Benchmarking level interactivity of Indonesia government university websites

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Article Info	ABSTRACT
	Website interactivity is increasingly essential for higher education institutions in maintaining their relationship with stakeholders. However, limited is known what the level interactivity of a university website is without comparing with other similar educational institutions. Through the use of website content analysis and benchmarking strategy, we evaluate 41 government university website for benchmarking purposes. Base on thirteen interactive criteria, we successfully benchmarked the government university websites and built a-five levels of websites interactivity with different features. Our study highlights that higher level interactivity of website contains more feature that support a two-way communication between university and consumers, while lower level of websites interactivity merely have basic features for communication. The findings suggest the highest level of websites interactivity, the more features they should have. More importantly, the findings suggest web developer to design more interactive features in developing a higher level of website interactivity. *This is an open access article under the CC BY-SA license.*

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1. INTRODUCTION

Effective management of websites interactivity is increasingly important for higher education institutions to remain competitive in today's digital education environment. Interactivity features are one of the potential advantages from the emergence of Internet technology. The concept of interactivity has received much attention from scholars across disciplines [1, 2]. In the context of a website, interactivity is understood as a website that provides several facilities for users to interact with website owners [3]. Websites become the most visible communication tool on the Internet because it allows easy and rapid interaction between consumers and organizations in an online space [4]. The websites mostly provide information relating to a company product and branding to attract customers or to increase exposure [5].

An interactive website plays an essential role in improving online users' purchase intention [6]. In an education context, a university that has an interactive website can integrate marketing communication and advertising to attract potential students to enroll at the university. An interactive website also leads to higher message credibility and stronger feelings of identification with the university, which boost the university reputation and word-of-mouth [7]. As such, positive information about the university is spread across consumers, which finally might increase students' intention to enroll.

Previous studies also highlight that website interactivity and website ranking has been found related to each other [8]. An interactive university website often becomes an important factor that determines university ranking, such as Webometrics [9]. Within users perspectives, a university website interactivity is considered as high visibility that allows them to access characteristics and profile of a university. For example, the university profiles and data can easily and rapidly accessed from the website for users benefits. Even though website interactivity can become an indicator to determine users satisfaction in service provision, limited studies have been carried out to assess the level of interactivity of a university website. In this study, we use a benchmark strategy to determine which university is more or less interactive. For this study purpose, the benchmark is defined as a process whereby an organization evaluates its operations by comparison to similar organizations [10]. The use of benchmarking is widening as a technique for supporting better higher education institutions' websites management. Benchmarking is a strategy to search for best practices that leads to superior performance in some business activities [11]. Benchmarking has been recognized as one of the most responsive evaluation tools for performance improvement within organizations by creating a culture of continuous improvement from learning best management practices. The benchmarking, in this study, is carried out by reviewing a university website interactive performance status between Indonesia governments' universities.

The objective of this study is to categorize the level of website interactivity criteria according to levels (very low, low, medium, high, and very high) as proposed by Fortin and Dholaka [12] and Palla, Tsiotsou, & Zotos [13]. Their studies did not define clear criteria for each level of websites interactivity. This study, however, established clear criteria for each level of interactivity to provide guidelines for institutions in developing their websites. As a result, this study contributes to the existing body of knowledge by highlighting the importance of each characteristic of perceived website interactivity level in the education sector.

2. METHODOLOGY

We used a content analysis approach to analyze government university websites content [14]. The use of content analysis in evaluating website content is common [e.g: 15, 16]. In comparing the websites' content, we employed a benchmarking strategy to evaluate the current level of interactivity of government universities websites in Indonesia. The benchmarking approach has been used intensively in comparing government websites [e.g: 17, 18]. Benchmarking strategy help researchers to compare various criteria on a large number of websites by clustering them into a certain level using website content information [19, 20]. The government university and institute websites were evaluated during data collection from early January to April 2019. During the assessment, all websites were checked several times to capture all interactive criteria. However, new interactive features might have been added to a university website during the period of the study, and therefore, the new interactive features were re-verified to locate any possible new interactive features on a university website. We then evaluated each government university or institute website based on the criteria found in previous studies.

In benchmarking the interactivity of the website of government universities, we used thirteen criteria summarized from previous studies. For each criterion, we give one score, except for social media facilities depending on the number of social media on the website of each university. Meanwhile, the results of the evaluation and benchmarking of the university websites interactivity were group into five levels following the patterns carried out by Fortin and Dholakia [12] and Palla, Tsiotsou, & Zotos [13]. The levels are very high, high, medium, low, and very low interactivity. Each level was determined by the score obtained from a website interactive criteria evaluation.

Prior to the evaluation of the website, we developed criteria for a website interactivity base on previous studies. The criteria of website interactivity contain features as summarized in Table 1 below: Our basic concept of interactivity relied on an understanding that is a two-way communication and interchange between two or more parties, or between sender and receiver [7, 56] or a process of reciprocal influence [57]. The interactive facilities as depicted in Table 1 below include the presence of e-mail and online forums to make it easier for people to contact institutions that have websites [3]. While Kaaya [58] says that an interactive website has facilities such as there is a column for member suggestions and other facilities that allow for two-way communication. A website is considered a high level of interactivity when the website has many facilities that support the occurrence of two-way communication between an institution and its customers. For this study, we summarized thirteen criteria, as shown in Table 1 that determines website interactivity. The criteria were taken from previous studies such as Omar, Scheepers, and Stockdale [59], Nurdin, Stockdale, Scheepers [60], Sanderson [52], etc.

Table 1. Criteria of an interactive website

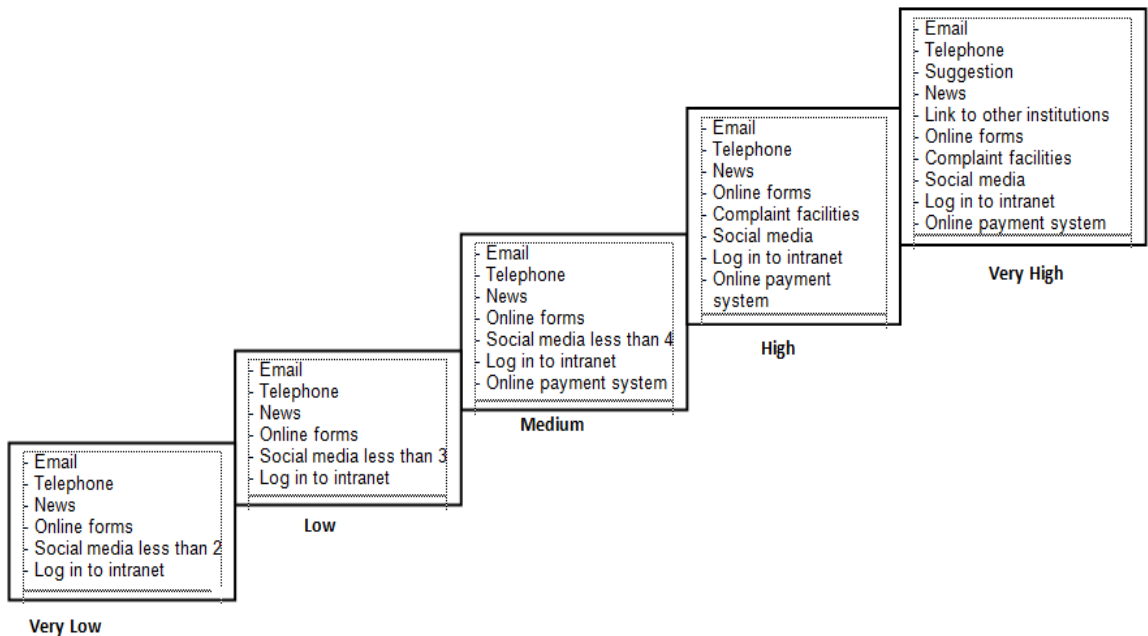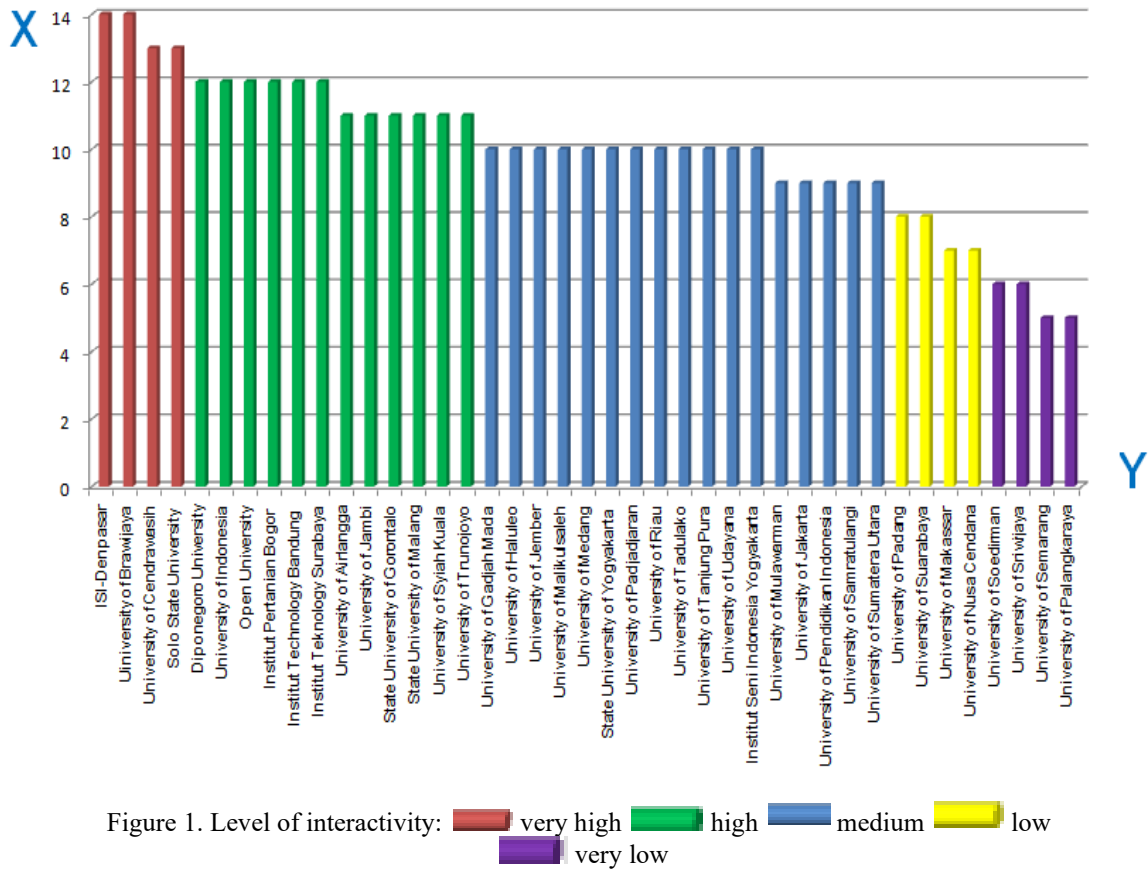| No	Interactive Features	Authors
1	Email	[21-24]
2	Telephone contact	[25, 26]
3	Suggestion and comments feature	[8, 27, 28]
4	News and announcement	[29-31]
5	Link to other education institution websites	[32, 33]
6	Link to relevant non-government institution websites	[34, 35]
7	down load forms (such as registration and study planning forms)	[36-39]
8	Online inquiry feature	[8, 40, 41]
9	Online complaint feature	[8, 23, 42, 43]
10	Online chat feature	[21, 22, 44]
11	Universities social media sites (one score for each social media site)	[45-48]
12	Log in to intranet facility	[22, 49-52]
13	Online payment system	[53-55]

3. RESULT AND DISCUSSION

Based on the data obtained from the Ministry of Research, Technology, and Higher Education, currently, there are 41 government universities and institutes. Government universities and institutes are understood as a higher education institution which is fully operated under government funding and supports. Government polytechnic and academy education institutions are excluded from this study due to their role merely vocational and diploma level. There also 56 government higher religious education institutions under the Ministry of Religious Affairs, but they are neither included since the focus of this study is government universities under the Ministry of Research, Technology and Higher Education.

The result our analysis, we found that four universities website fall into level very high interactive, twelve websites fall into highly interactive, thirteen websites fall into medium interactive, four websites fall into low interactive, and other four websites fall into a very low level of interactivity. Complete results of benchmarking are presented in Figure 1 below. Data from Figure 1 shows that the highest score of university website interactivity is 14, and the lowest score is 5. Highest score websites have almost all interactive features as found in previous studies except for online chat and link to other government institutions. Meanwhile, university websites with lowest interactive score merely have basic interactive features such as email, telephone, news, and log in to intranet systems. Between all interactive features; emails, news, phone numbers, online forms, and social media are the most common interactive features on the universities websites, while a link to other institutions, inquiries, and online chats are the less common features.

The results of benchmarking were grouped into five levels of interactivity of websites following the pattern practiced by Fortin and Dholakia [12] and Palla, et al., [13]. Based on the five-level of interactivity criteria, we found that only four university websites are considered a very high level of interactivity, twelve websites are high interactivity, seventeen websites are medium, and other eight websites are considered low and very low level of interactivity. Each level of website interactivity is indicated with different color, as depicted in Figure 1 below. Different levels of website interactivity are determined by the range of the score from 0 to 14.

Interestingly, the three most interactive websites do not belong to favorite universities, which are ISI-Denpasar, Cendrawasih University, and Solo State University. However, most of the top ten universities in Indonesia have high interactive websites. Meanwhile, low favorite universities fall into low or very low interactivity website category. High or low interactivity of the universities' website may reflect their reputation as higher education providers. However, the relationship between the reputation of a university and the level of their website interactivity is limited known and may need further studies.

Figure 2 below shows that each level of websites interactivity has different features in which the higher the interactivity level of the website is, the more interactive features it has. A very high interactivity website has almost all features that support two-way communication between universities and their users. Meanwhile, very low-level interactivity of website merely has basic features for communication. Even, some university websites do not have social media to support their communication with costumers. Low interactivity websites reflect poorly design interface, which leads to bad user interaction and displeasing user experience with a website [61]. Previous studies [e.g: 5, 62] highlight the importance of higher interactive websites in increasing users' interest and exhibiting the positive impression formation towards organizations. When an organization has a high interactive website, its clients have opportunities to be closed with the organization because interactive features of a website support a two-way communication [7]. Based on the findings, we built the level of website interactivity and put criteria for each level of interactivity as depicted in Figure 2.

Figure 1. Level of interactivity: ▬ very high ▬ high ▬ medium ▬ low ▬ very low

Figure 2. Level interactivity of websites and its criteria

Bucy [63] argue that the level of website interactivity indicates the extent to which the Internet mimics interpersonal communication. Based on Bucy (2007) argument, we theorized that a website with high interactivity conforms to individual user need for communication because most facilities to express

individual inquiries are available. Meanwhile, low and very low interactivity merely conform to the basic need of communication facilities between institutions and consumers.

Government universities websites with higher interactivity level have important features such as hyperlinks to other relevant institutions, login forms, and online chats for inquiries. Such features have been found positively impact perception on the level of interactivity [62] and satisfaction [64]. The features which support reciprocal communication also lead to the feeling of users' involvement. As such, when there is an increase in website involvement will lead to higher purchase intention [21]. In this study, higher interactivity of university websites may lead to higher students' enrolment, but this assumption still requires further empirical verification.

However, there are a number of studies [e.g: 16, 65] have found that university websites have a strong effect on students' enrolment and retention. Those previous studies may support these findings in which most of the government universities with higher interactivity websites have higher students enrolments in 2019. For example, Brawijaya University, University of Diponegoro, and University Malang received more than 40 thousand applicants in 2019 [66]. The universities interactive website might have increased their exposure and responsiveness that attract potential students to apply at the universities.

4. CONCLUSION

This study successfully builds five levels of website interactivity base on criteria found from benchmarking government university websites. We grouped the government university websites into each levels of interactivity according criteria found in their websites. Each level of website interactivity contains features which reflect the completeness of two-way communication channels. The five-level of website interactivity developed in this study can contribute to the body of knowledge within the website development area. In the end, this study beneficial for government and other university websites developers for designing an interactive website to improve their customer satisfaction. For further research, it is interesting to study the effect website interactivity on university costumers' satisfaction empirically.

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