Chapter XI

Issues of Hand Preference in Computer Presented Information and Virtual Realities

Adam Tilinger, University of Veszprém, Hungary

Cecilia Sik-Lányi, University of Veszprém, Hungary

Abstract

This chapter presents the differences between left- and right-handed persons in the aspect of computer-presented information and virtual realities. It introduces five test scenarios and their results addressing this question. We showed that there are moderate differences between groups preferring different hands. The different needs of left- and right-handed people may play an important role in user-friendly interface and virtual environment design, since about a tenth of the population is left-handed. This could help to undo the difficulties that the left-handed and ambidextrous routinely encounter in their daily lives.
**Introduction**

Hand preference plays an important role in using tools and utensils. While, for example, left-handed persons can apply scissors specially designed for them much more efficiently than ordinary ones and vice versa; in multimedia design and virtual environment architecture, the developer is able to suit both groups by producing software with adjustable content according to the user’s hand preference. Endeavouring to create interfaces that are more and more user-friendly, developers are aspiring to take into account individual demands. Hand preference differences, due to differences in the cortical processing of the perceived information, is accompanied with different thinking features; thus an obvious characteristic probably defining these needs is whether the user prefers to use his left or right hand.

The objective of the present chapter is to show the differences of left- and right-handed people in the aspect of computer-presented information and virtual realities.

**Background**

Arguably, 2 to 30 percent of any human population is left-handed or ambidextrous, with most estimates hovering around 10%, depending upon the criteria used to assess handedness (Holder, 1992). Generally, males are three times more likely to be left-handed than females. Statistically, one twin of a pair has a 20% chance to be left-handed. We can well observe the differences between left- and right-handers’ motion and in the use of utensils in our everyday lives. Due to the countless experiments made in this topic, we can describe left- and right-handedness quite well. It is the consequence of the asymmetry of the human brain, which can be hardly observed at first glance. The asymmetry is in the functionality of the two hemispheres and slightly in the structure (Atkinson, Atkinson, Smith, Bem, Nolen-Hoeksema, & Smith, 1996). We know that motor nerves cross each other as they leave the brain; thus the left hemisphere controls the right side of the body including the right hand, and similarly the right hemisphere controls the left side of the body and the left hand. In the case of the optic nerve, the crossing works like this: If we look straight ahead, the stimuli which are on the left of the fixation point lead on to the right hemisphere, while the ones on the right side of the fixation point lead on to the left hemisphere from both eyes. The input of audition is crossed as well, but the incoming voices are represented on the side of the perceptive ear as well. There is no crossing in olfaction. The left hemisphere controls the written and spoken language and mathematical computations. The right hemisphere can slightly understand language; its most important abilities are spatial and pattern senses.

The two hemispheres have different characteristics and are responsible for different functionalities. While, for example, the left hemisphere is responsible for logical, rational, digital and algebraic thinking, for self-awareness, and a sense of time; the right hemisphere is responsible for creativity, musicality, for geometrical and analogue thinking, and the sense of humour. The two halves of the human brain are also differentiating
Discovering News Frames: An Approach for Exploring Text, Content, and Concepts in Online News Sources
International Journal of Multimedia Data Engineering and Management (pp. 45-62).
www.igi-global.com/article/discovering-news-frames/170571?camid=4v1a