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Implementing Laravel framework website as brand image in higher-education institution

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Abstract. The purpose of this study is to examine how significant Laravel framework on the website can be used to strengthen the brand image of Higher-Education Institutions (HEI). Laravel is currently known as the best programming tool for PHP-based web development that is very interactive and intuitive. The methodology used was literature study, observation, interviews, questionnaires, as well as the collection of related documents. The study was conducted by a case study on the website of one Private University in Bandung. Validity test was performed by Alpha Cronbach formula; reliability tests by Spearman's correlation and Man Whitney test were performed on the questionnaire data to analyze the significance of Laravel framework towards each brand image indicator. The results showed that the application of Laravel framework on the new website could support the brand image of HEIs significantly on all indicators of brand image of Reputation, Recognition, Affinity, and Brand Loyalty when compared to the old web without Laravel framework. The implication of the research result is due to the Application of Laravel framework has a broad function to support quality of the new website. The results can be used as useful information for web development strategies to strengthen the brand image of the HEI.

1. Introduction

Brand image of Higher-Education Institutions (HEI) is distinguishing features of the HEI to other HEI; reflecting its capacity to meet the needs of stakeholders, providing trust, and providing quality education services [1]. The World Wide Web (Website) technology has opened up many opportunities to communicate and disseminate information to stakeholders, has been a tool to strengthen the brand image of HEI [2], and has become one of the valuations for the world rank of an HEI [3]. The website also provides an overview of an HEI [4] and generally serves as an e-marketing communication tool for the HEI [5]. An attractive, easy-navigated, and well-informed website is very important because it determines the decision of prospective students to choose the HEIs [6]. The design of an interactive and mutual website can be used to gain competitive advantage and is an important part of the education process [3,7].

The most widely used programming language in web design is PHP due to its reliability, effective cost, and easy navigation that it can create highly interactive websites [8, 9]. One of the best and superior frameworks for PHP compared to other frameworks is Laravel [9]. Laravel is designed to improve software quality, simplify authentication, ease routing, ease access, and increase the power within the website framework. Laravel is a framework application with elegant syntax and has broad functions such as security, password storage, reminders and reset passwords, encryption, and validation [10]. According to a survey conducted in March 2015 concerning the popularity of the PHP



framework, Laravel was the most popular framework, consecutively followed by Symfony2, Nette, CodeIgniter, Yii2, and others [11].

Many researches on websites with the Laravel framework highlighted the benefits of its application without relating it with the brand image of the institution [12-16]. The research of Fasuga et al. (2015) resulted that Laravel framework beneficial for the e-commerce website [13]. Yu HR explained only the superiority of the website with the Laravel framework [12], as well as Solanski N, Shah D and Shah A compared Laravel's superiority to other frameworks without explaining its influence on brand image [9]. On the contrary, no research has been found concerning the HEIs Brand image and its relation with a website-based application as an important element of a marketing strategy. El Gazzar N and Mouran in his research explained the existence of a strong correlation between website strategies with HEIs brand image. However, the website strategy including the application has not been described in detail [4].

The author has identified several gaps from the previous research, and therefore, this research may as well serve as the extension to the previous research. The gaps found concerned with the following issues: (1) Knowledge of website strategy development in HEI is still very limited. (2) There is no consensus on how to measure brand images of HEI. (3) There are very limited literatures specifically discussing web development strategy with the brand image in HEI. (4) Literature explaining specific application such as Laravel framework of a web strategy in HEI is very limited. Thus, it is necessary to conduct a comprehensive study that discusses the use of websites with Laravel framework; which, from many previous studies, has been proved a superior tool to strengthen the brand image of an HEI.

For verification concerning the reputation of the Laravel framework website, the research was to examine its significance to strengthen the brand image of Higher-Education Institutions (HEI) that needs to be performed. This research is conducted with the quantitative methods with the technique of data collection by literature study, observation, interviews, questionnaires, as well as the collection of related documents. The study case was conducted on the website of one Private University in Bandung. Statistical analyses such as variability test, reliability test and Man Whitney test on the questionnaire data were performed to analyze the significance of Laravel framework towards each brand image indicator. The results showed that the application of Laravel framework on the new website could support the brand image of HEIs significantly on all indicators of brand image of Reputation, Recognition, Affinity, and Brand Loyalty when compared to the old web without Laravel framework. The results can be used as useful information for web development strategies to strengthen the brand image of the HEI.

2. Research and methodology

This study focuses on a case study of the designing of a new website with the Laravel framework at Universitas Komputer Indonesia. In order to gather complete and accurate data, data collection techniques through questionnaires dispersion containing 15 statements on 100 respondents, interviews with website designers, and collection of related reports/documents were implemented to achieve data refinement. The statements representing the brand image indicators such as Reputation, Recognition, Affinity, and Brand Loyalty [17] were distributed on September 30, 2017. The population of this study was all stakeholders as the users of the website.

In accordance to the results from the calculation using Slovin formula, the research sample was 95.87, rounded to 100 website visitors. Each statement was tested for its validity and reliability level. The validity test was performed using Spearman's correlation analysis.

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)} \quad (1)$$

ρ = Spearman's rank correlation

d_i = the difference between the ranks of corresponding variables

n = number of observations

Furthermore, reliability testing (questionnaire's reliability level) was performed using Cronbach Alpha formula.

$$r_i = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum \sigma_b^2}{\sigma_t^2} \right) \quad (2)$$

Remarks:

r_i = Instrument reliability

k = Total Question

$\sum \sigma_b^2$ = Number of varied items

σ_t^2 = Total Varian

The criteria for decision making in reliability testing was achieved if the instrument reached the reliability coefficient of $\geq 0,6$ (See Table 1).

Table 1. Reliability statistics Alpha Cronbach.

Cronbach's Alpha	N of Items
.828	15

The data were declared reliable due to alpha Cronbach test result showed the significance by 0.828 with N of items 15. After testing the validity and reliability, the data was processed using Mann-Whitney test to see the effect of Laravel application on the new web site towards four indicators of brand image; reputation, recognition, affinity, and brand loyalty.

3. Results and discussion

3.1. Designing website with Laravel framework

Figure 1 showed the route of Laravel framework in the new website, in this term UNIKOM website as a study case. The websites created with the Laravel framework interacted with the browser, sends requests to the web server, and forwards the request to the Laravel routing system. The Laravel router will process the request and forward it to each class and method according to the pre-defined URL request. In the *Controller*, communication with the model occurs whenever the data related to the database is required. In some cases, the *controller* will perform a render view, which later will be converted into HTML and sent back to the browser.

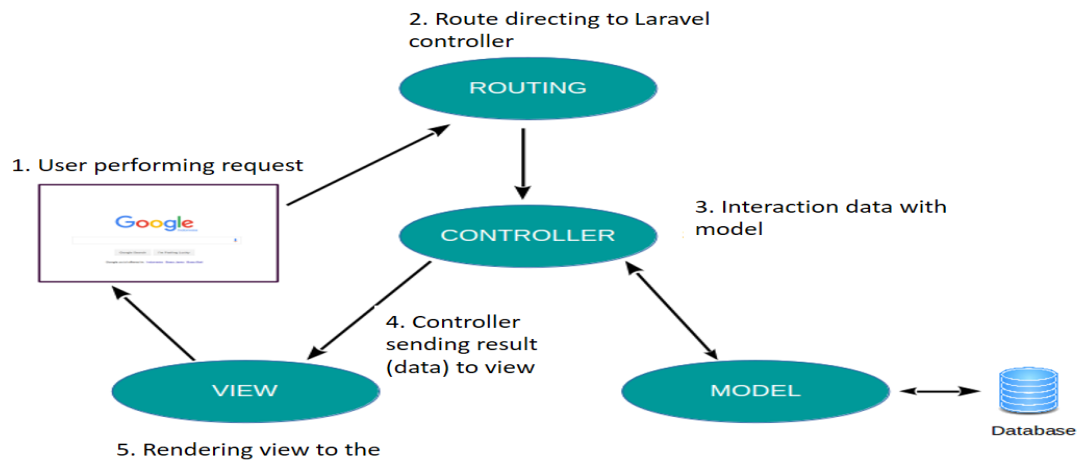


Figure 1. Route of Laravel framework.

According to Stauffer [26], several steps can be taken to create a new website with Laravel framework: (1) Identification and collection of important data. The data was obtained from the old web site and the cooperation with Public Relations division in university and computer laboratory. (2) System designing, prototyping model as the main guideline in system design was used. The system prototyping stages included survey to stakeholder, website creation, and user tests. (3) Prototyping test is a testing conducted by black box testing to investigate application functionality (See Figure 2).

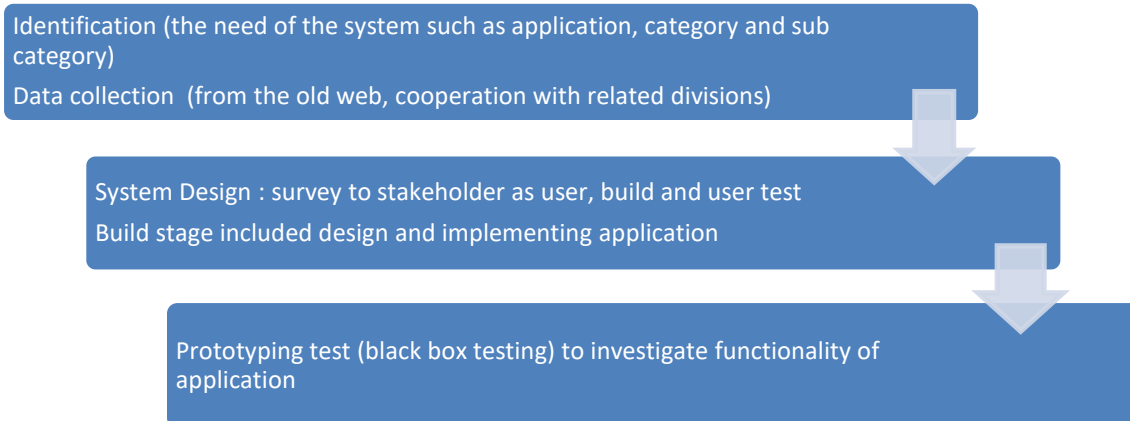


Figure 2. Stage to create Laravel framework website.

3.2. Analysis of website utilization to strengthen HEIs brand image

Based on the results of data processing with Alpha Cronbach, Table 2 showed that the reliability coefficient on all indicators is greater than r table of 0.6. Therefore, the statement was included in the reliable category [18]. After testing the reliability and validity (table 3) in the questionnaires' data, Mann-Whitney test was performed to assess the significance of Laravel framework utilization influence on the new website. Table 4 Mann-Whitney test results showed that all indicators (reputation, recognition, affinity and brand loyalty) were proved significant in the new website with Laravel framework when compared to the old website without Laravel framework. Table 4 showed that Spearman's critical r -value on all indicators was greater than r table; therefore, the data can be declared **valid** [18].

Table 2. Reliability test.

	Reputation	Recognition	Affinity	Brand Loyalty
Old Web	.743	.752	.826	.794
New Web	.799	.698	.790	.766

Table 3. Validity test.

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Old Web	.834	.516	.848	.726	.712	.848	.763	.611	.895	.827	.603	.882	.734	.847	.691	.785
New Web	.829	.772	.809	.771	.758	.746	.736	.620	.846	.830	.686	.800	.833	.616	.723	.825

In Table 5, Reputation, indicator showed the significance with statistical value -3.946, then we can conclude that Laravel framework gave the significant influence on the new website in terms of Reputation as one of the indicators of brand image. Garrett R et. All (2016) claimed that the proper design of the website has become a critical element to engage it with the users. Additionally, the Design of a new website with Laravel framework showed significance results in **reputation** indicator. It supports the prior research presented by Arslan M L and Seker S E (2013) indicating that web visibility and impact of a university are highly correlated with its reputation. Those universities with good reputation tend to have web sites that are more visible, high traffic, and more links [19,20]. To create visible website, Laravel framework was chosen due to its advantages compared to other frameworks [21-23]. The advantages according to the prior research are easy to update, very configurable, fast and extendable blade template engine, scalable, and improved developing efficiency [11, 14, 24]

Table 5 also showed significant difference in recognition indicator with statistical value -3.112. This means that Laravel framework influences the brand image in terms of Recognition. The result is in line with the most of prior research [21-24]. Vlahvei A, Notta O and Grigoriou E (2013) claiming the most important function of a web site is to create awareness, engage customers, and facilitate an ongoing relationship with the stakeholders [24]. The good experience and satisfaction of overall website visitation will improve recognition of the website, which in turn will improve the brand image of the institution promoted in the website.

From Table 4, it was founded that the implementation of Laravel framework also gave significant influence on brand affinity with statistical value -3,706. According to Thompson M (2005), consumers' emotional attachments to a brand might predict their commitment to the brand (e.g., brand loyalty) and their willingness to make financial sacrifices in order to obtain it (e.g., to pay a premium price). [25,26]

The result from the comparison of the brand loyalty indicators between the old web and the new web with Laravel framework was also presented in Table 4; showing that the Laravel framework has increased brand loyalty significantly with the statistical value -5.118. It was in line with the previous research from Laroche M, Habibi M R, and Richard M O (2012) found that social media could be a platform to achieve more loyal customers [21]. The brand loyalty of HEI includes decision of the students to stay on for advanced (postgraduate) studies after the completion of their undergraduate degree [22]. Table 4 illustrated that the new website with Laravel framework has significant influences to brand loyalty of the HEI. Connection to Laravel framework, which is claimed as the best framework by most of the previous research (due to its easy access, well-configured framework, as well as fast and easy readability) [11] may contribute satisfaction to website navigation experience. The result is in line with the research by Flores L, et all (2009) arguing that the satisfied visitors of overall website experiences tend to revisit the website and recommend the web. Furthermore, the feedback given was developing positive attitudes toward the brand [20]. In addition, Chen and Chen (2014) concluded that the institutional image is the key that influences satisfaction and lifetime customer value [23].

Table 4. Mann-Whitney test.

	Reputation	Recognition	Affinity	Brand Loyalty
Mann-Whitney U	3396.500	3735.500	3492.500	2929.500
Wilcoxon W	8446.500	8785.500	8542.500	7979.500
Z	-3.946	-3.112	-3.706	-5.118
Asymp. Sig. (2-tailed)	.000	.002	.000	.000

4. Conclusion

Website is a very important tool in conveying the impression of an HEI. Thus, this research contributes in comprehensive result that linking the strategy of website design, which is using Laravel framework to the brand image of HIE. Laravel framework has claimed as the best framework in the prior studies and led to its usability in terms of design. However, a better understanding of its influence upon the brand image in HEI is required. Since the website is a very important tool to convey an impression about HEI, its design strategy determines the main purpose of the web as one of HEI marketing strategy. The research data supports the initial idea that the utilization of the Laravel framework on a new website as a trend and favorite application strengthen HEI brand image in the eyes of its stakeholders. This is shown with significant influence on four indicators Brand Image Reputation, Recognition, Affinity and Brand Loyalty compared to the old website without Laravel framework.

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References

- [1] Bennett R and Ali-Choudhury R 2009 Prospective Students Perceptions of University Brands: An Empirical Study *Journal of Marketing for Higher Education* **19** 1 p 85-107
- [2] Singla B S and Aggarwal H 2017 Scalability and Performance of Selected Websites of Universities: An Analytical Study of Punjab (India) *International Journal of Advanced Computer Science and Applications* **8** 3 p 370-385
- [3] Manzoor M, Hussain W et al, 2012 The Importance of Higher Education Websites and its Usability J. *International Journal of Basic and Applied Sciences* **1** p 150-163
- [4] El Gazzar N and Mourad M. 2012 The effect of on-line Communication on Corporate Brand Image *International Journal of Online Marketing (IJOM)* **2** 1 p 1-15
- [5] Štefko R, Fedorko R, and Bačík, R. 2015. The Role of E-Marketing Tools in Constructing the Image of a Higher Education Institution *Procedia-Social and Behavioral Sciences* **175** p 431-438
- [6] Schimmel K, Motley D, Racic S, Marco G and Eschenfelder M 2010 The Importance of University Web Pages in Selecting a Higher Education Institution. *Research in Higher Education Journal* **9** 1
- [7] Palmer J W and Griffith D A 1998. Information Intensity: a Paradigm for Understanding Web Site Design *Journal of Marketing Theory and Practice* **6** 3 p 38-42
- [8] Solichin A 2016 *Pemrograman web dengan PHP dan MySQL* (Penerbit Budi Luhur)
- [9] Solanki N, Shah D and Shah, 2017 A Survey on Different Framework of PHP *International Journal of Latest Technology in Engineering, Management & Applied Science (IJTEMAS)* **6** (Issue VI) p 119-131
- [10] Parkar VV, Shinde P, 2015 Utilization of Laravel Framework for Development of Web-Based Recruitment Tool J. *IOSR Journal of Computer Engineering (IOSR-JCE)* **5** p 36-41
- [11] Bean M 2015 *Laravel 5 Essentials* (Packt Publishing Ltd.)

- [12] Yu H R 2015 Design and Implementation of Web Based on Laravel Framework. *Atl. Press, no. Iccset* p 301-304
- [13] Fasuga R, Rýdel J, Kubanda E, Mičanin J, Pilík V, Šťastná P and Pinčík A 2015 Gloffer—Framework for the implementation of portal solutions for E-commerce In *Emerging eLearning Technologies and Applications (ICETA), 2015 13th International Conference on IEEE* p 1-6
- [14] Das R and Saikia L P 2016 Comparison of Procedural PHP with Codeigniter and Laravel Framework *International Journal of Current Trends in Engineering & Research* **2** 6
- [15] Singh A, Chopra A, 2017 Designing and Implementation of Smart Card Technology for the Students of Higher Education *International Journal of Computer Science and Mobile Computing IJCSMC* **6** p 144 – 149
- [16] Kung K H and Hung W H 2014 Linking Web Design Strategy with Business Strategy *International Journal of Web Portals* **6** (Issues 3) pp 1 – 14
- [17] Rahul M, Phatale A P and Kulkarni P H 2011 RFID Technology for Parking J. *Journal on International Conference on VLSI Communication & Instrumentation (ICVCI) 2011*. Proceeding Published by International Journal of Computer Applications (IJCA) p 14 – 16
- [18] Tobin R 2012 *Descriptive Case Study. In Encyclopedia of Case Study Research* (SAGE publication, Inc) p 2–4 Printed ISBN: 9781412956703. Online ISBN : 9781412957397.
- [19] Arslan M L and Seker S E 2013 *Web Based Reputation of Turkish University* (Manuscript Business Administration of Intanbul Medeniyet University)
- [20] Flores L and Meriem B M. 2008 The Branding Impact of Brand Websites: Do Newsletters and Consumer Magazines Have a Moderating Role? *World Advertising Research Center* **48** p 465-472
- [21] Laroche M, Habibi M R and Richard M O 2012 To Be or Not to Be in Social Media: How brand Loyalty is Affected by Social Media *International journal of Information Management* **33** p 76 – 82
- [22] Vukasovic T 2015 Managing Consumer-Based Brand Equity in Higher Education *Journal of Managing Global Transition* **13** 1 p 75-90
- [23] Zuhdi M I H and Sukamta S, 2017 Management Information Systems of Laboratory Using Laravel Framework: Case Study at Electrical Engineering of Universitas Negeri Semarang *Jurnal Pendidikan Vokasi* **7** 2 p 158 – 167
- [24] Vlahvei A, Notta, O and Grigoriou, E 2013 Establishing a Strong Brand Identity through a Website: The case of Greek Food SMEs *Procedia Economics and Finance* **5** p 771-778
- [25] Thompson M, 2005 The Ties that Bind: Measuring the Strength of Consumers' Emotional Attachment to the Brands *Journal of Consumer Psychology* **15** 1 p 77–91
- [26] Stauffer M 2016 *Laravel: Up and Running: A Framework for Building Modern PHP Apps.* (O'Reilly Media, Inc.)