

# **Comprehensive Review of Literature on Signage: 1950 to Present**

## **White Paper**

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### **INTRODUCTION**

The subject of 'signage' has been claimed by a diverse range of business interests, scientific and technological research, and professional disciplines. As a result, the available literature on signage is fragmented and it is concerned with providing information to specific interests and in promoting specific objectives. An organized literature review on signage that encompasses all the various categories of the subject in a comprehensive manner is a necessary prerequisite in the efforts to make 'signage' a subject of study within academic settings.

For the past six months, through the initiative of the Signage Foundation, Inc. research efforts have been devoted to compile a comprehensive literature review on signage. Although this is an ongoing project, current progress in the careful review and organization of the available literature reveal six categories of influence and education on signage in the past fifty years. The boundaries between these subjects are not solid and there is a great overlap between them. Discussion on how for example signs increase business exposure crosses over to local zoning regulations. These categories organizing the literature include Business and Marketing, Graphic Design and Architecture, Engineering & Technology, Planning and Urban Design, Law, and Psychology.

Several marketing and business journals offer the majority of text on the role of signs in their physical form as well as the effects of their messages in promoting the growth of businesses. While an increasingly large number of books written in the field of graphic design and architecture comment on the more artistic components of signs including the form, symbols, and lettering, the literature on engineering and technology focuses on the innovative techniques of developing signs as well as their design effectiveness in visibility, safety, and way-finding. The American Planning Association has also taken the lead in producing the largest breadth of reviews on signage and its connections to the interdependent fields of planning and law. These reports address the issues of sign control with respect to both on-premise and off-premise signage and the implications of these street graphics in the environment and community. Furthermore, several studies in the

field of psychology have been conducted to investigate the effects of signage on the consumers' ability to comprehend and react positively to the content and design of signs.

The following review covers the key findings in the available publications categorized under these six subjects with the aim to bring together the currently fragmented literature, to educate and identify gaps in the literature, as well as to direct future research.

### **Business & Marketing**

The works of literature concerned with business and marketing principles focus on the economic value of signage for businesses as well as keeping sign makers updated on the latest technology of signage by the way of the most effective sign designs and placements. Several publications produced by the Small Business Administration emphasize the value of signs in a highly competitive environment. The literature reveals that while on-premise signage may enhance storefront image, the use of such visual communication devices act as valuable marketing aids in promoting business. Research papers published by the *Journals of Marketing and Consumer Marketing* investigate how signage affects the economic vitality of businesses and reveal how essential signs are to identifying a business as well as branding it. Research conducted by the Outdoor Advertising Association of America supports this notion of using signage to enhance business as well as identifying the growth and advantages of LED technology in outdoor advertising. Organizations devoted to the continuing education of sign design and production techniques as well as advocates of the importance of signs to the success of businesses include the International Sign Association, magazine publications such as *Sign Business* and *Signline*, as well as *Signs of the Times Publishing*.

### **Graphic Design and Architecture**

A variety of text is available reaching as far back as the seventies on the subject of signage from a graphic design and architectural design perspective. Older publications focus on the physical aspects of signage including the shape, color, lettering and construction of sign boards. Barttram's (1975) *Lettering in Architecture*, one of the oldest publications in this subject, offers research on lettering in public spaces in Britain and Italy. This early interest in lettering and signs abroad shows the early linkages of aspects of graphic design and art in very functional way-finding signs. Numerous studies of signage in Europe also show how expansive the subject of signage is as its influence goes beyond the borders of the United States. Various publications concentrate on designing the most effective signs. These often include visual tours of signage all over the country as well as methods in implementing the latest technology of signage. Davidson's (1999) *Vintage Neon*, Dewsnap's (1993) *Sign Design: Easy Type Guide*, Editors from *Signs of the Times*' (2006) *Commercial Sign Techniques Step-by-Step*, and Eiseman's (2006) *Color: Messages & Meanings* are examples of such literature aimed to educate end users of the history of signage as well as helping them to integrate effective signage into their business plans. *Signs of the*

Times publishing had made several such texts available as they have published a number of case studies in the United States related to signs and sign making techniques.

Still, typography continues to be a focus in design research. Baines and Dixon (2003) published an influential text which focused on letterforms and typography found in public places that help navigate towns, cities, and country side while also highlight signage's contribution to the sense of place of an environment. Numerous publications including Kinneir's (1980) *Words and Buildings: The Art and Practice of Public Lettering*, Baeder's *Sign Language: Street Sign as Folk Art* (1996), and Littlejohn's (2003) *Metro Letters: A Typeface for the Twin Cities focus on the art and use of lettering in public spaces as a form of communication*.

Through the study of signage as an art form and a source of visual communication, the literature also reveals a connection between signage and logos for businesses. Several texts investigate the use of signage as a branding device for businesses. Chmielewska's (2005) *Logos or the resonance of branding: A close reading of the iconosphere of Warsaw*, Lury's (2004) *Brands: The Logos of the Global Economy*, Macnab's (2008) *Decoding Design: Understanding and Using Symbols in Visual Communication: Discover the Hidden Meanings Inside Common Corporate Logos and Designs*, and Holland's (2001) *Design Issues: How Graphic Design Informs Society* are examples of publications that explore signage can facilitate the promotion of businesses through branding a business and thus creating a corporate identity. Research shows how branding can: mediate the supply and demand of products and services in a global economy, frame the activities of the market by functioning as an interface, communicate interactively, selectively promote and inhibit communication between producers and consumers, and operate as a public currency while being legally protected as private property in law.

## **Engineering & Technology**

The emphasis of the literature referenced under the category of Engineering and Technology is two-fold. While there is a plethora of literature on the role of signage in transportation in respect to both safety and way finding, there is also a number of published U.S. Patents related to signage and the innovative technology used to design and construct signs. Numerous studies measure the driver's response to signage in order to ensure safety in transportation. The United States Federal Highway Administration takes a lead in the research efforts investigating the potential safety effects of signage on driver attention and level of distraction. Several states' departments of transportation have also devoted research efforts to highway safety tests as a response to the growing number of electronic billboards. Apart from traffic way finding, signage also plays a role in way finding within buildings. The Journals of Fire Protection Engineering and that of Rehabilitation Research and Development published several articles investigating the influence of signage on evacuation behavior as well as way finding in transit stations. However, the majority of research in the field of engineering as it applies to signage focuses on transportation safety issues. Both the United States and Canada

have run studies in response to concerns about accident-promoting factors of roadside signs. Both the United States Sign Council (USSC) and the Foundation for Outdoor Advertising Research and Education have lead several research efforts on signage. The United States Research Council Foundation has published several papers covering different aspects of primarily on-premise signage including an Electronic Message Center Research Review; The Effects of Internally Illuminated On-Premise Sign Brightness on Nighttime Sign Visibility and Traffic Safety; Internal vs. External On-Premise Sign Lighting, visibility and safety in the real world; and a document on the Relative Visibility of Internally and Externally Illuminated On-Premise Signs. In addition, the USSC published a Guideline Code For Regulation of On-Premise Signs, a model of suggested means appropriate for local regulation of on-premise signs, including definitions, general sign types, size computation methodologies, area limitations and calculation charts, and specific regulation of sign types by zone. On the other hand, the Foundation for Outdoor Advertising Research and Education focuses on investigating the effects of billboards on driving performance as well as studying the growth of the number of billboards as well as the innovative technology involved in producing electronic billboards.

Patents included in this review cover very technical details of constructing signs. Examples of such technologies the evaluation of design and display factors of changeable message signs, lighting features such as fiber optic light bar for edge lighted signage, University of Cincinnati's Heikenfeld's rare earth-doped gallium nitride flat panel display devices. Several how-to books included under this category cover topics related to the construction of signs including Structural Welding Guide for Sign Contractors & Installers, published by the International Sign Association.

### **Planning and Urban Design**

The literature that considers planning and urban design principles as it applies to signage focuses on the functions of on-premise signage in the environment. These publications identify several stakeholders in the use of efficient signage including businesses, planners, and designers as well as the public. The significance of the planners' role in the relationship between signage and the stakeholders lies in their responsibility to link the objectives and goals of the interest groups for the benefit of the community as a whole. The American Planning Association (APA) has produced several publications concerning sign regulations and the enforcement of sign ordinances. The APA takes a lead in literature describing the law of aesthetics as it relates to signage and provides advice for how to work with sign makers and users to promote communities while retaining their special features. Furthermore, the U.S. Small Business Administration along with the Claus family emphasizes the value of signage for businesses as well as consumers as marketing and branding aids. These organizations also address the legal issues associated with signage and the results of restricting ordinances on communities.

On a more general level, signage in way-finding and traffic control are also key issues of the planning community.

The review also reveals that billboards and electronic message boards or digital billboards are important topics of discussion and debate in the planning field. Although this category includes mostly off-premise signage, such displays have become integral parts of the urban, suburban, and rural environments as they line many streets, highways, and freeways. The Outdoor Advertising Association of America plays a leading role in literature publication concerning the use and maintenance of billboards and the legal and safety issues involved. This association also produced several publications concerning the rise of digital billboards and the evolution of technology and materials used to advertise businesses and services. During the last five years, planning literature on the use of electronic message boards is becoming available through APA publications and conference proceedings.

As important as signage has shown to be for businesses, signs from a design perspective must be also investigated from a broader view: urban design. Texts such as Evans (1998) *Walker Evans: Signs / with an essay by Andrei Codrescu*, Finke's (1994) *City Signs: Innovative Urban Graphics*, McLendon's (1982) *Signage: Graphic Communications in the Built World*, and Mitchell's (2005) *Placing words: symbols, space, and the city* illustrate how the design of signage in a city or community contribute to the visual experience and thus to the culture of that area. Such literature investigates the use of signage as a public communication device inside the context of urban spaces. Some authors explore the subject of signage from a more abstract design perspective as they consider buildings themselves as signage in the environment. Such literature concentrates on the communicative effects of certain buildings in the context of their locations

## **Law**

Publications on the subject of signage as it applies to law in the United States address the issue of regulation on both design aspects as well as placement of signs. The Outdoor Advertising Association for America held a Legal Forum in 1998 and published the issues covered including a complete text of court cases dealing with billboards. The document also included the following legal subjects as they apply to signage: First Amendment, takings, valuation of eminent domain, ordinances, anti-trust, taxation, pleadings, cap and replacement resolutions, Fifth Amendment and content control. National organizations such as the U.S. Federal Department of Transportation Federal Highway Administration have also published a number of reports related to highway design, construction, and maintenance which take into consideration the way-finding importance of signs as well as the importance of their placement for visibility. The United States Bureau of Reclamation also published a document in 2002 wholly devoted to signage which included

guidelines for the planning, design, fabrication, procurement, installation, and maintenance of signs for outdoor public use areas. Mandelker and Ewald took this investigation one step further in their text *Street Graphics and the Law* published by American Planning Association Planners Press. These authors considered signage ordinances in proposing a system and concept to achieve innovative communication forms through the design of effective and pleasant on-premise signs. The system focuses on the communication between on premise signs and people, more specifically those using automobile transportation. The ideas offered in this book consider not only proportioning the size, height, and the placement of street graphics relative to the particular driving circumstances which they are to be seen, but also insist on the importance of considering the character of individual communities when implementing signage.

### **Psychology**

The publications applying psychological principles to signage focus on research on the human factor in designing effective signage including the pleasure and arousal effects signs can produce as well as the study of producing effective communication design. Investigations that identify the ideal designs for business-consumer communication are integral to the success of innovative technologies as this research identifies the most attractive and thus effective use of signage to showcase a business and inform consumers.

Transportation engineers and planners also conduct such research projects to identify that most effective means of communications for travel and safety purposes.

As depicted in the review of the literature, this subject is addressed on an international level as there are numerous publications from Singapore, the United Kingdom, as well as from the United States of America. Studies such as Easterby and Graydon's *Evaluation of public information symbols* show that the psychological reaction to signage can be universal as signage is part of the everyday lives of people all over the world. Such literature shows the importance of the conscious and subconscious reactions to signage.

### **CONCLUSION**

The great overlap in the currently available literature on signage makes it difficult to organize it in a way that is meaningful for the user as well as for the academic researcher. The six categories selected for organizing and preparing this initial literature review on signage have been helpful only as initial departure points.

Numerous more manuals and publications exist which address specialization areas such as neon signs and appraisal of property. As a response to this gap in the review, a "call for industry help" for the collection of these materials is needed.

As this effort in developing the literature on signage continues, and new empirical and/or applied research is generated within academic disciplines, literature should be organized on the basis of specific subjects and not based on the specific interests and/or organizations that speak on behalf of signage. For example the subject 'signage and safety' will include literature from highway safety studies, viewers' responses to graphic images, psychological determinates, urban design, new digital sign technologies, and planning/legal issues. Another such subject under the heading of 'sign accessibility and sign visibility' will consist of topics in the literature on business and marketing, sign design, sign type and placement along the road, legal constraints, and urban character and design.

A major gap in the literature has to do with the viewer's preferences, responses to sign character aspects, and sign detectability in relation to specific sign congestion and visual clutter. Specific studies of commercial corridors and the ability to read signs as one drives have not been conducted. Similarly, opinion surveys from sign makers, customers, and regulators have not been systematically conducted, especially for commercial corridors. Another gap in the literature reviewed is the absence of specific case studies that address key sign issues.

As a first step towards the compilation and organization of the literature on signage, further advancement in signage literature should develop more meaningful subject areas which have more direct usefulness to practitioners, researchers, sign makers, and regulators.