The Visual-Cognitive Model for Internet Advertising in Online Market Places

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ABSTRACT

Social media and online firms are currently facing severe challenges generating revenue through online banner ads, and for two decades, current studies in the information systems, advertising, and marketing literature have shown that online banner ad click-through rates are decreasing steadily (Idemudia, 2014; Idemudia et al., 2007; Li et al., 2012). To address these issues, the Visual-Cognitive (VC) model has been developed for online market places and Internet advertising. An experiment was conducted in which independent variables such as familiarity of online banner ads, perceived security of online banner ads, and matches between web users’ needs and banner ad content were manipulated. The theoretical background for the VC model is the Visual Perception Theory. The VC model shows that perceived usefulness of online banner ads has a positive and significant effect on the intention to click online banner ads. Also, the VC model shows that perceived security of online banner ads, matches between web users’ needs and banner ad contents, and perceived familiarity of online banner ads have positive and significant effects on perceived usefulness of those ads. These findings strongly support the Visual Perception Theories. Thus, the VC model has significant research and practical implications relating to social media and online firms.

Keywords: Click-Through Rates, Internet Advertising, Online Ads, Online Market Places, Visual Perception Theories, Visual-Cognitive Model

INTRODUCTION

KC is the CEO of the leading social networking site in the world. His company, Connect Inc., stands out because of it’s excellent computer programming, impressive Internet entrepreneurship, and KC’s incredible, visionary altruism. As a result of these qualities, Connect Inc. has web users from all over the world, and companies worldwide are contacting Connect Inc. to help them generate revenue and sales from Internet advertising. Internationally, there are more than two billion web users implementing Connect Inc. KC and his employees were extremely excited that they generated revenue from Internet advertising, because almost everyone in the world was using their networking site Connect, Inc. Also, The Economist, US Business News, Vanity Fair, and Time featured Connect, Inc. as the most likely company to succeed in the 21st century. The next step was for Connect Inc. to go public and, for the past

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two years, Connect’s price per share has been dropping consistently. Web users are not clicking the online banner ads that are displayed by Connect Inc., and the company is not generating income/revenue/sales from Internet advertising as predicted. KC and his employees realized that the mathematical models they developed for ad personalization have been helpful, but unfortunately, the mathematical models alone cannot solve the problems and challenges Connect Inc. is currently facing. All the more unfortunate is that Connect Inc. does not have a clear strategy on how to generate revenue from mobile applications in the future.

Studying cognitive factors that enhance click-through rates is of vast importance, because it provides insight for social media and online firms. Options are presented for generating revenue from Internet advertising and an explanation is provided as to why the click-through rates of online banner ads have been decreasing continuously for the past two decades. Also, our study provides important insights for social media firms and banner ad designers on how to evaluate and design effective and efficient online ads.

Online banner ads are stationary or moving figures, images, graphics, or photos that are displayed on the monitors of computers and cell phones to advertise products and services (Idemudia 2010, 2012, 2014; Idemudia et al. 2007; Li et al. 2012). The design of online banner ads for online target marketing places consists of three sequential components and steps: (1) input: the data is collected from cookies, keyboards, web logs, or the log files for an ecommerce website, (2) process: mathematical modeling, such as linear programming, data mining, or pricing models that generate personalized and customized banner ads and (3) output- where banner ads are displayed to users (Idemudia et al. 2007; Idemudia 2009, 2010, 2014; Li et al. 2012). There is a current focus in the information systems and computer science disciplines, to concerned with addressing the issue of how to improve click-through rates, and there has been a great deal of research on the process component of target online banner ad design (Idemudia et al. 2007; Idemudia 2009, 2010, 2014; Kazienko and Adamski 2007; Li et al. 2012). The process component involves the development of algorithms, techniques, programs, data mining, text mining, codes, and mathematical models to accurately display the right target online banner ads to web users and online visitors at the right time and with the appropriate content (Amiri and Menon 2001; Attardi et al. 2004; Feng et al. 2006; Hoffman et al. 1997; Idemudia 2009, 2010, 2014; Kazienko and Adamski 2007; Lacerda et al. 2006; Langheinrich et al. 1999; Li et al. 2012). Of all the target online banner ad design components, output has received the least attention from information systems researchers and scholars (Idemudia 2009, 2010, 2012, 2014). Thus, the limited research on factors that influence the output component of online banner ads might have led to the constant decline in click-through rates. This issue is most adequately addressed using the Visual Perception Theory.

Visual perception is the study of how people gain information through their senses about things, people, environments, and events in the world (DeLucia 2007; Gordon 2004). Meta-analysis indicates that visual perception is one of the oldest disciplines in psychology; as a result, there are a complex multitude of theories in visual perception. The study of the visual perception of online banner ads is central to maintaining the constant growth of Internet revenue and sales. For example, on April 10th of 2014, The Internet Advertising Bureau (IAB) announced that the Internet advertising revenue for 2013 in the US was $42.8 billion: up 17% from 2012’s landmark numbers (IAB 2014). Also, in the year 2013, all four quarters reported record level revenues compared to the previous years’ quarters (IAB 2014).

The business models of search engines depend on online advertising (Rosso 2010). The click-through rate is the most common pricing model used by social media and online firms to measure the effectiveness, helpfulness, success, and value of online banner ads (Idemudia et al. 2007; Idemudia 2009, 2010, & 2014; Li et al. 2012). The click-through rate is the percent-
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