



## Can Visual Quality of Websites Affect Time Perception?

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**Introduction** Website visual quality is one of the most important factors in determining the first impression of a website which influences users' attitudes and behaviors towards the website. Previous research that investigated visual quality of websites tended to limit their interest to immediate responses such as attractiveness and performance efficiency. On the other hand, little research has been done to understand whether the first impression of the website created by visual quality can influence consumers' cognition and behavior beyond the immediate response. To fill this gap, the present study is designed to investigate to what extent visual quality of a website can influence consumers' online engagement and time perception.

**Literature Review** Engagement is a state that a user is captivated and attracted to a target for intrinsic motivation (Webster & Ahuja, 2006) and is often accompanied by attention, intrinsic interest, and curiosity (Agarwa; & Karahanna, 2000). It is reasonable that visual quality of websites triggers attention and interest, which may lead consumers to be engaged with the website to the degree that some lose track of time. Thus, a model of engagement was developed: contributing factors to the initiation of the process, intrinsic motivation (involvement) and stimulus attributes (website visual quality), are proposed as antecedents of engagement. Engagement was proposed as a state experienced through enjoyment and attention focus, two constructs consistently used to characterize engagement in the previous research. Finally, time perception was proposed as an outcome of engagement as researchers (e.g., Novak, Hoffman, & Yung, 2000) conceptualized and discussed distorted time perception as a key characteristic to describe the deep immersion state. Therefore, the following hypotheses were developed. Perceived visual quality of a website will positively influence engagement manifested as (H1a) enjoyment and (H1b) attention focus. Product involvement will be positively related to (H2a) enjoyment and (H2b) attention focus. Enjoyment will positively influence attention focus. And lastly, enjoyment (H4a) and attention focus (H4b) will be negatively related to perceived time.

**Methods** Participants were students at a large Midwestern university, randomly selected and invited to participate in the study through emails. An online experiment was conducted to examine the research questions. Manipulation of visual quality of a website was completed by creating two versions of a mock apparel retailer website (high visual quality vs. low visual quality). Participants browsed 5 product pages on the experiment website. Once they finished

viewing the products, participants were directed to the survey questionnaire. The questionnaire was composed of items validated from previous studies and all items were measured with 7-point ratings scales (1-strongly disagree, 7-strongly agree).

**Results** A total of 1209 participants (the high visual quality condition sample = 623, the low condition = 584) completed the experiments. The majority of the participants were female (59.6%) and the average age of the sample was 21.57. ANOVA results confirmed that visual quality manipulation was successful. Participants in the high visual quality condition perceived the website to be more readable ( $F(1,1205)=318.64, p=.00, 5.72$  vs.  $4.21$ ) and to have better quality pictures ( $F(1,1201)=240.80, p=.00, 5.59$  vs.  $4.25$ ) than those in the low visual quality condition. Structural equation modeling was used to test the proposed model. The measurement model was accepted based on fit indices ( $X^2=55.19$  ( $df=37, p=.000$ ),  $X^2/df=1.49$ ,  $GFI=.99$ ,  $AGFI=.99$ ,  $CFI=.99$ ,  $PCFI=.67$ ,  $RMSEA=.019$ ). Construct validity and discriminant validity was established by examining Composite reliability (CR) and Average Variance Extracted (AVE) for each factor. The proposed structural model exhibited good fit ( $X^2=103.16, df=47, p=.000$ ,  $X^2/df=2.20$ ,  $NFI=.99$ ,  $CFI=.99$ ,  $PNFI=.70$ ,  $RMSEA=.030$ ). As hypothesized, perceived visual quality of the website influenced enjoyment ( $\gamma_1=.50, p<.01$ ) and attention focus ( $\gamma_2=.11, p<.05$ ). Fashion involvement was positively related both to enjoyment ( $\gamma_3=.28, p<.01$ ) and attention focus ( $\gamma_4=.17, p<.01$ ). Also, enjoyment increases attention focus ( $\beta_1=.28, p<.01$ ). Therefore, H1, H2, and H3 were supported. Consistent with H4b, perceived time was negatively affected by attention focus ( $\beta_3= -.32, p<.01$ ). However, enjoyment did not influence perceived time ( $\beta_2=.01, p=.837$ ), rejecting H4a.

**Discussion and Implications** The results supported most of the proposed relationships and provided support for the importance of visual quality and intrinsic motivation in creating immersive experience online. The conceptual model of online engagement process particularly in a casual online shopping context is rare and adds insights for both academics and practitioners. The model suggests that sustained engagement may lead to the state of cognitive absorption and distort online shoppers' time perception. A future research to investigate situation factors (e.g., noise) which were not included due to the controlled nature of experimental design will expand our understanding of online engagement. Additional factors and comparisons of effect strengths among them can be particularly beneficial for retailers because results can provide practical suggestions for business success.

Full references available upon request