

Best Practice for Digital Signage Placement

Even though the concept of digital signage is relatively new, studies, surveys and reasoning have been applied to best practices for the placement of signage. Digital signage placement is just as important as the relevance of content on the screen because a screen that is placed such that it cannot be viewed is ineffective. The best practice for signage placement is dependent upon a number of factors to include the size and positioning of the screen, the layout of the establishment and the height of potential viewers. As such, one would have to take into consideration a number of factors as outlined below:

Avoid Decompression Zones

Current research suggests that digital signage is most effective when placed in the most heavily trafficked part of an establishment with the exception of decompression zones. The retail industry has established the first 10 to 15 feet of space at retail store entrances as a “decompression zone.” A decompression zone can be thought of as an area where the shopper is more focused on the state of the environment and adjusting his or her mind and movement in relation to the newly entered environment. Research indicates that shoppers do not notice anything in particular in this zone. As such, it is not recommended that digital signage be placed in decompression zones since shoppers are not likely to focus on messaging in such a zone.

Observations indicate that shoppers who enter a retail establishment will change their gait and mental state and, rather subconsciously, ignore the first 10-15 feet of space. Further, they tend to move forward and to the right in a counterclockwise direction. With entrances to schools, doctor offices and office buildings, patrons are accustomed to seeking some sort of signage that will provide, at the very least, direction. These types of establishments may not have decompression zones at entrances as identified for retail establishments. However, there may be zones of decompression that need to be identified.

The Geometry of Vision

Obviously, the intent in establishing best practices for screen placement is to place screens such that targeted audiences will be able to view them. To determine the best practice for screen placement, one must understand the geometry of angular relationships and how things are viewed.

The Screen

Studies indicate three aspects of viewing angles that apply to digital screens as follows:

- ***Angle of the Screen*** -the angle at which the screen is positioned
- ***Angle of Incidence*** -the angle that a viewer’s head is turned
- ***Correction Angle*** -the angle at which a screen is positioned to compensate for other objects that may prevent a viewer from seeing the screen

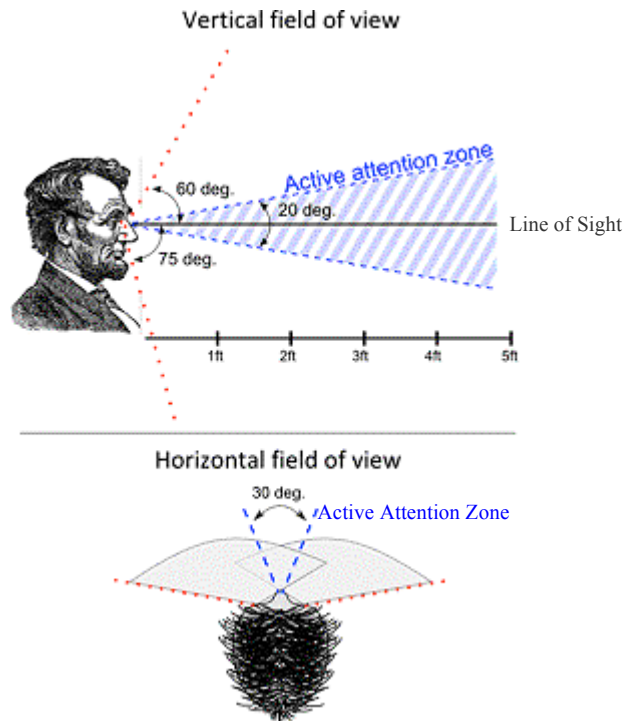
The Viewer

The following are characteristics of vision for an individual:

- ***Field of View (FOV)*** -the typical angle of view of a person with normal vision
- ***Line of Sight (LOS)*** -for a person of normal vision, direct LOS is the straight line that extends from a point at the nose as centered between the eyes
- ***Vertical View*** –the viewing area that extends about 60 degrees above and 75 degrees below the LOS

- **Horizontal View**-the viewing area that extends about 90 degrees to left and 90 degrees to the right of LOS
- **Attention Zone** -the viewing area that extends 20 degrees vertical and 30 degrees horizontal about the LOS

These characteristics indicate that one's LOS and thus, vision, is pitched more downward (75 degrees) than upward (65 degrees). In other words, people don't really see straight ahead, but more downward. Contrary to popular belief, this suggests that the further up a screen is positioned, the more likely it is to fall outside of a person's attention zone. In addition, the FOV and attention zone are larger from left to right (30 degrees) than up and down (20 degrees). This suggests that smaller screens are more likely to have to compete with their surroundings than larger screens.



A person with normal vision is thought to have a fair amount of visual perception in the FOV for about 20 to 23 feet. One study indicates that a typical shopper covers a distance of about 20 feet in 5 to 7 seconds. So, if a screen were eye level to such a viewer, the signage network would have a window of opportunity of 5 to 7 seconds to convey a message, given the viewer is actively paying attention in the first place. The angle of the screen, the angle of incidence of the viewer, the fonts used for content and the relevance of content will affect the time actually spent viewing a screen. While the height and angle of the screen can be predetermined, the heights, direction of movement, pace and attention span of viewers cannot. Given that relevant and engaging signage is created to capture the attention of targeted audiences, digital signage networks can be positioned at representative heights and angles that are most likely to capture the attention of the largest percentage of potential viewers.

Image 1: As displayed (with modifications) at: http://www.wirespring.com/dynamic_digital_signage_and_interactive_kiosks_journal/articles/Digital_Signage_Screen_Placement__Targeting_the_Attention_Zone-754.html

Calculating the Optimal Height

The geometry of angular distances dictates that in order for a screen that is placed 20 feet away from a viewer to fall within the viewer's attention zone, the screen has to be placed at a height that is within 7.28 feet of eye-level of the viewer. The height is calculated as follows:

$$\begin{aligned}
 \text{height (h)} &= \tan (\text{angle of attention zone}) * \text{distance away} \\
 &= \tan (20 \text{ degrees}) * 20 \text{ feet} \\
 &= 0.364 * 20 \\
 &= 7.28
 \end{aligned}$$

Optimal heights for screens placed 5, 10 and 20 feet away from a viewer are shown at Table 1.

Distance Away (feet)	Optimal Height (feet)
5	1.82
10	3.64
20	7.28

Table 1: Optimal Heights for Screens

Hence, if we presume the average patron to be 5 feet 8 inches tall, then signage would ideally have to be less than $(5.8 + 7.28)$ 13 feet off the floor in order to fall within the patron's attention zone. However, being in the attention zone does not necessarily mean the viewer will be able to read the signage clearly. The closer signage is to the viewer, the more readable it is and the longer it is likely to remain in the viewer's attention zone. End caps and shelf-mounted signage should be placed in close proximity to viewers. As such, signage placed within 5 feet of a 5 foot 8 inch patron should be placed from $(5.8 - 1.82)$ 3.98 feet to $(5.8 + 1.82)$ 7.62 feet from the floor with the ideal height being eyelevel with the viewer.

Store Layouts

Despite the best efforts to situate signage displays in the best position relative to viewers and traffic patterns, the realities of store layouts have to be taken into consideration. These include other fixtures, spacing, lighting and other distractions that capture a viewer's attention or distort a viewer's view.

The ADA Component

The placement of signage is further complicated by the need for structures to fall in compliance with requirements of the Americans with Disabilities Act (ADA). In particular, the ADA specifies requirements for all newly designed and newly constructed buildings and facilities, including altered portions of existing buildings and facilities. The ADA specifies requirements for signage, but it does not specifically address digital signage. It not only specifies requirements for the visual aspects of signage, but also the implementation of brail and audio to address the needs of deaf, blind and otherwise disabled individuals. The language of the requirements is detailed and complicated. It continues to be updated and is likely to address the specifics of digital signage in the near future. Some states also have specific requirements for persons with disabilities that are extensions of those provided by the ADA at the federal level.

References:

[Reference Link 1](#)

[Reference Link 2](#)

[Reference Link 3](#)

[Reference Link 4](#)

[Reference Link 5](#)

[Reference Link 6](#)

About Media Sign Pro

Media Sign Pro is an innovative digital signage software-maker based in Irvine, California. The company provides business solutions to all markets including businesses, educational institutions, government, healthcare, hospitality, real estate, restaurants, retail, and worship. Its flagship product, Media Sign Pro 4.0, is an easy-to-use digital signage tool that can be easily installed on Apple computer hardware and displayed on any television or computer screen.

Formerly known as NexGen DS, Media Sign Pro launched its first digital signage solution in 2008. The software was highly acclaimed for its ease of use, affordability, and Mac exclusivity.

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