

Method of Complex Estimation of Text Perusal and Indicators of Reading Quality in Different Types of Commercials

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Abstract : Modern commercials presented on billboards, TV and on the Internet contain a lot of information about the product or service in text form. However, this information cannot always be perceived and understood by consumers. Typical sociological focus group studies often cannot reveal important features of the interpretation and understanding information that has been read in text messages. In addition, there is no reliable method to determine the degree of understanding of the information contained in a text. Only the fact of viewing a text does not mean that consumer has perceived and understood the meaning of this text. At the same time, the tools based on marketing analysis allow only to indirectly estimate the process of reading and understanding a text. Therefore, the aim of this work is to develop a valid method of recording objective indicators in real time for assessing the fact of reading and the degree of text comprehension. Psychophysiological parameters recorded during text reading can form the basis for this objective method. We studied the relationship between multimodal psychophysiological parameters and the process of text comprehension during reading using the method of correlation analysis. We used eye-tracking technology to record eye movements parameters to estimate visual attention, electroencephalography (EEG) to assess cognitive load and polygraphic indicators (skin-galvanic reaction, SGR) that reflect the emotional state of the respondent during text reading. We revealed reliable interrelations between perceiving the information and the dynamics of psychophysiological parameters during reading the text in commercials. Eye movement parameters reflected the difficulties arising in respondents during perceiving ambiguous parts of text. EEG dynamics in rate of alpha band were related with cumulative effect of cognitive load. SGR dynamics were related with emotional state of the respondent and with the meaning of text and type of commercial. EEG and polygraph parameters together also reflected the mental difficulties of respondents in understanding text and showed significant differences in cases of low and high text comprehension. We also revealed differences in psychophysiological parameters for different type of commercials (static vs. video, financial vs. cinema vs. pharmaceuticals vs. mobile communication, etc.). Conclusions: Our methodology allows to perform multimodal evaluation of text perusal and the quality of text reading in commercials. In general, our results indicate the possibility of designing an integral model to estimate the comprehension of reading the commercial text in percent scale based on all noticed markers.

Keywords : reading, commercials, eye movements, EEG, polygraphic indicators

Conference Title : ICPMM 2018 : International Conference on Psycholinguistics, Models and Methodologies

Conference Location : Amsterdam, Netherlands

Conference Dates : May 10-11, 2018