International Journal of Engineering & Technology, 7 (4.19) (2018) 435-439

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Web Visual Design Principal Used in Public Universities in Malaysia

Habee Bullah Affandy[1], Azham Hussain[2], Maslinda Mohd Nadzir[3]

[1]School of Computing, Universiti Utara Malaysia
[2]Human-Centered Computing Research Lab, School of Computing, Universiti Utara Malaysia, Kedah, Malaysia.
[3]Institute for Advanced & Smart Digital Opportunities, School of Computing, Universiti Utara Malaysia
**Corresponding Author Email: [1]habeebullah.affandy@yahoo.com*

Abstract

Websites have become a vital tool for public universities. Universities websites are now becoming a hub for various services for various characteristics of users. With the increasing importance of a website, it resulted in new challenges for web designers. One of the challenges is ensuring that the web design incorporates both usability and pleasing web visual aesthetics. This research will look at the web visual design principles used by web designers in Malaysian public universities and the challenges faced by the web designers in designing the websites. Public universities web designers were interviewed for this research. The main findings of the research include the web design process of Malaysian public universities official websites, the web visual design principle used and the challenges faced by the web designers. This research also identified an opportunity for future research especially regarding the challenges faced by the web designers.

Keywords*: *Web aesthetics; web design; web usability; web visual design principle.

1. Introduction

Universities websites functions as portals that provide various services and information for their users. Websites are designed to provide content and services that serve various stakeholders' requirements which includes students, faculty members, alumni and researchers[1]. Website is becoming like a hub for various services and information further emphasizing the importance of the website.

The increased usage of the universities website has resulted in the need of proper web design process to ensure that the universities have an effective website. An institution's homepage is its face to the world, its building's lobby, and the company receptionist [2]. Such analogies can be broadened to include a university's physical presence (the building) and its virtual presence (the website). This means that the website is the first line of interactions between the universities and the patrons may it be the students, staff or the public. Thus, it is important that the design of the website be properly done due to it reflection of the universities image. The increasing usage of website due to various functions will result in further development of the website in term of functions thus creating new challenges [1].

One of the challenges in web design is ensuring the visual design of the website which refers to the visual aesthetics of the website will promote positive overall usability and performance of the website. The first impression of the web page as perceived by the users is an important issue for web designers. This is where visual aesthetics play an important role. The first impression and subjective experiences of users are strongly influenced by the visual appearance of the webpage [3].

Visual appeal relates to the usage of fonts and other visual elements such as graphics to enhance the overall presentation of a website [4]. Based on these two statements, it can be seen that web aesthetics are mostly referring to visual aesthetics and this visual appeal will influence users' overall experience in using a website.

However, when designing a website, especially in term of the website visual aesthetic, it is a complex process. Usability and visual aesthetics can be said as two important aspects in web design. These two aspects should be integrated in the design process. Website ease of use (usability) should be an important precursor for perceived visual appeal (visual aesthetics) of a website[4]. Website ease of use is an important element of visual aesthetics of the website. If a website is difficult to navigate, it is difficult for the users to evaluate the website as visually appealing. This again shows the relationship between website aesthetics and usability and how it influences one another to produce a quality website.

Website design issues are not something new in term of research. Most research are focusing more on the business and commercial website where the focus is more on usability of the website without emphasizing on the influence of aesthetic elements while on the other hand, previous researches have indicated that there is a relationship between web aesthetic and web usability. However, most research discussed the aesthetic elements of a website in a broad statement. Web aesthetics is a more complex matter and should be more looked at in detail. It is indicated that the users' initial aesthetic response to websites which refers to the spontaneous emotional reaction based on visual preferences, majorly effects whether users later assume the websites as usable or not. Websites that are perceived by users as beautiful are also perceived as usable websites thus further described that web aesthetics plays a role in ensuring web usability [5].

Aesthetics elements of a website are an important element to be consider in the design process of a website. Website design cannot only focus on usability aspects because the aesthetics elements also play an important role. The aesthetic elements used in webpages can reflect the quality of the webpages visual appear-

Copyright © 2018 Authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

ance. The visual appearance may be a key influential factor of users' experience and satisfaction towards a website. The visual appearance of a website is important because it can affect the perception of users regarding the quality of a website [4]. A website first impression produced by the homepage visual design can affect users' first visceral 'gut feeling' that helps to influence users' perceptions and attitudes toward the entire website, which in turn may affect whether the users are going to stay on the website or continue surfing to other websites.

Despite all the importance and benefits offered by visual aesthetics towards the overall quality of a website, the potential impacts of visual aesthetics are often neglected or ignored by web designers. Furthermore, they regard emotional design as a trivial task. Visually pleasing design is traditionally neglected by scholars in the electronically-supported learning domain which includes websites [6]. This shows that visual aesthetics is seldom taken into account when developing a website.

Visual aesthetic is usually described in previous studies as a broad subject. Aesthetics are described as visual attributes that includes graphic, fonts, colors, texture and typography [7].This should not be the case as in designing a website visual aesthetics, it should be look in detail due to the fact that aesthetics is a more complex attribute. In designing web visual aesthetics, it is a complex process.

This is especially concerning the design principle used by web designers in designing their web aesthetics. The design principle will indicate how web designers design their website. By identifying the web visual design principle, we can identify what are the key dimensions that are important to be consider in the design process of a website where in this case, the public universities websites. Generally, there are two web visual design principal that are normally being adopted when designing a website which are classical aesthetics and expressive aesthetics [8]. However, these two principles are usually discussed when designing a generic or commercial websites. Due to the fact that public universities websites are different in nature, it is important to identify what are the web visual design principle are being adopted and can these two categorizations of design principle can be implemented in designing a public universities website.

The purpose of this research is to explore the web design process in the context of public universities website which is different in term of the nature of business from those of commercial websites. On the other hand, this research will indicate whether the design process of a public universities websites fall in either of the two categorization of the web visual design principle.

2. Web Visual Design Principle

In designing the aesthetics of a website, there are two distinct principles used which are: classical aesthetics and expressive aesthetics [8, 9]. These two principles can be apparently distinguished from one another. Web designers may design their website based on these two principles. The usage of aesthetics elements such as graphics, animations and colors will be determined on what principle that is used by the designers.

The web visual design principle of a website can be categorized into two which are classical aesthetics and expressive aesthetics. This categorization of visual design principle is considered one of the most influential concept in aesthetic dimensionality[10]. Users ' perceptions of visual aesthetics comprise two dimensions, which were labelled classical aesthetics and expressive aesthetics. The dimensions of visual aesthetics was also described as web visual design principle [7]. Web designers will design their visual aesthetics either using classical aesthetics or expressive aesthetics.

In other words, web designers' choice of web visual design principle will determine which dimensions of visual aesthetics are used in the website design process.

2.1. Classical Aesthetics

Classical aesthetics is an organized design that addresses the dimensions of attractiveness, pleasantness, clarity, neatness and symmetry [10]. This dimension consists of five items: aesthetic design, pleasant design, clear design, clean design and symmetric design.

Visual aesthetics consist of five facets which are simplicity, diversity, colorfulness and craftsmanship to evaluate visual aesthetics subsequently [8]. The simplicity facet, which highlights concepts such as clarity, orderliness, unity and balance, is strongly correlated to classical aesthetics. Figure 1 illustrate the dimensions of a classical aesthetics design principle.

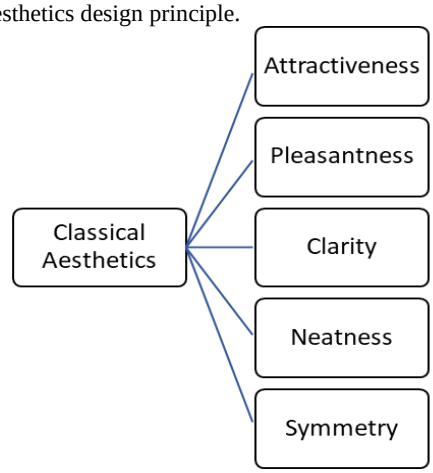


Fig. 1: Dimensions of classical aesthetics

2.2. Expressive Aesthetics

Opposite to the simple design of the classical aesthetics, expressive aesthetics is where it refers to innovative design that addresses the dimensions of novelty, interestingness, special effects, originality and exquisiteness. This dimension also embodies five items: creative design, fascinating design, use of special effects, original design and sophisticated design [10].

Based on the two descriptions of the aesthetics dimensions, it can be summed up that classical aesthetics refers to design that prioritize simplicity and functionality and the expressive aesthetics prioritize the freedom of creativity. Figure 2 illustrate the dimensions of an expressive aesthetics design principle.

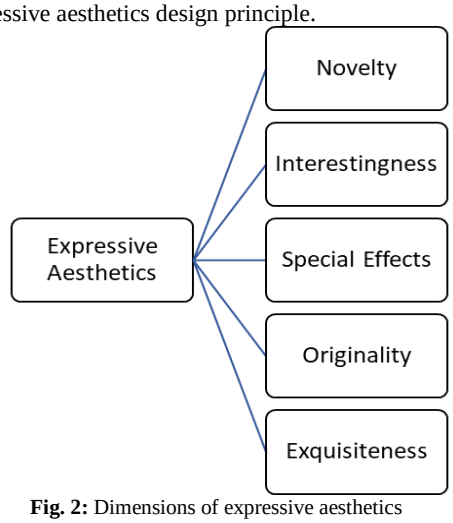


Fig. 2: Dimensions of expressive aesthetics

3. Methodology

In identifying the web visual design principle used by web designers in design public universities websites, an interview session with the public universities web designers was conducted. The interview session was a semi-structured interview, which is one

type of the qualitative interviews. The purpose of choosing the semi-structured interview for this research is because the researcher wanted to acquire the rich and details answer from the interviewee.

Semi-structured interview consists of in-depth, open-ended and semi-structured questions. Semi-structured interview is a flexible type of interview where the interviewer provides sets of questions that directly point to specific topics as a guideline to conduct the interview session [11]. Participants will be interviewed based on the interview questions, concerning to the variables involved in this study. The questions may not follow the order outlined by the interview guide as the interviewer picks the questions depends on the things discussed by the interviewee. The interviewee also has the freedom on how they will respond to the questions.

The web visual design principle that are used by the web designers are identified through questions that will cover the dimensions of the web visual design principle which includes attractiveness, pleasantness, clarity, neatness and symmetry. If the web designers described their design principle to consist of these dimensions, it means that the classical aesthetics design principle are used in the design process. However, if the web designers described their design with dimensions consisting of novelty, interestingness, special effects, originality and exquisiteness, it means that the visual design principle used by the web designers are the expressive aesthetics.

3.1. Instrument

For the interview session, an interview guide was used as guidance. An interview guide is used for the interview of this study so that the researcher and the informant can understand what should be included during the interview session. The purpose of the interview guide is to ensure the interview covers basically the same ground but gives the interviewer a considerable discretion in the conduct of the interview. This is important to ensure that important questions are not left out. It is vital to collect and gather all information during the interview session because it will later affect the data analysis and the findings of the study. The interview guide consisted of questions covering three aspects that included the web design process, the web visual design principle used by the web designers, and issues and challenges in designing the website.

3.2. Participants

In this research, the public universities web designers was interviewed. In order to obtain information regarding the design process of a website, the webmasters or web designers should be approach [12]. In this research, web designers were interviewed due to the responsibilities are the same with the web masters. Three web designers were interviewed for this research. The web designers were questioned regarding their view on a quality website and the overall process of designing the universities websites.

4. Finding and Discussion

The information obtained from the interview are divided into three categories which are: i) The web design process, ii) The web visual design principles, iii) Attributes that are influenced by aesthetic elements and iv) Issues and challenges in designing the websites.

4.1. The Web Design Process

From the interview, all three web designers are from the ICT departments of the universities. This shows that the responsibility of designing of the website falls under the responsibility of the ICT department. In detail, the ICT department are divided into two units which are Infostructure Unit and Infrastructure Unit. The web designers are under the Infostructure Unit where there are responsible for the university websites, systems and portals. Infrastructure Unit are those that are responsible with technical aspects such as computer and server maintenance.

During the interview, all web designers agreed that web aesthetic plays an important role in the design process specially to attract the attention of the users. The web designers described that the aesthetic design process can be considered as the most important in the design process because web designers are tasked to design the layout of the website not creating content. Content of the website are fixed and provided to them. However, when asked about ensuring usability, all web designers described that usability of the website are tested based on links. As long as there are no broken links, the website is considered as usable.

During the interview, it has been seen that during the design process, web designers indicated that the web visual aesthetics is the main concern. This is due to the fact that the design of the website will influence whether the website is usable or not. A good design will ensure that the website is easy to use. The web designers further explain that it is not their duty to provide content but to ensure that the design of the website can assist users in finding the content.

However, due to the importance of the aesthetic design of the website, there is no systematic way to determine how to design the visual aesthetics of the website to ensure the usability of the overall website. In term of designing their web visual aesthetics, web designers used templates and comparison with other universities websites as guides for their design.

4.2. Web Visual Design Principle Used

Based on the web visual design principles, there are several dimensions that are relatable when the web designers described key elements that are considered in designing the web aesthetic elements.

i) Attractiveness

From the interview, all web designers described that attractiveness of the website is important when designing the visual aesthetics of the websites. This is because attractiveness is important to attract the attention of the users to use the website. They described that a website that is not attractive may resulted in the website to be abandoned by users.

To ensure the attractiveness of the website, the web designers used several methods such as using large high-resolution pictures on the homepage to attract the attention of users. Another example is by using icons instead of links.

ii) Pleasantness

In term of pleasantness, all web designers described that thevisual design of the website must promote a pleasant use. In other words, the design of the website must be easy to use and does not stress the users when using the website. One of the way is by ensuring that the website does not take more than 3 clicks to scroll down the whole page.

iii) Clarity

From the interview, all web designers described that the visual design of the website must be clear. In other words, the content of the website must be clear. This is especially regarding the usage of fonts and colors. The fonts used in the website must be readable and clear. In term of color, the website must reflect the official colors of the university to give a unique identity for the websites. However, the colors chosen must not be too dark and the background color must be in contrast with the font color.

This is to ensure that the information and content in the website are readable.

iv) Neatness

Another aspect when describing the design of the website, all web designers described that the design of the website must be neat. This refers to the layout of the website must be organized and spacious and not too crowded and clustered. A crowded design may result in an unpleasant usage among the users. One of the web designers also mentioned that their website was redesign due

to the old design being too crowded with text and pictures making it hard to navigate.

v) Symmetry

In describing the design of their website, all designers described that it is important for the website to be consistent in term of design. Even though there are some pages differ in term of layout, some key features must remain consistent. For example, header and footer of the web pages must be the same or the side bar content must be the same. The web designers described that it is important for the design to be consistent so that users will be familiar with the website quicker.

vi) Interestingness

From the interview, all web designers described that the design of the website must be interesting in order to attract the attention of the users. The web designers described that the visual aesthetic if properly design will create a positive impression and give the impression of a quality website. The web designers described that in ensuring that the design of the website is interesting, they use attractive pictures, icons and a simple page layout.

vii) Special effects

During the interview, the web designers mentioned the usage of special effect such as flash and animations. In their current design, there are no special effect that are included but all designers planned to include in their future design because they agree that by using special effect, it can increase the level of attractiveness and interestingness of the website.

viii) Originality

All designers described that the design of the website is not necessarily be some sort of original design. Due to the fact that most web designers used templates as the base of their design, similarities among the design is inevitable. However, it is up to the designers to make the website unique if compared to one another.

From the interview conducted, all web designers described that when designing their website aesthetics, the key descriptions refers to simplicity, attractiveness, pleasantness, clarity, clean design and symmetrical design. These descriptions match with the dimensions of classical aesthetics.

However, the web designers also mentioned interestingness, the use of special effect and originality when describing their web visual design which described the dimensions of expressive aesthetics. According to the web designers, interestingness and usage of special effects is important to ensure that the design of the website is interesting and able to capture the attention of users. This is important so that the users are interested to use the website.

In term of originality, the web designers described that even though the overall layout of the website might be similar with other universities, there should also be certain elements of originality in term of the design to give the website a unique look and identity.

From the description given by the web designers, the visual design principle used by the web designers in designing their web site is using a classical aesthetics with a combination of dimensions from the expressive aesthetics. This shows that the web visual design principle should not only consist of one principle but should incorporate both principles to further design a more pleasing web visual aesthetics that will improve website usability. Table 1 summarize the key elements considered by the web designers and the web visual design principle used in designing the websites.

Table 1: Key elements considered by web designers

Classical Aesthetics	Expressive Aesthetics
Attractiveness	Interestingness
Pleasantness	Special effects
Clarity	Originality
Neatness	
Symmetry	

4.3. Issues and Challenges in Designing the Website

During the interview, the web designers described that there are several challenges and issues that are faced during the design process. Firstly, in term of design limitation. Due to the fact that the web designers used templates as the base of their design, the design is limited to the templates available. To change the template design intensively requires detail coding that require a lot of time and expertise.

Another challenge faced by the web designers is ensuring the design is suitable to all users. After the design is complete, there are no systematic methods in ensuring that the design is suitable to all users. Web designers only evaluate the design based on comments received from top management and also from colleagues and friends. During the interview, the web designers admitted that it is hard to ensure that the design is suitable to all users especially in term of pleasing aesthetics due to the abstract nature of aesthetics.

Finally, in term of usability testing. There is also no systematic usability testing that are being conducted. To ensure that the website is usable, the web designers ensure that every links are working and there are no broken links. There is no usability test that used users as the respondent.

In identifying the web visual design principle used by web designers in design public universities websites, an interview session with the public universities web designers was conducted. The interview session was a semi-structured interview, which is one type of the qualitative interviews. The purpose of choosing the semi-structured interview for this research is because the researcher wanted to acquire the rich and details answer from the interviewee.

5. Conclusion

From the findings of the interviews, it can be concluded that the visual design principle used in designing public universities websites is combining both classical and expressive aesthetics. However, mostly the dimensions that are majorly adopted are from classical aesthetics with dimensions from expressive aesthetics is considered as a way to further strengthen the level of attractiveness of the website.

From this research, it is shown that the web visual design principle should not be adopted separately but can be combined to further assist in designing a better website.

One the other hand, it was identified that there are several challenges faced by web designers in designing the websites. Future research should look into this matter in a more detail manner.

References

[1] Al-Khalifa, H.S., A framework for evaluating university mobile websites. Online Information Review, 2014. 38(2): p. 166-185.

[2] Nielsen, J., Usability 101: Introduction to usability. 2003.

[3] Lin, Y.-C., C.-H. Yeh, and C.-C. Wei, How will the use of graphics affect visual aesthetics? A user-centered approach for web page design. International Journal of Human-Computer Studies, 2013. 71(3): p. 217-227.

[4] Liu, C. and K.P. Arnett, Exploring the factors associated with Web site success in the context of electronic commerce. Information & management, 2013. 38(1): p. 23-33.

[5] Reinecke, K., et al., Predicting users' first impressions of website aesthetics with a quantification of perceived visual complexity and colorfulness, in Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. 2013, ACM: Paris, France. p. 2049-2058.

[6] Sánchez-Franco, M.J., B. Peral-Peral, and Á.F. Villarejo-Ramos, Users' intrinsic and extrinsic drivers to use a web-based educational environment. Computers & Education, 2014. 74: p. 81-97.

[7] Yong, Y.-P., et al. A theoretical framework of aesthetic design for a better learning experience on the web-based educational platform. in 2015 9th Malaysian Software Engineering Conference (MySEC). 2015. IEEE.

[8] Moshagen, M. and M.T. Thielsch, Facets of visual aesthetics. International Journal of Human-Computer Studies, 2010. 68(10): p. 689-709.
[9] Sonderegger, A., J. Sauer, and J. Eichenberger, Expressive and classical aesthetics: two distinct concepts with highly similar effect patterns in user–artefact interaction. Behaviour & Information Technology, 2014. 33(11): p. 1180-1191.
[10] Lavie, T. and N. Tractinsky, Assessing dimensions of perceived visual aesthetics of web sites. International journal of human-computer studies, 2004. 60(3): p. 269-298.
[11] Bryman, A. and E. Bell, Business research methods. 2015: Oxford University Press, USA.
[12] Sørum, H., K.N. Andersen, and T. Clemmensen, Website quality in government: Exploring the webmaster's perception and explanation of website quality. Transforming Government: People, Process and Policy, 2013. 7(3): p. 322-341.