Proposed Model of Persuasive Visual Design for Web Design

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Abstract

This paper presents the foundation for systematically investigating the possibility of influencing users' motivation with visual persuasion which the constructs are divided into two factors; hygiene and motivation. Visual persuasion is identified as the design triggers that affect users' first impression, which are seen as the conceptualisation of motivation. While past research studied the effect of web design toward users' motivation; not many are looking into the persuasive value of the design. It is foreseen that the power of visual persuasion would produce a more persuasive website and consequently give impact on the users' first impression, and thus motivate them to stay at a site long enough to influence specific behavioural intentions. The proposed model aims to discover the potential of visual persuasion in influencing web users' motivation. This paper offers new insights into the role of visual persuasion in a web design with respect to the relationships between the dimensions of motivation and behavioural intention.

Keywords

Visual Persuasion, Motivation, First Impression, Web Design.

INTRODUCTION

The World Wide Web is continuously emerging and expanding as more web services offering information or serve as the electronic commerce tool can be found online. Studies related to the web user interface (UI) also grow as many authors and researchers discuss and propose guidelines and heuristics for Web functionality and usability. Regardless of the years the concern of web usability has been addressed, the issue remains. It is still unclear whether existing works are sufficient to satisfy and keep the users' interest to remain on a website and to motivate them to revisit the website. As more users depend on the Web for acquiring information and conducting business, the topic is still relevant to be searched and researched.

So far, usability has become a major concern among researchers. Issues like readability, consistency, functionality, error handling, complexity, and many others have been well addressed; the work also covers specific topics like type, colour, layout, and alignment. Some researchers start to draw attention to the effectiveness of the usability guidelines in improving user experience. They found that even the website that is compliant with most usability guidelines did not result in higher satisfaction or user preferences (Hart et al. 2008). A study by Lindgaard and Dudek (2003) also shows that using a site with high visual aesthetic, but very low in perceived usability yielded high satisfaction. On the contrary, the overall satisfaction value significantly dropped once they assess from high usability to low usability website (Lindgaard and Dudek 2002).

In 2003, B.J. Fogg brings about the idea of captology; which later being referred as persuasive technology or persuasive design. Fogg argues that designing for functionality and usability is not enough, and that the current design trend should move towards a persuasive design. He proposes that persuasive design is able to influence users' motivation. Fogg adds that certain user's behaviour can be achieved with the correct design triggers that are able to affect user's motivation (Fogg 2009); given that the user has the ability to do so. Another article adds that persuasive designers should not only discover the many aspects of persuasive design, but also should understand the content from the perspective of persuasive communication, such as the rhetorical value of the visual content (Torning and Oinas-Kukkonen 2009).

Likewise, Kim and Fesenmaier (2008) suggest that users make quick choice about a website based on their first impression of an immediate interaction with the site. This often also affects their subsequent decisions, for example, to decide to stay or to leave. The authors argue that it is compulsory to influence the users' first impression; with a bad impression, it takes only seconds for them to navigate away and never bother to come back. Research shows that upon entering a website, it takes around 50-500 milliseconds for average users to process their mental model of first impression (Lindgaard et al. 2006; Reinecke et al. 2013). In this short time, it is wise to imply that their impression is mostly influenced by the visual design on which they lay their eyes upon entering the website. This is supported by existing studies that shows how first impression is highly correlated with visual appeals of the website (Lindgaard et al. 2006; Phillips and Chaparro 2009; Reinecke et al. 2013). However, research also shows that the different in the elements of visual aesthetic show dissimilar impact towards first impression (Reinecke et al. 2013). This raises the question of what kind of design elements encourages a positive first impression.

Standing on the above-mentioned point of view, this paper tries to identify the basis for systematically investigating the possibility of influencing users' motivation with visual rhetoric; also known as visual persuasion. The aim of this paper is to address the following questions: 1) what are the constructs that can be used to measure the persuasiveness of a website, 2) what visual design features can be used to represent each construct for the formation of first impression, and 3) what theories can be used to guide the processes of influencing users' motivation? Hence, we would like to propose a new model for investigating the influence of visual persuasion towards users' motivation.

BACKGROUND OF THE STUDY

This research is formulated based on the two factor model for website design and evaluation (Zhang and Von Dran 2002), Cialdini's (2007) principles of social influence, Elaboration Likelihood Model (Richard E. Petty and Cacioppo, 1986), and the model of first impression formation toward tourism destination websites (Kim and Fesenmaier, 2008). Combinations of these works are seen as adequate to understand what kind of influence visual persuasion might have on web users.

In the nature of information searching, users tend to follow two patterns. User with favourite site will go straight to the site to seek information (Kim and Fesenmaier 2008). Therefore, it can be said that the site has succeeded in influencing the users to be loyal during their earlier visit. Whereas users with no specific web in mind, will use a search engine to find relevant sites, and will click randomly on the result links (Kim 2008). The second pattern of information searching is the crucial path that leads to the first pattern. Users from the first pattern are highly motivated and easily persuaded by the central route. At this the point, information quality is most important. On the contrary, users from the second pattern usually visit the website with low motivation, because they are still shadowed by the need to find the right website first before start to look for information. This is the point where visual rhetoric plays the role.

Within the 4th century BC, Aristotle discusses the concept of rhetoric by means of ethos (appeals to credibility), logos (appeals to logic), and pathos (appeals to emotion). At this time, rhetoric is discussed from the perspective of human interaction in terms of oral communication. Aristotle defines rhetoric as "the faculty of finding the available means of persuasion" (as cited in Gurak, 1991). The term persuasion is then defined as a process concerning with changing beliefs, attitudes, intentions, motivations, or behaviour (Gass and Seiter 2007). This process should be carried out without using coercion or deception (Fogg 2003; Oinas-Kukkonen and Harjumaa 2008). Over the past centuries, there has been increasing interest in optimising the value of persuasion for various uses. Among outstanding remark are the principles of social influence proposed by Cialdini (2007). Based on his field observations, Cialdini proposes six principles, namely (1) reciprocation, (2) commitment and consistency, (3) social proof, (4) liking/friendship, (5) authority, and (6) scarcity. He explains that once persuaded, human may react automatically without conscious thought. The principles are widely used in many fields, especially in the advertising and political domains.

Several studies have revealed that Cialdini's principles are relevant to be applied to an online environment (Guadagno and Cialdini 2005; Lauterbach et al. 2009; Sundar et al. 2009; Amblee and Bui 2011; Guadagno et al. 2013). However, most of the work discusses each principle separately, and not as a bunch of persuasive triggers. Besides, those studies maintain the discussion of the online persuasion in the nature of human to human communication, in which the online context only acts as the intermediate technology to assist the process. Thus, the role of visual persuasion by means of direct communication between a web interface and a human is yet to be explored. Much less the rhetorical value of the visual content is not clearly understood. Consequently, Kim & Fesenmaier (2008) start to examine the formation of first impression toward persuasive destination web pages. The work was formulated based on Zhang and Von Dran (2002) theoretical framework of website design and evaluation. Zhang and Von Dran use Herzberg's motivation-hygiene theory as guidance to identify and distinguish features that may be considered hygiene features from those that could be considered motivators in

web environments. They propose that hygiene features are essential features, but not sufficient to ensure user satisfaction with a web user interface. However, the absence of hygiene features would lead to dissatisfaction. They also suggest that motivational features contribute to the user satisfaction with and continued use of a website.

In Kim and Fesenmaier's model, informativeness and usability are labelled as the hygiene factors. On the other hand, persuasive features: credibility, inspiration, involvement, and reciprocity represent the motivating factors. They claim that current destination websites merely act as online brochures instead of taking advantage of the Internet in creating a longer relationship with potential visitors (Kim and Fesenmaier 2008). The result of the study shows that inspiration, usability, and credibility are significant in first impression formation. However, the rest of the factors are declining. It was inspected that the cause of declining factors were resulted from the limitations of the study. Some of the limitations are: 1) the survey system used for the study was not identical to the web environment, thus provides limited interactivity with the system; 2) the study did not measure the influence of individual design features on the first impression formation; and 3) disproportional completion rate indicates that the participants struggled to discover and understand certain design features related to the credibility and reciprocity constructs. Despite the discrepancy in the result, they conclude that a highly persuasive can better influence trip planners' decision-making process.

Referring to the Elaboration Likelihood Model (ELM) as discussed in (Petty and Cacioppo 1981; Richard E, Petty and Cacioppo 1986), a person can be persuaded via two routes; namely the central (direct) route and the peripheral (indirect) route. The ELM provides the foundation for understanding how web users interpret persuasive messages (in the form of pictorial images or short textual messages). According to the ELM, the information quality is governing the central route, whereas context; which is much more related to information presentation; is dominant in the peripheral route. Petty and Cacioppo claim that the motivation formed under high elaboration (the central route) is stronger than the motivation formed under low elaboration (the peripheral route). Much more, when users' motivation is low, they are much likely to be persuaded via the peripheral route. However, motivation formed under low elaboration is more likely to cause a short-term effect. Nevertheless, the short-term effect is insignificant as the research only concerns about the instant cause and effects of persuasion towards the formation of first impression.

Based on the technology acceptance model (TAM), users' perception about a website is based on beliefs, attitudes, and intentions. A past study shows that content and realism (pictures) are among important predictors of users' beliefs, attitudes, and intentions toward the website, and these factors appear to be a strong predictor of behavioural intentions (Jeong and Choi 2004). Behavioural intention represents the degree to which the user is willing to perform certain behaviour (Pantano and Di Pietro 2012). In this particular study, perceived persuasiveness will be used to measure first impression and behavioural intentions of a website.

PROPOSED MODEL

In order to gain insight into the impact of visual persuasion on users' motivation and behavioural intention, the model originated by Kim and Fesenmaier (2008) is revised. We consider the inclusion of the principles of influence by Cialdini (2007) in the model, thus implying that the added value of persuasion can enhance the persuasiveness of a website. We proposed that the more persuasive a website is perceived to be, the more likely web users or to form a favourable first impression toward the website. Thus, the outcome will lead to much more favourable behavioural intention. Following Kim and Fesenmaier model, we divide the factors according to Herzberg's motivation-hygiene theory.

Informativeness, usability, and visual aesthetic are proposed as the hygiene factors; without those, perceived dissatisfaction would be higher. On the other side, credibility, engagement, reciprocity, commitment, liking, social proof, authority, and scarcity are listed as the motivating factors. Motivating factors in this regard are seen from the perspective of visual features that carry the value of persuasion. Any other visual features that carry the aesthetical values, but not related to persuasion, are defined as the visual aesthetic of the hygiene factors. The proposed model is shown in Figure 1. When discussing the model, the term visual rhetoric or visual persuasion is used interchangeably. The term inspiration in the Kim and Fesenmaier (2008) model is replaced with the term visual aesthetic or visual appeal. The term involvement and engagement are also regarded as having the same meaning. Even though the proposed model can be generalised to various contexts, this paper discusses the model from a tourism point of view. The massive availability of tourism content is seen as fit to the design and validation requirements of the proposed research. Furthermore, since most people will travel from time to time, the industry is expected to keep on growing, and thus, the outcome of the study would be beneficial to most.

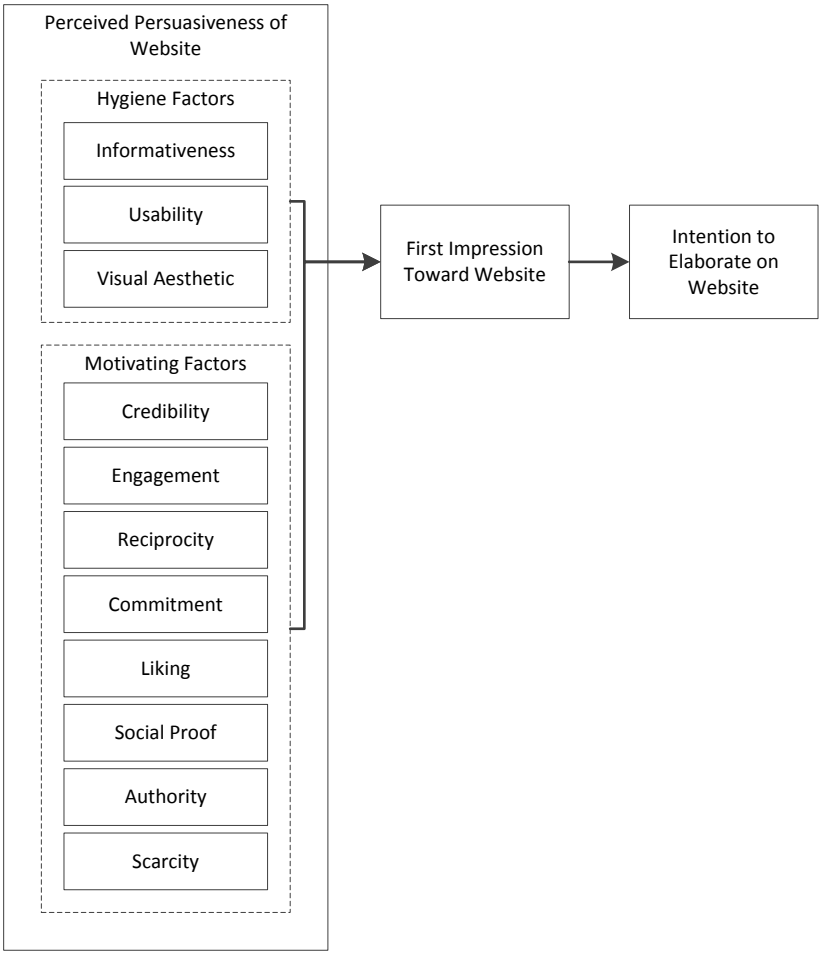

Figure 1: The proposed model of persuasive visual design for web design

Operational definition

In this research, persuasion is viewed as a tool to trigger users' motivation to change into or to sustain positive first impression, and as a result influence their behaviour. In a web environment, encouraging motivation is likely to rely on how successful the design of the site; by means of visual persuasion; in influencing the users' first impression. Adjectively, visual is related to seeing or sight. As a noun, the word visual means a pictorial or textual display to illustrate something. From the perspective of this study, visual is referring to a picture or short textual messages that caught the eye of the beholder. As such, the operational definition of visual persuasion is 'any picture cues or textual messages that carry the influence effects towards users' first impression, and consequently affects their motivation and behavioural intention'.

Wlodkowski (1978) summarises motivation as the word to describe processes that can a) arouse and instigate behaviour, b) give direction and purpose to behaviour, c) continue to allow the behaviour to persist, and d) lead to choosing or preferring a particular behaviour. Likewise, motivation is understood to be the desire, urge, or will to engage in the sequence of events known as behaviour (Bayton 1958). From the perspective of this paper, motivation is presumed to portray: 1) a desire to process the content of a website, 2) to maintain the desire long enough to form the first impression, and 3) able to decide the next intention/action. The processes are illustrated in Figure 2. First Impression is defined as the event when a user first encounters a new website, and forms a mental image of that website. Even though past research discuss first impression with the present of time as an important entity, but this research look upon first impression as the mental image that users carried upon leaving the website, thus putting aside the control of time.

Figure 2: Motivational design processes

In order to test the effects of visual persuasion towards user's motivation, two prototypes with different visual design will be developed. The control prototype will be designed with the basic features of web, following the guidance of hygiene features by Zhang and Von Dran (2002) to minimise users' dissatisfaction. Whereas the treatment prototype will be designed with both features (the hygiene features and the motivating features) of visual persuasion. It is foreseen that the power of visual persuasion would produce a more satisfied website; thus positively influence users' first impression. This will consequently give impact on users' motivation to stay at a site long enough to influence specific behavioural intentions. Specifically, it is predicted that users' first impression of the persuasive website would be better than non-persuasive website. As such, this paper suggests that persuasive design could help visualise the much-needed information in a way that can trigger users' most attention, and affects their first impression, intentionally or unintentionally. Constructs of perceived persuasiveness are discussed in the following sub-sections.

Hygiene factors

The hygiene factors are the essential factors towards minimizing users' dissatisfaction of a website. Zhang et al. (1999) argue that hygiene features are essential, but not sufficient to ensure user satisfaction with a web user interface. Without the essential factors, users are more likely to be dissatisfied with the web interface, hence leads to the unfavourable perception of the website. Hence, we propose informativeness, usability, and visual aesthetic as the hygiene factors for a favourable formation of first impression. Guidelines for measuring informativeness, usability, and visual aesthetic from the perspective of hygiene factors can be found in Zhang and Von Dran (2000). In this research, we predict that the hygiene factors will have the mediating effects upon the perceived persuasiveness of the motivating factors.

Informativeness-Related Design Factors

Information is the primary motivation for internet users to visit a website (Kim and Fesenmaier 2008). In the tourism domain, the websites' main goals are to advertise and promote destinations, to facilitate communication with customers (visitors and potential travellers), and to reinforce a positive image and brand value (Kim 2008). As information quality is essential to consumers, and the way information is delivered online, in content and organization, can facilitate or impede its utilization (Rosen & Purinton 2004). An important goal of websites' information quality is providing accurate information to consumers. Besides, Luo (2010) confirms that the informativeness of a Web site is positively associated with attitude toward the Web site. Thus, we propose the hypothesis (H1) as: the more informative the website is perceived to be, the more likely web users will form a favourable behavioural intention toward the website.

Usability-Related Design Factors

Usability has been proved as a primary factor in the formation of favourable first impression (Kim and Fesenmaier 2008). In general, web usability is defined as the ease of use and learnability of the website. Kim and Fesenmaier (2008) conclude that destination websites must be user-friendly so that the information searcher can easily navigate sites minimum level of mental effort. The following hypothesis (H2) is formulated: the more usable a website is perceived to be, the more likely web users will form a favourable behavioural intention toward the website.

Visual Aesthetic-Related Design Factors

Visual aesthetic, also refers as visual appeal, relates to the art or beauty of the web. Some researchers confirm that visual aesthetic is prominent in the formation of favourable first impression of a website (Lindgaard et al. 2006; Kim and Fesenmaier 2008; Phillips and Chaparro 2009; Reinecke et al. 2013). As such, the next hypothesis (H3) is: the more attractive or appealing a website is perceived to be, the more likely web users will form a favourable behavioural intention toward the website.

Motivating factors

Zhang and Von Dran (2000) claim that motivational features contribute to the user satisfaction with and continued use of a website. They investigate various motivational features and rank the importance of each feature toward users' satisfaction of a web interface. Our work differs with Zhang and Von Dran (2000) in term of the features used for the study. Zhang and Von Dran features are much more general and much related to how to gain users' satisfaction of the design. As the opposition, we are investigating the possibility of influencing users' motivation with visual persuasion. We propose that the persuasiveness of a website can be enhanced by applying the visual features that carry the persuasive power of influence into the web design.

Credibility-Related Design Factors

Credibility in the web design is about how to appear credible in the eye of the users, and gain the trust feeling out of them. Trust is about the feeling of security and willingness to depend on someone or something (Chung & Kwon, 2009). Online trust can be defined as an Internet user's psychological state of risk acceptance, based upon the positive expectations of the intentions or behaviours of the website (Wang and Emurian 2005). We propose signs of experience or maturity like the message of 'established since 1990', or logo and endorsement from well-known organisation to have a certain value of persuasion. Thus, the following hypothesis (H4) is: the more credible a website is perceived to be, the more likely web users will form a favourable behavioural intention toward the website.

Engagement-Related Design Factors

Engagement (also referred as involvement) is defined as a quality of user experience that consists of: focused attention, perceived usability, endurability, novelty, aesthetics, and felt involvement (O'Brien and Toms 2010). Interactivity, and tangible and animated images are proposed to be part of the primary features of engagement as the features require focused attention and (or) several mouse clicks during the interaction process. Hypothesis (H5) is formulated: the more web users perceived to be engaged with a website, the more likely they will form a favourable behavioural intention toward the website.

Reciprocity-Related Design Factors

Reciprocation is about giving something or doing a favour to a customer without expecting anything in return (Cialdini 2007). However, in the end, the customer will feel obligated to repay the favour. This situation creates a form of relationship between the site and the customer. In the case of selling, offering an in-store sample can make a customer feel obligated to make a purchase. Commercial and profit based tourism websites may be able to offer complimentary gifts to attract potential customers. In contrast to non-profit websites, since no complimentary gifts can be offered to customers, the reciprocation technique should be addressed in such a way that no expenditure is required. For example, by offering much needed information like discounts or offers, web users usually feel obligated to provide their email, as repayment (Kim and Fesenmaier 2008). Therefore, we come out with following hypothesis (H6): the more reciprocal a website is perceived to be, the more likely web users will form a favourable behavioural intention toward the website.

Commitment-Related Design Factors

Humans are bound to make decisions based on previous commitment and they are consistent with what they think and do (Cialdini 2007). Past actions usually reflect on the next one. In a retail shop for example, a customer has the chance to describe a product criterion. The seller will then present a few suitable products. In return, the customer feels obligated to buy at least one of the offered products. This is due to human having some kind of an obsessive desire to be (and to appear) consistent in what they think and do (Cialdini 2007). Commitments work in many situations, but they are more persuasive for high involvement products. For example, by providing the searching facilities for the web users to request for specific information on travel destination, the possibility for them to click on the suggested link is higher. Thus, the next hypothesis (H7) is: the more web users perceived to be committed to a website, the more likely they will form a favourable behavioural intention toward the website.

Liking-Related Design Factors

People can be influenced by another of whom they like the most (Cialdini 2007). Reviews and evidences by relatives or friends are proving to be amongst the most important factors that influence the destination of choice. Liking is also the principle of sharing some similarities of another favourable person. For example, a traveller is more likely to be influenced by another traveller. The concept can also be applied among strangers with something as superficial as physical attractiveness. Embedding the picture of likeable person is predicted to have some influence on the users. Thus, the next hypothesis (H8) is: the more likeable a website is perceived to be, the more likely they will form a favourable behavioural intention toward the website.

Social Proof-Related Design Factors

People love to imitate others and when they become uncertain, they will usually take cues from others (Cialdini 2007). Thus, providing evidence of what others are doing and how they do it, can serve as a social proof that it is worth to be imitated, and hence influence the users to repeat the same actions. For example, on Facebook, users tend to click on the "Like" button when they saw many people liked it. In tourism websites, providing evidence that other people had travelled to interesting places, can lead to persuasion. The message stating that '70% of Western Australians has been to the Opera House in Sydney' may also lead to persuasion. This technique works better if the person is someone well known to the targeted users. This lead to the next hypothesis (H9): the more

evidence of social proof appears on the website is perceived to be, the more likely they will form a favourable behavioural intention toward the website.

Authority-Related Design Factors

People tend to obey (or copy) authoritative figures (Cialdini 2007). Sources of authority can be generic; it can be a leader of an organization, celebrities, or even materials such as uniform, money or food. In a flight advertisement, messages from flight attendant will be regarded as important. In the tourism website, celebrities can play their part to promote destinations (Ibrahim et al. 2013). The following hypothesis (H10) is: the more authoritative a website is perceived to be, the more likely they will form a favourable behavioural intention toward the website.

Scarcity-Related Design Factors

Scarcity is one of the most popular techniques used in advertising. Perceived scarcity will generate demand (Cialdini 2007). For example, saying that offers are available for a 'limited time only' or 'limited stock only' can trigger or instigate customers' awareness that they must act fast, and hence encourages sales. Finally, hypothesis (H11) is: the more demanding a website is perceived to be, the more likely they are to form a favourable behavioural intention toward the website.

In summary, we are proposing a model for investigating the influence of visual persuasion towards users' motivation and behavioural intention. Even though previous works intensively examine the impact of visual design towards users' satisfaction, not many investigate the persuasiveness of each visual feature and how it affects users. Our research examines a different set of constructs and our survey system will be designed so that it is identical to the web environment in terms of interactivity and accessibility; therefore, it differs from the work by Kim and Fesenmaier (2008). As such, we predict that the results will bring over another perspective in understanding users' online experience. We also propose that the concept of social influence in the domain of human psychology can be applied in the visual design of web application.

RESEARCH IMPLICATION

This research will examine the possibility of adapting the social principles into visual design to enhance the persuasiveness of a website. The two factor model and the ELM will be used to understand and distinguish which factors mostly affect users' decision making process. This is concurrent with the work by Guadagno et al. (2013) which discovers that not all principles are effective online. Furthermore, the correlation between hygiene factors and motivating factors across the dual routes (central and peripheral routes) can be discovered. Figure 3 shows the proposed benchmark for the research.

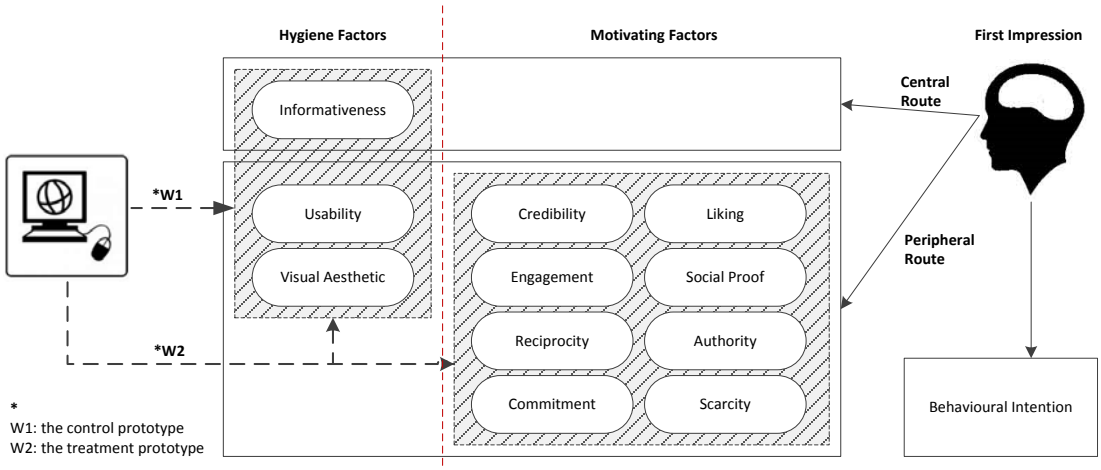

Figure 3: The benchmark for investigating the influence of visual persuasion towards intention.

This research could offer new insights into the role of visual persuasion in a web design with respect to the relationships between the dimensions of motivation and behavioural intention. Practically, the result will also help designers to come out with better design strategies for a better user acceptance and hence improving users' experience. If somehow visual persuasion creates negative impact towards the formation of favourable first impression, guidelines can be offered to avoid the use of the particular design cues. In addition, the review encompassing different perspectives highlights opportunities for new integrated streams of research. In our expectation, this research may serve as a benchmark for future researchers to investigate the effectiveness of visual persuasion in influencing users' experience and the outcome.

FUTURE WORKS

This paper serves as a theoretical foundation for a research that investigates the persuasiveness of websites and its ability to influence users. A model of persuasive design for web design is proposed. Despite the large number of studies providing empirical evidence for separate parts of this model, an integrative empirical study must be conducted to confirm the structure of the proposed model.

Ibrahim et al. (2013) have examined four popular travel websites to understand the extent of the use of visual persuasion in travel websites. They discovered that even most popular travel websites do not fully make use of visual persuasion in their web design. Thus, the next step is to develop web samples of non-persuasive and persuasive design. These web samples will be used as the control and treatment prototypes in an experimental study in the online web environment setting to provide the empirical evidence about the impact of visual persuasion on users' motivation and behavioural intention. A set of online questionnaires will be used as the research instruments. The fitness of the proposed model will be tested using the structural equation modelling following necessary amendment as required.

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