

Web Designers' Opinions on Visual Elements in Educational Website

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Abstract: Visual elements in web design is about applying the principles to design elements and effectively brings the elements together in a way that makes sense. The purpose of this study is to investigate educational website designer's opinions about the visual elements on the website. In this paper, the data was collected among the experts and lecturers which involves in website design. The data was collected by the structured interview technique with close ended questions. Sampled respondents are drawn from northern region polytechnic of Malaysia that offers information technology course. Besides, this study analyze on four main topics which are the importance of the visual elements' in designing educational website, the problem that web designers faced in design of visual element, their consideration properties and their suggestion related to designing educational website based on visual elements. This study found that designers agree that some deficiencies in some aspects of design elements, but most of web designers agree that design elements are very important in web design. This study can be a guideline to design an educational website which will assist web designers, educators, and people who are in the field to gain more knowledge on visual element in web design.

Key words: *Visual elements, educational website, web designer, web design*

INTRODUCTION

Nowadays, educational website is important to serves teachers and students to get and deliver information easily. Websites is one of many media that is chosen to use in teaching and learning process. The website is used as a source of information and for the dissemination of information by many different public and private [1]. Recently, Fitzgerald [2] noted that educational website can define as type of website used in completing project such as public-facing school site, curriculum map, blog, forum, open content authoring, portfolio, aggregation and new site, online magazine or learning management system. An educational web site consists of six key features that stated by Graeme [3] which are educational website must be an online prospectus, intuitive search functionality, integration with Customer Relationship Management (CRM), integration with social media, easy to use Content Management System (CMS) and have a compelling design. An online educational website and resources will facilitate teachers to instruct students and for students to collaborate with those teachers and with other students using online educational website. Based on research by Cho, and Youn-Kyung, [4] that examines the effects of web

interface designs on a consumer's behavioral intention shows that users are more interested in browsing website with interesting visual elements followed by information/navigation designs as well as transaction designs. Research by Hasan, [5] also supported that academic website should be good in the design, including interface performance and effectiveness, content and organization, and the educational purposes for the website. To design the compelling educational web site, web designer's use a lots of visual elements such as text, links, images, navigation, forms, home pages, dynamic content and web services to boost a site's visual appeal [6] According to Akbulut, and Akbulut, [7], web designer usually use a lot of visual elements such as text, graphic, picture, figure, animation and video to attract and effect the users.

PROBLEM STATEMENT

Referring to Hasan, [5], design elements is one of importance features in the usability of educational websites. Previous study focus on analyses of website that is only used by a specific group of website users [8] such as e-commerce site, portals and search engines, retail, entertainment, news and information, and financial services . The number of web designer opinion

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for educational websites' visual elements studies are still limited. This study tries to determine the web designers' opinions on visual elements which has been implemented for educational website and what can web designer do to develop an effective design based on visual elements. This study will examine a web designers' opinions about the visual elements on the educational websites by the following problem:

1. What are the important factors of the visual elements' in designing educational website?
2. What are the problems that web designers faced in the design of visual elements?
3. What are their consideration properties of the visual elements?
4. What are their suggestion related to designing educational website based on visual elements?

LITERATURE REVIEW

In this section, we will discuss on the previous study related to visual element in designing educational website. Referring to Hazari [9], educational web site development is not an exact science and these sites are built with a different set of criteria as compared to other sites, such as those having an e-commerce or marketing focus. More research is needed to build a theoretical foundation for educational website design and web-based instruction. Alan and Robert [10] found that educational technology produced a positive, though small effect and have differential impacts on various types of educational technology applications. Traditional computer-assisted instruction programs produced a small effect but applications with the support of professional development showed more promising evidence.

Kember, McNaught, Chong, Lam, and Cheng, [11] explained about the features of educational web site impact in learning environment where their study shows that using the internet for presenting information in a blended environment does not seem to effectively help students achieve learning outcomes. In another research in 2018, they found that aesthetic or visual element is the most important aspect to concerns when creating a website with visual appeal of an attractive user interface [12]. However, the visual element will affect the learner's emotion and had a minor impact on learning outcomes but a larger impact on learners' motivation including the motivation to continue working with the material [13].

Fig 1 shows a summary of studies related to visual elements according to [7].

1) Important of the visual elements	a) Easy to learn b) Enhance to learn c) Support current learning process d) Provide better understanding e) Provide interaction f) Spending time on the computer g) Pay attention h) Motivation i) Concentration j) Colourful in design
2) Problem that website designer faced in the design of visual elements	a) Fitting image to page structure b) Doing harmony between visuals and background c) Transmission pictures to the page d) Adjust size of chart e) Setting the resolution f) Creating animation g) Creating picture drawing h) Programming problem i) Design codes problem
3) Consideration properties of visual elements in designing website	a) Motivation components b) Interaction c) Completeness d) Symmetrical elements e) Future use of elements f) Feasibility of the users activities g) Providing the sense of exploring h) Users age i) Not too complicated j) Suitable language k) Suitable font and font-size
4) Suggestion that related to designing educational website	a) Teamwork (web designer and programmer) b) Working good with cartoonist or graphic designer c) Opinions from professional designer d) Working with professional users e) Testing and feedback from the target audience and experts f) Comparison with good website g) To be interactive h) Include the educational games i) Considering users age j) Confirming the design principles k) Ensuring the colours harmony l) Having information of designing tools m) Pay attention of loading speed of the website n) Describe information related to visual elements o) Preparing help menu p) Evaluate the website with specific evaluation criteria

Fig 1: Main aspects of website designers' opinion in designing educational website

METHODOLOGY

SAMPLE OF DATA COLLECTION

The sample group of this research consisted of five northern region polytechnic lecturers who worked at Information Technology and Communication department. All respondents were from Politeknik Tuanku Syed Sirajuddin, Perlis, Politeknik Sultan Abdul Halim Muadzam Shah, Kedah, Politeknik Seberang Perai, Pulau Pinang, Politeknik Balik Pulau, Pulau Pinang and Politeknik Ungku Omar, Perak. This study was conducted during the semester break of 2018. All respondents are experts in teaching and engaging in web design. The data was collected via structured interview technique using close ended questions and the data was analyzed to extract the result. In this research, it was aimed to investigate the web designers' opinion deeply towards educational website. Web designers were

selected since they are considered as experts in this study. The respondents name were coded as D1, D2, D3, D4 and D5. Web designers was selected as intentional to find answer for the sub questions. The expert opinions were needed to ensure the validity of the questions and provide meaningful and useful feedback.

RESEARCH METHODOLOGY

Received opinions from different web designers have been coded, commented and summarized and presented in table, bar chart and summary. Fig 2 shows the methodology used in this research. This methodology consists of four phases which are preliminary study, data collection, data analysis and finding. The next section will describe each phase in the methodology briefly.

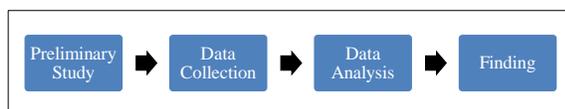


Fig 2: Research Methodology

Phase 1: Preliminary Study

Initial exploration of issues related to the website design, features of educational website, web designer opinions and suggestion, relationship of visual elements and website designer and visual elements study have been stated. This is being done by referring to previous papers on visual elements and educational website design.

Phase 2: Data Collection

The close ended questionnaire for structured interview are divided into two sections which are Participant demographic and Study of Web Designers opinion of Visual Elements. Second section consists of four main aspects namely the important of visual elements in website, problem that web designer faced in the design a visual elements, their consideration properties of visual elements and their suggestion related to designing educational website. The interview was done between five experts.

Phase 3: Analysis

Based on the data collection phase, all the data will be transform into bar graph and summary to show the relationship between each data that effect result of the research.

Phase 4: Finding

Finding is a process of interpretation the results of this research. SPSS is being used to do the descriptive analysis of the feedback. In this phase, the analyzed data is being interpreted so that users can understand it easily. The result will be described in bar chart and a simple

interpretation is made on the findings, additional suggestions will also be included in this phase.

FINDINGS

The feedback gathered had been analyzed and the results are describe in this phase. Listed below are the discussion of the findings on the data analysis phase.

RESPONDENT BACKGROUND

The interview questions are divided into two parts which is Part A: The profile information and Part B: Questions on Web Designers Opinion of Visual Elements. Based on structured interview analysis, respondents are being coded by D1, D2, D3, D4 and D5. These respondents are experts in web design and are also teaching in web development courses at five Polytechnic in Northern Malaysia.

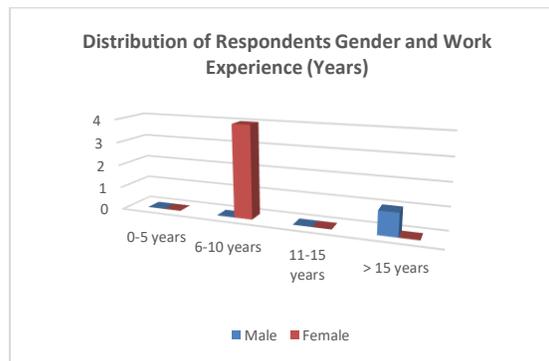


Fig 3: Cross Tabulation of Respondent Gender and Work Experience (Years)

Fig 3 shows the cross tabulation distribution of respondent's gender and work experience in years. Based on Fig 3, it is stated that four of the experts have a 6-10 years' experience and one expert have more than 15 years' experience. Based on the working experience it is proven that they can be considered as experts in this field. The interview is being divided into main topics with sub topics in it. Fig 4 shows the distribution of the main topics with the sub topics.

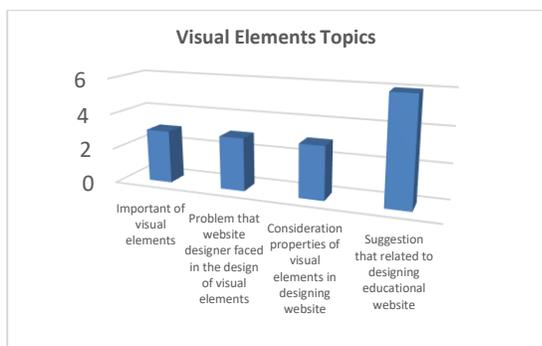


Fig 4: Visual Elements Topics

Important of the visual elements topic is being divided into three sub-topics which are learning, interaction and attraction and focus. This topics is crucial since the main focus of this paper is to find the effectiveness of visual elements in web designing. This paper also want to know what the problems that website designer faced in the design of visual elements. This topics is being divided into three sub topics. In addition, this paper also wants to know the consideration properties of visual elements in designing website since web design needs to be user friendly and fulfil user’s requirements. The last topics focuses on suggestion that covers six sub topics. Due to the advancement in web designing, this paper also needs to find any suggestion in web designing. The next phase will discussed on the respondent’s feedback based on the topics above.

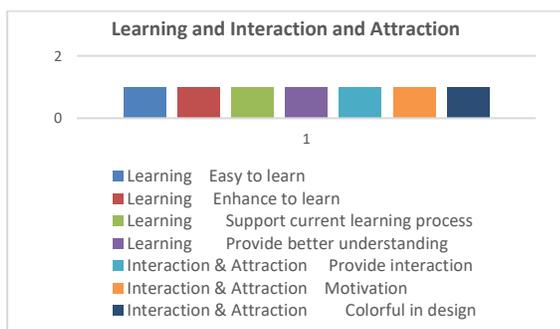


Fig 5: Important of visual elements: Learning factors and interaction & attraction factors

Based on the interview, majority of the respondents agreed that visual elements increases learning and interaction and attraction of the web design. Here, visual element can increase learning in three ways such as it allow user to learn web design easily, enhance the process of learning and supporting current learning web designing process. The main difference of responds happens in the third sub topic which show visual element allow user to focus more on web designing. Detailed explanation on this sub topics is shown in Fig 5.



Fig 6: Respondents feedback on focus according to working experience

Based on Fig 6, the main topic (Focus) is divided into three sub topics: Concentration, Attention and Spending time on the computer. According to these sub-topic, it shows that all of the respondents agrees that visual elements improved concentration of the users. When the user concentrate on the web design it also will allow user to pay attention more. This is proven by the result which shows 100% of the respondent who agreed on it. However, in contrast to the other two sub topics, there is a slight difference in the third factors. Two respondents that work between 6-10 years’ experience in web designing disagreed that visual elements allow users to spend more time on the computer while two respondent with 6-10 years and more than 15 years’ experience agreed of this factors. Due to the fact there are different opinions on the results, the analysis will move to the second main topics which analyze the problem that the web designer face when designing visual elements.

The second phase discuss about the problem that web designer faced in the process of designing visual elements. Two problems were focused in this paper that consists of principle and technical problem. Fig 7 and 8 shows the respond on the principle and technical problems. All of the respondents agree on certain issues such as for principle problems and everyone agrees that first, fitting image to the page structure create problem to the face designer. Second, there is a problem in doing harmony between visuals and the background of the web page and lastly, there is a problem in adjusting size of chart into the web page.

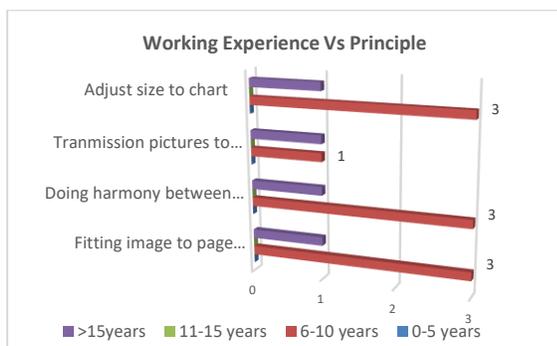


Fig 7: Responds on the principle problems

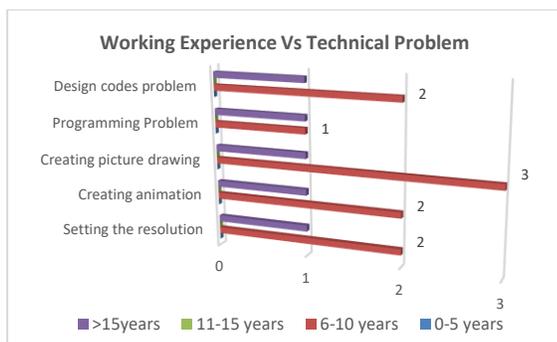


Fig 8: Responds on the technical problems

However, due to certain condition, three respondent agree that transmission process of the pictures to the page causes problem to web designer while only one disagreed. The same responds were given with the resolution setting problem. There is a problem in creating animation in the web page by the respondents with 80% negative responds. Programming problems also arises but with lesser negative respond. Only 60% of the responds stated that there is problem in creating web design that associated with programming elements. In designing visual element in a web pages, there are several consideration that designers needs to follow. Listed below are some of the consideration based on 100% respondent's respond:

- Motivation components is important in visual elements.
- Interaction between users' needs to be incorporated in visual elements.
- Visual elements needs to be completely and fully designed.
- Future use of the elements needs to be planned earlier.
- Visual elements need to be feasible to the user's activities.
- Visual elements need to provide the sense of exploring to the users.
- User's age is important in visual elements.
- Visual elements does not to be complicated.

- Suitable language for visual elements
- Suitable font and font-size in visual elements.

However, 40% (2 out of 5 respondent) added another consideration stating that symmetrical elements also is needed in the properties of visual elements in designing website.

With all the feedback gathered, it is clearly stated that visual elements covers a lot elements that needs to be considered, analyzed and focus on. In the next part, the paper will discuss on several suggestion given by the respondent so that other researchers can focus on.

CONCLUSION AND SUGGESTION

This paper mainly focused on the needs of discovering the rationality in website design by providing relations of visual elements. As a result of the study, all respondent agree that teamwork between web designer and programmer is an important aspect to create a good educational website. Besides, they also support that a web designer should get feedback from the target audience and experts to improve their website design. Educational website design must be deeply interacted on the web and design based on user level. In addition, the web designer suggest that an educational website must use the principle of design elements and consider effectiveness in designing website.

It is also suggested that, layout of each visual elements must be aligned appropriately and easy to access by the user. The design must also be kept simple yet attractive and the web design must follow certain criteria's such as audience age, level of learning and the content of course to be developed.

REFERENCES

- Gullikson, S., Ruth Blades, Marc Bragdon, Shelley McKibbin, Marnie Sparling & Elaine G. Toms. 1999. The impact of information architecture on academic web site usability. The Electronic Library.
- Fitzgerald B. 2012. What Is An Educational Web Site?. Retrieved from <https://www.drupal.org/node/1663546>
- Graeme W. 2015. 6 Key Features for Educational Websites. Retrieved from <https://www.thezenagency.com/latest/6-key-features-for-educational-websites/>
- Cho, E., & Youn-Kyung, K. 2012. The effects of website designs, self-congruity, and flow on behavioral intention. *International Journal of Design*, 6(2).

- [5] Hasan, L. 2014. Evaluating the usability of educational websites based on students' preferences of design characteristics. *International Arab Journal of e-Technology*, 3(3), 179-193.
- [6] Luke W. & Jennifer G. 2002. *Site-Seeing: A Visual Approach to Web Usability*. New York, NY, USA: John Wiley & Sons, Inc.
- [7] Akbulut, O. E., & Akbulut, K. 2010. Web site designers' opinions about the visual elements. *Procedia-Social and Behavioral Sciences*, 2(2), 1549-1553.
- [8] Ludden, G. D., van Rompay, T. J., Kelders, S. M., & van Gemert-Pijnen, J. E. 2015. How to increase reach and adherence of web-based interventions: a design research viewpoint. *Journal of medical Internet research*, 17(7).
- [9] Hazari S. 2006. Feature Requirements in Educational Web Sites: A Q-Sort Analysis. *Emerging Trends and Challenges in Information Technology Management*, Volume 1 and Volume 2. Hershey, Pennsylvania: Idea Group Publishing.
- [10] Alan C.K. Cheung and Robert E.Slavin. 2012. How features of educational technology applications affect student reading outcomes: A meta-analysis. *Educational Research Review* Volume 7, Issue 3, December 2012, Pages 198-215.
- [11] Kember, D., McNaught, C., Chong, F. C. Y., Lam, P., & Cheng, K. F. 2010. Understanding the ways in which design features of educational websites impact upon student learning outcomes in blended learning environments. *Computers and Education*.
- [12] Kaur, S., & Gupta, S. K. 2018. Prediction Of Design Aspects Of Web Page By Html Parser.
- [13] Heidig, S., Muller, J., & Reichelt, M. 2015. Emotional design in multimedia learning: Differentiation on relevant design features and their effects on emotions and learning. *Computers in Human Behavior*, 44, 81-95.