

Identifying the Importance of Web Objects: A Study of ASEAN Perspectives

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Abstract. This study aims to determine the standard list of important web objects for four main types of websites, namely; (1) informational websites, (2) e-commerce, (3) library websites, and (4) general websites. 160 participants from ASEAN countries (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Singapore, Thailand, the Philippines, and Vietnam) volunteered. Participants first filled in the demographic questions. They then rated 10 web objects on the degree to which each is important based on the websites' types. Therefore, the standard web objects can be listed for user interface (UI) design of a site. The obtained web object is primarily a function of how important the object is in allowing a user to make a specific selection quickly either for the purpose of searching information, surfing the Internet, or buying something on the Internet. Hopefully, the results can be used as standard web objects in web UI design.

Keywords: Informational websites · Web objects · User interface design · Importance

1 Introduction

In [1], a web object is defined as “any structured group of words or a multimedia resource that is present on a web page that has metadata which describe its content”. Also, they characterised a Website Keyobject as a web object that captures the attention of the users and that characterises the contents of a website [2]. From the above definitions, it is possible to deduce that every website consists of a set of web objects and that the set of Website Keyobjects it has is a subset of the former.

For this study, the selection of objects is based on the importance of information derived from previous research literature. With reference to case studies, two guidelines were used for the selection of websites; first, based on the guidelines of the Convention on Biodiversity (CBD) and second, the ASEAN Centre for Biodiversity (ACB); and reinforced with a literature review of previous studies on the interests and needs of each object. Objects found on three areas that have been identified as web locations are informational websites, e-commerce, libraries websites, and general websites (Table 1).

Table 1. Seven objects from literature review

General websites; informational websites; online newspaper; organisational websites [3–10]	E-commerce; online shopping [6, 11–14]	Library websites [15]
<i>Internal links</i>	<i>Internal links</i>	OPAC
<i>External links</i>	<i>External links</i>	Ask us
<i>Search</i>	<i>Search</i>	<i>Search</i>
<i>Advertisement</i>	<i>Advertisement</i>	About us
Back home	Back home	Back home
Home link	Help	Help
About us	<i>Login</i>	<i>Login</i>
<i>Logo</i>	Cart	
Archives	Account	
Contact	Product	
<i>Title of webpage</i>		

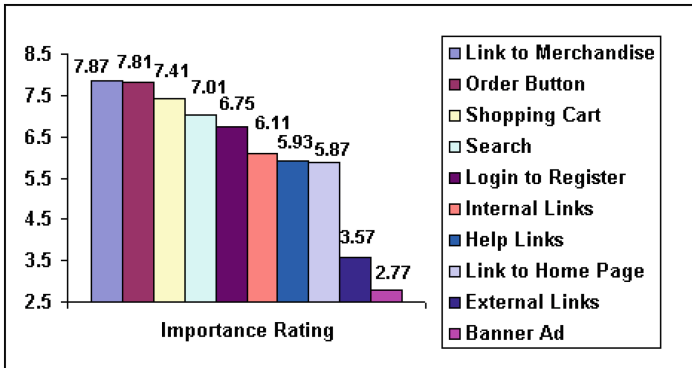
This study used 10 web objects as a sample-related objects option. Seven objects found from previous studies of localisation; Logo, Title of Webpage, Internal links, External links, Search engine, Login, and Advertisement (banner) were found necessary for informational websites. Meanwhile, three other additional web objects (Table 2) available from the literature review are not in the field of localisation. First, Content (area) is defined as the number of texts, images, or internal links. According to [16], content refers to the information content, functions, or services offered on the website and represents another form of communication between the user and the site. Referring to case studies, content is an important object for the communication of information or data effective for the purposes of harmonisation and sharing of data. Second, Calendar describes easy navigation for the user to know the list of the latest and archive news. The available calendar is included in one of the site's contents, but in this study it is an information object for different functionality and is important as a need of the user. Finally, for the purpose of the multinational website with diversified users from many countries, there is a need to have different languages for user preferences; the third web object included which is Language selection. According to [14], in addition to English, some countries, especially non-developing countries prefer to keep their native language in order to maintain the national pride. Language is one aspect of its own culture. Language can help users get information [17]. Based on earlier studies, the user selects the preferred object language as a requirement for a website primarily involving multiple users from different countries.

Furthermore, based on a literature review, ASEAN has never been made the target group in previous studies. The focus groups carried out by previous studies based on web objects on website design was South Korea, United States, Japan, Netherlands, North America, the Commonwealth, Europe, India, German, Portugal. Canada, China, German and Indonesia, and New Zealand.

Figure 1 shows that 10 objects are arranged in order of importance based on a study of e-commerce sites. Out of 10 web objects, five of which are used by the study design

Table 2. Another three objects from separate previous studies

Web object	Source	Title
Language selection	[18]	<i>Cultural issues and their relevance in designing usable websites</i>
	[19]	<i>Designers' perspective of website usability: The cultural dimension</i>
	[17]	<i>Localisation of web design: An empirical comparison of German, Japanese, and U.S. website characteristics</i>
	[20]	<i>The impact of language and culture on perceived website usability</i>
Content (area)	[21]	<i>Investigating users' mental models of traditional and digital libraries</i>
	[17]	<i>Localisation of web design: An empirical comparison of German, Japanese, and U.S. website characteristics</i>
	[22]	<i>Does the localisation of cultural markers affect user's destination image?</i>
Calendar	[23]	<i>Chapter 5: The Golden Rules of User Interface Design</i>



Source from Richard H. Hall [24]

Fig. 1. Level of object's importance of e-commerce

guidelines of UI informational websites, namely Search engine, Login, Internal links, External links, and Advertisement (banner).

The others two web objects; Logo and Content (area), are contained in the standard UI design guidelines. Lists of web objects which are common and very important for any type of website include (1) Logo and Name, (2) External links or the navigation links to other websites, (3) Content, (4) Box search, and (5) Login user or administrator. Other three web objects (Title of webpage, Language selection, and Calendar) are listed in the guidelines of case studies of CBD and other existing objects.

2 Methodology

Based on the final version, which is obtained after the process of verification and evaluation instruments by the experts, as well as pre-test reliability, by random participants, at this stage, questionnaires were distributed online via online survey, namely SurveyGizmo. SurveyGizmo is a management and survey tool online, which is great and designed to make even the most advanced research projects fun and easy with a reasonable fee. The data collection process was carried out over five months starting from March 2014 until August 2014 through URL (<http://edu.surveygizmo.com/s3/1584386/WEB-USER-INTERFACE-DESIGN-SATISFACTION-BASED-ON-MENTAL-MODEL>), email, and social media (Facebook) distribution.

2.1 Participants and Procedure

Distribution was done randomly to participants from 10 ASEAN countries to achieve the target of collecting a minimum of 10 participants for each country. Figures 2 to 4 show the demographics of the participants involved. The questionnaire is divided into three sections:

1. Section A refers to the web objects, where participants were asked to provide ratings of the four types of websites (informational, general, library website, and e-commerce) according to the degree of importance of each object (1 = Very Unimportant, 5 = Very Important). The higher the value, the more the interest.
2. Section B refers to the usability testing based on the prototype interface system that was developed in the URL (chmaseanphd.optima.my). Participants were asked to complete a nine-step task. After that, there are 27 items representing eight constructs for the development of a model using a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).
3. Section C refers to the background of participants (demographics), including questions related to nationality, parents' nationality, age, gender, and education.

Table 3 shows the background sample, while Fig. 4 shows the distribution by country background. The total number of samples is 160 persons, namely 46 % male students ($n = 74$) and 54 % females ($n = 86$). The number of samples showed that it is almost balanced for both sexes. All participants came from or residents of the ASEAN countries. Most of them (82 %) used English as their second language. This indicates that they are familiar with international websites, which use English or bilingual. The majority of the sample (85 %) visited the website every day.

To ensure that the participants represent each country's culture, it was determined that each participant should be in the home country longer than any other country and the native language is their main communication language. Data collection was made through online or in person, at universities, institutes, and companies. Most of the participants involved have more than six years of web experiences and at least basic computer literacy level. Most of them also have a level of education at the undergraduate and postgraduate levels.

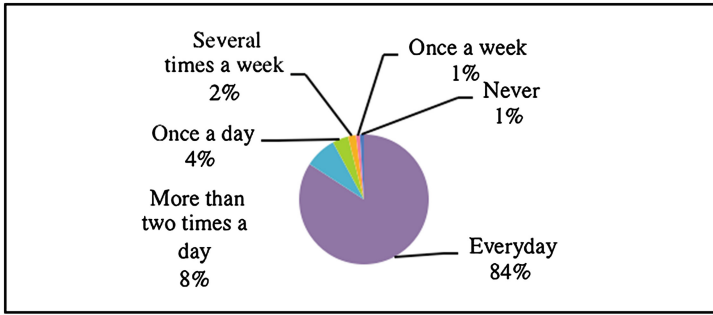


Fig. 2. Percentage of frequency of participants using the Internet (either surfing websites, email, or any online application)

Table 3. Background and behaviour for research sample (N = 160)

Demography	Frequency	%	Demography	Frequency	%
<u>Gender</u>			<u>Education level</u>		
Male	74	46.3	PhD	17	10.6
Female	86	53.8	Master's degree	53	33.1
<u>Nationality</u>			Bachelor's degree	74	46.3
Brunei	11	6.9	Diploma/Advanced	8	5.0
Myanmar	10	6.3	Certificate	4	2.5
The Philippines	11	6.9	Others	4	2.5
Indonesia	22	13.8	<u>Computer literacy</u>		
Cambodia	10	6.3	Expert	17	10.6
Lao PDR	11	6.9	Advanced	60	37.5
Malaysia	47	29.4	Intermediate	62	38.8
Singapore	12	7.5	Basic	21	13.1
Thailand	16	10.0	<u>Web experiences</u>		
Vietnam	10	6.3	> 6 years	127	79.4
<u>Religion</u>			5-6 years	22	13.8
Muslim	78	48.8	3-4 years	8	5.0
Buddhist	60	37.5	1-2 years	2	1.3
Christian	18	11.3	< 1 years	1	0.6
Others	4	2.5			

Most of the participants stated that they have lived more than four weeks out of their home country. However, the percentage is quiet balanced with 43 % participants who have not been out of their country and 58 % for those who have respectively. The findings show that all countries have participants who have been abroad. Thus, the majority of participants have international influence and experienced other cultures in their web experiences. Furthermore, the majority of participants (82 %) used English as their first or second language. This means that the participants are familiar with

international websites. These findings can be used as an essential guide for developers and web designers to ensure cultural diversity in the design of their website.

Figure 2 shows the frequency of participants surfing the Internet. The majority (84 %) of samples surfed the Internet every day with 8 % more than two times a day, while only 2 % surfed the Internet several times a week. For comparison by country, 70 % to 100 % of participants from all ASEAN countries surfed the Internet every day. This finding is consistent with previous studies, which showed a tendency of individuals surfing the Internet every day. Costa [14] also showed similar findings in which more than 85 % of participants used the Internet several times a day.

Individuals surf the Internet due to a number of purposes such as business, work, education, checking email, searching for information, playing online games, general surfing, and so on. Figure 3 shows that most participants surf the Internet for reading or checking email (92 %), followed by information search (89 %), and general surfing (81 %). This second highest percentage shows that the users mostly surf the Internet for searching information. Thus, it shows the importance of websites among individuals.

Figure 4 shows the experience of using the web and Internet among ASEAN users by country. The findings found that most ASEANers (79 %) have a web experience of more than six years, followed by 14 % between five to six years of experience. The rest are categorised under five and three years or less than one year with 5 % and 1 % each. This shows the high level of use among participants in which the experienced users can be linked to form users' expectations over the web UI [14].

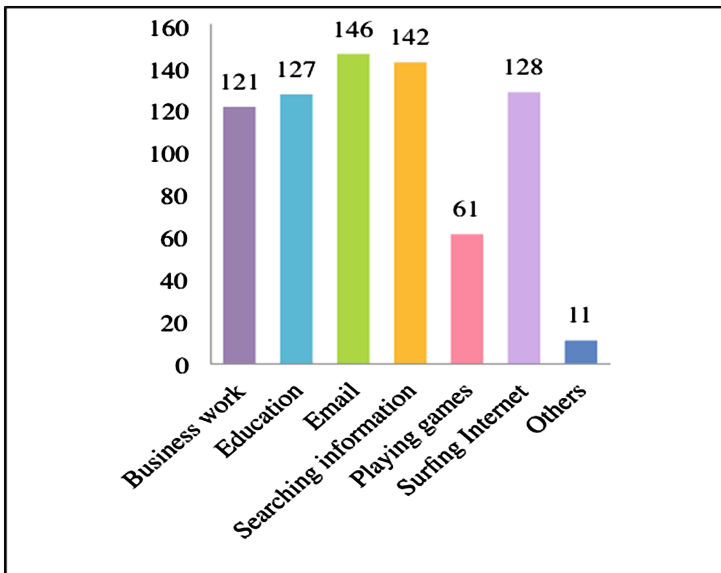


Fig. 3. List of purposes of participants surfing the Internet

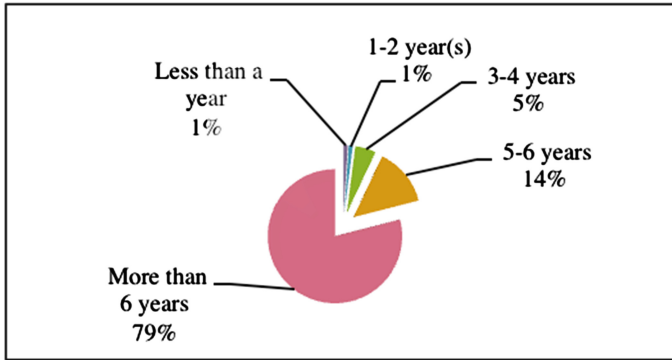


Fig. 4. Percentage of participants' web experiences

3 Results and Discussion

Based on the results, the selection of the 10 web objects; Logo, Title of webpage, Internal links, External links, Login, Language selection, Search engine, Content (area), Calendar, and Advertisement (banner), are determined through the review ratings of the degree of importance from the online survey via SurveyGizmo. Results in Fig. 5a to d show the percentage obtained for the four types of websites.

Figure 5a shows that the baseline (80 out of 160 in total) for informational websites is the least important for all web objects. Six objects; Internal links, Language selection, Search engine, Title of Webpage, Content (area), and Logo are the most selected for extremely important category, followed by Login, Advertisement (banner), and External links in the important category. Only the object Calendar is in the less important category. Thus, all objects are accepted.

For e-commerce type, the baseline (80 out of 160 in total) shows that the majority, namely eight web objects except Calendar and External links, are in the category of extremely important and important. The two objects are less important. Thus, all web objects are accepted. Figure 5b shows the details of the results.

Figure 5c shows the baseline (80 out of 160 in total) for library websites. The majority of seven web objects; Internal links, language selection, Login, Search engine, Title of Webpage, Content (area), and Logo fall in the extremely important category. The other three objects are in the important and less important categories. Only advertisement (banner) object is in an extremely unimportant category. Thus, only nine objects are accepted for the library website type. There are several possible explanations for why the advertisement (banner) was ignored beyond the fact that it was salient. For library websites, this might be because of the purpose as information deliver channel, which stores huge data set in its repository [15], rather than advertisement placement. It is possible that users have learned to ignore advertisements when searching for information on the web.

Finally, for general website type, Fig. 5d shows that for the baseline (80 out of 160 in total), five web objects; Internal links, Language selection, Title of Webpage, Content (area), and Logo are in an extremely important category. The other five are either in important or less important category. Thus, all web objects are accepted.

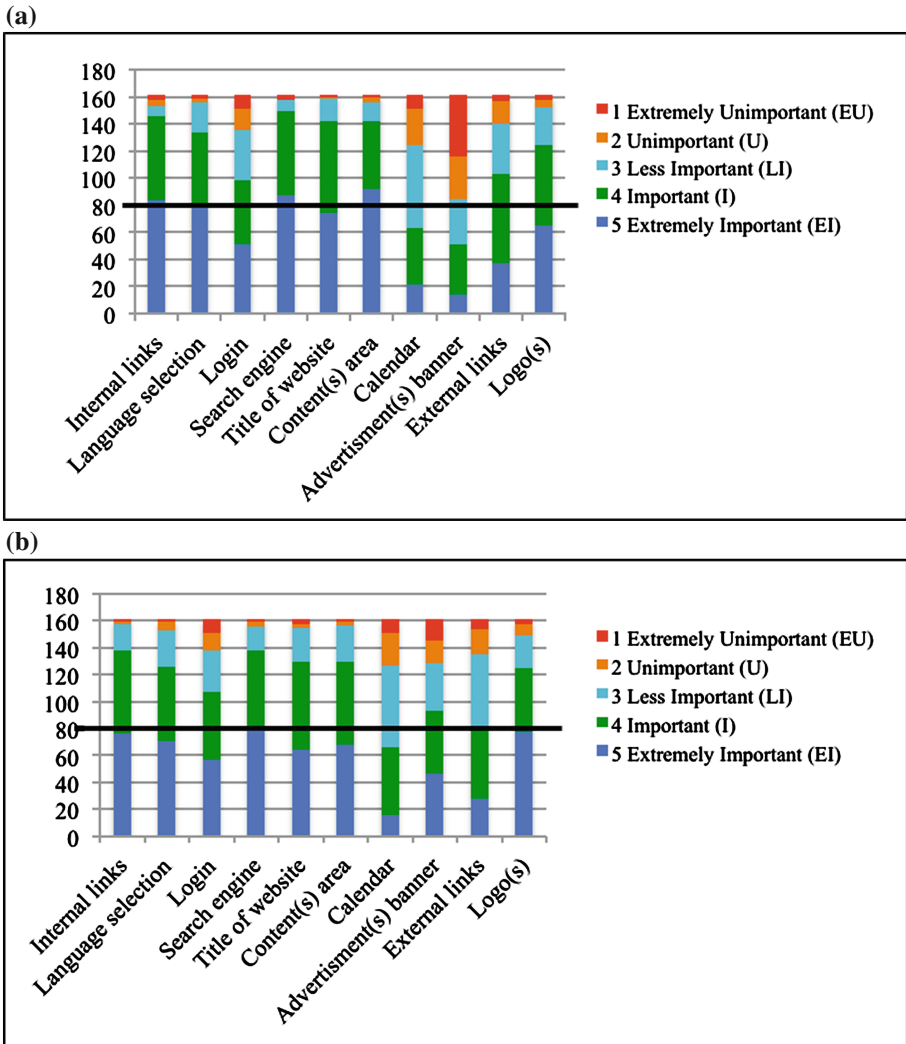
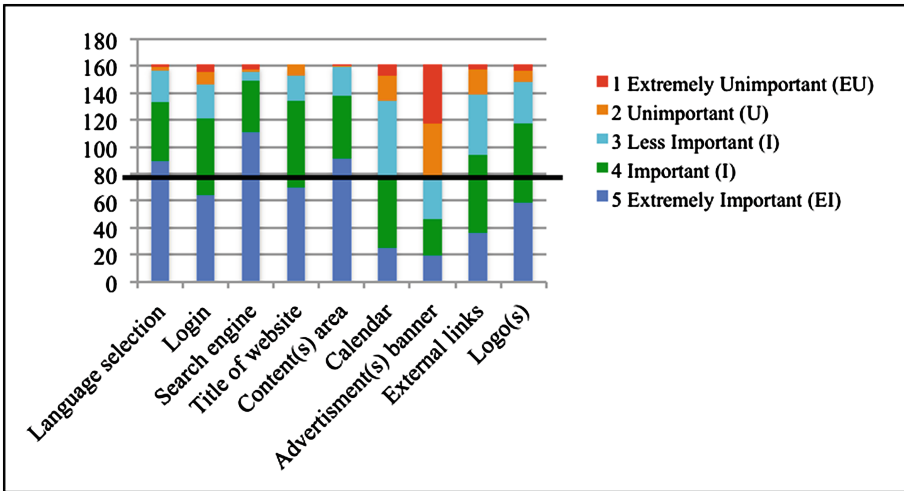


Fig. 5. a. The percentage of the degree of importance of objects for informational websites. b. The percentage of the degree of importance of objects for e-commerce. c. The percentage of the degree of importance of objects for library websites. d. The percentage of the degree of importance of objects for general websites

(c)



(d)

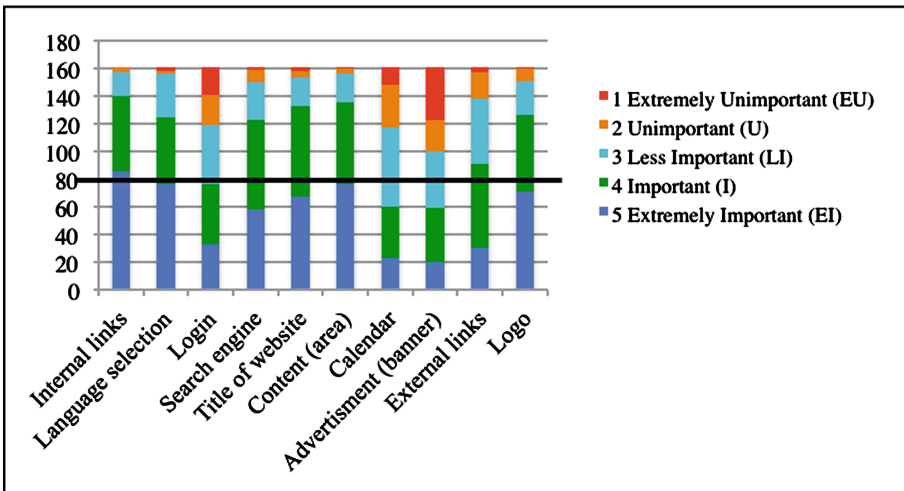


Fig. 5. (continued)

4 Conclusion

In conclusion, all 10 web objects selected as a study sample are important for the four types of websites except Advertisement object omitted from the library website type. However, on the question of web objects' selection interest by participants related to web objects in section B, all the 10 objects were mentioned and listed from the participants' responses. The top three are Search engine, Content (area), and Internal links, followed by another four objects above 50 % which are Logo, Title of webpage,

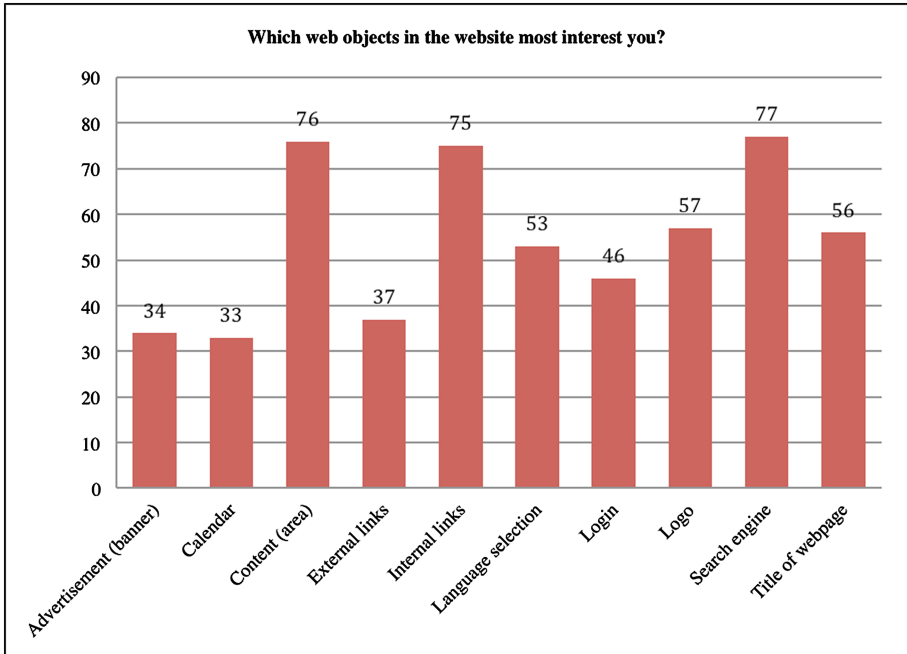


Fig. 6. List of web objects' selection

Language selection, and Login. Other objects are still in the average frequency, which are accepted. Figure 6 indicates that every web object selection is based on the frequency. Thus, the analysis results are significant with the literature review and initial studies found that all 10 objects are confirmed to be included in the standard guideline development of web UI design, especially for multinational websites with multicultural users.

It is importance to design an interface of website with an understanding of user perspective to facilitate users to navigate and find information easily where the location of web objects should be placed [25]. Positioning navigational areas at expected locations and using specific web objects consistently helps users to remember them [26]. Further research will carry out a study of the users' expectation on the localization of these web objects. In addition, the results are expected to generate standard guidelines of effective UID for easy searching objects and information [7–9, 25].

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