b>	<b>Increased</b>

Based on the result of this study, out of 26 indicators, there is an improvement on 22 indicators. While there are only 4 indicators which the evaluation of the performance was decreased, it is still needed improvement. Based on the result the category under Comprehension was decreased based on the evaluation. Comprehension is about the language used by the website and information of the website is easy to understand. The reason why this was decreased is due to the increasing number of contents to the website compared to the previous website of the institution. The result shows that there is an improvement in the institution's website in terms of Ease of use, hyperlinks, Relevance, Completeness, Layout and Search Option. While there is a neutral improvement in terms of structure because the website initially has under construction page that will be fixed at the later time as information was gathered, it is also recommended that optimizing the website at search engine should be conducted [9] in order to improve rankings.

## 5 Conclusion and Recommendation

Visitors to the website are important to improve its ranking. While the university saves almost 95 percent of the cost of hosting and development, maintenance of the new subdomain website is another challenge. Alexa ranking is expected to rise after the launching of the websites. This provides a number of visits due to psu.edu.ph due to increasing number of contents. It is recommended to audit the web ranking of the website after 6 months; a future study should be conducted to know the ranking of the newly constructed information website of Pangasinan State University. Google Analytics tool is recommended to install to monitor the visitor of the website for future reference. Also, optimizing the website at search engine should be conducted. It is recommended that this study should be conducted yearly in order to identify the strength and weakness of the institution website. It is also recommended that the website content should be monitored by the Copy Editors in order to improve the category Comprehension in the evaluation.

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