

Chapter 3

Modeling Shopper Responses to Retail Digital Signage

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ABSTRACT

This chapter evaluates the impact of digital signage, or digital communications networks (DCNs), on shoppers' perceptions, emotions, and shopping behavior. Digital signage, which consists of screen displays in public spaces showing video, has been little researched to date. The chapter focuses on how consumer shopping behavior can be enhanced by an atmospheric stimulus such as digital signage and the ways in which digital signage can affect consumer perceptions about the images of shopping malls. The chapter reports two interconnected studies. First, a qualitative study is reported with empirical results evaluating how digital signage screens can improve the image of shopping malls and create a favourable shopping atmosphere. The qualitative findings elicit a number of constructs that shoppers use in forming their attitudes towards digital signage. These are supplemented by the views of industry experts and used to form the basis of an attributes list.

The second stage is a quantitative study. The attributes list of digital signage constructs is purified using factor analysis to produce a new scale measuring attitude towards digital signage. This new scale is then applied in developing a new model based on the Elaboration Likelihood Model (ELM). The "direct" route in the ELM suggests that digital signage influences cognition, which then influences emotions, whereas the "peripheral" route is emotion → cognition.

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We predict that these operate in parallel and report a survey of mall consumers ($n = 315$). Digital signage has a significant, positive, total effect on approach behaviors, mediated by positive affect and (arguably) perception of mall environment. Results extend the Limited Capacity Model of Mediated Message Processing (LCM) from television to digital signage, which predicts the effectiveness of vivid moving visual images as atmospheric stimuli.

In addition to the obvious application to retailers in improving business-to-consumer appeal to shoppers the findings are of use to suppliers of digital signage in business-to-business marketing of their systems to retailers.

INTRODUCTION

This chapter evaluates the impact of digital signage, or digital communications networks (DCNs), on shoppers' perceptions of the retail environment, positive affect, and approach behavior in a shopping mall context. Digital signage consists of 'screen displays located in public spaces showing video material (or private TV channels)' (Clarke, 2003). TV screens have been used in retail environments for some time but since the advent of digital control and flat screens, the use of networks of screens has made digital signage available as an effective, easily controlled communication medium. Referring to digital billboards, i.e. outdoor, the Outdoor Advertising Association of America describes them as: '... updated electronically through a variety of methods. Some are networked together, most are operated remotely, and all of them can be updated quickly, sometimes with just the click of a mouse. This ability gives digital [signage] flexibility and nimbleness. This nimbleness gives local businesses a unique and powerful way to reach a large number of geographically targeted consumers very quickly' (OAAA, 2009).

Digital signage content may include, for example, advertisements, community information, entertainment and news. According to POPAI (Point of Purchase Association International), more than 70 percent of purchase decisions are made in store at the point of purchase (Jugger, 1999). Such screen networks go by many names

but we use the terminology 'digital signage' here as being most commonly used internationally. Similarly, we use 'shopping mall' (or simply 'mall') as the term becoming more accepted internationally for what has, particularly in Europe, previously been referred to as a 'shopping centre' (or 'shopping center'), i.e. a 'planned retail development ... managed and marketed as a unit' with a 'pedestrian precinct covered from the weather' (Dennis, 2005, adapting from Guy, 1994 and citing Reynolds, 1993).

Digital signage aims to talk to shoppers while they are captive and in the mood to buy. Retailers in countries including the US (Albertson's, Target, Kroger), the UK (Tesco, Asda, Sainsbury) and China (Carrefour) have launched digital signage networks. In addition to pushing merchandise, digital signage also generates hefty advertising revenues. Brand manufacturers pay anywhere from to \$60,000 to \$293,000 for a four-week campaign on Wal-Mart's TV network connecting more than 2,500 stores (The Economist, 2006). Although research figures are sparse, industry insiders estimate that digital signage is currently worth around \$2billion in the US (Computerworld.com 2008).

Digital signage might be considered as contributing to retail atmospherics. Leo J. Shapiro & Associates, the firm that conducts store atmospherics surveys for *Chain Store Age* (Wilson, 2005) categorizes in-store TV among interactive atmospheric elements helping retailers building a competitive advantage. Research indicates

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