

Objective Measurement of Engagement in 3D Viewing

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For the past two decades, 3D content and display technology have attracted a lot of attention in entertainment, education, and interaction fields because the 3D effect can enhance visual experiences of viewers and help motivate them to effectively perform specific tasks. The positive and negative effects that 3D has on human visual system and experiences have been investigated in many studies [1-4]. One of the main challenges is to develop measurement methods for quantifying 3D experiences and determining what factors contribute to the experiences in positive or negative ways. Measurement methods evaluating changes in event-related potentials' deflections can be used in estimating workload or engagement level in specific mental activities [5-6].

In this study, we overview the previous measurement methods to quantify visual fatigue or engagement level in 3D human factors and industrial ergonomics fields and propose an optimal measurement method for effectively quantifying engagement level in 3D viewing.

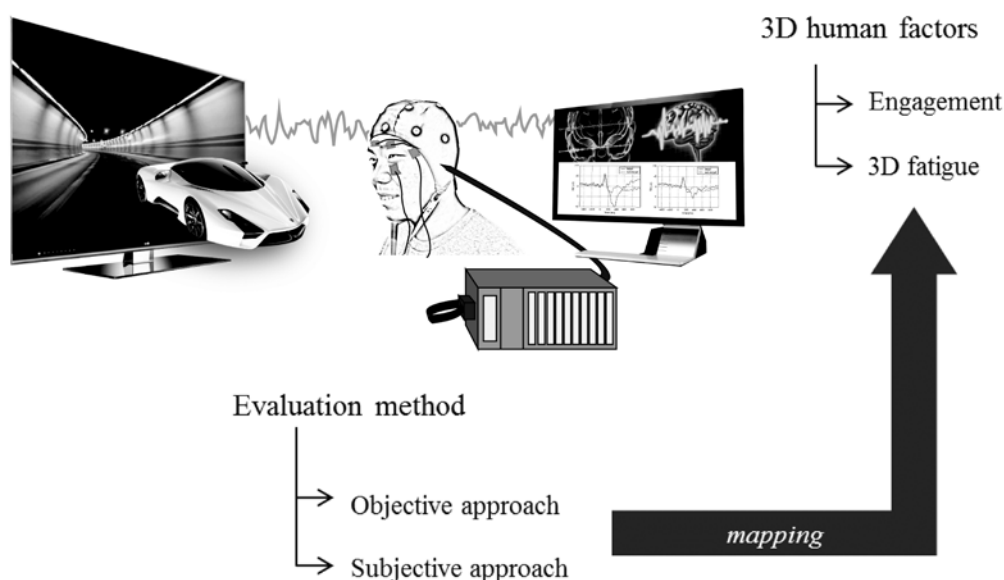


Fig. 1. Evaluation protocols used in this study

As shown in Fig. 1, this study describes objective measurement methods as well as subjective ones to estimate the degree to which engagement or fatigue level is changed after being exposed to 3D viewing.

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