



# Perception of Authentic and Pretended Laughter in Virtual Reality: Refining the use of virtual reality for therapy

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**Abstract:** This study investigates how laughter is perceived through virtual reality and 360 video, more specifically how people perceive authentic laughter and pretended laughter in 360 video. In this study participants watched authentic and pretended laughter in 360-video on a VR-headset. The participants rated the experience and their reactions were analyzed. The results suggest that people could identify authentic laughter from pretended laughter and that authentic laughter was slightly more enjoyable. This suggests that even though it is harder to produce, authentic laughter should be what is strived for in laughter therapy VR-material, for example. For a slight trade off in enjoyment and contagion, pretended laughter can be used for the production of sustained laughter material, but with consideration of the subtleties of authentic laughter.

**Background**

Earlier studies have shown that getting interactive feedback increases the laughter’s contagiousness, but if the feedback continues for too long, it gets obnoxious [4; 5]. Another study explains the physical and acoustic properties of authentic laughter and shows that people generally are good at distinguishing between real and fake laughter, and that it can be somehow predicted by looking at these properties [2]. VR has also shown to be an effective tool in therapy and elderly care [1; 3].

**Goals**

Further understanding of 360 film and VR technology use. Understand how different laughter is perceived in 360 film and VR.

**Comments from subject form**

*“Surprising, the laughter was ‘contagious’, became happy from watching the video”*

*“Contagious laughter, despite lack of context.”*

**Method**

Two laughing sessions, one with authentic and one with pretended laughing, was recorded in 360-video.



16 participants was shown the two videos in a VR-headset. Their opinion about the videos was evaluated with user form and their reaction was video analyzed.



**Results**

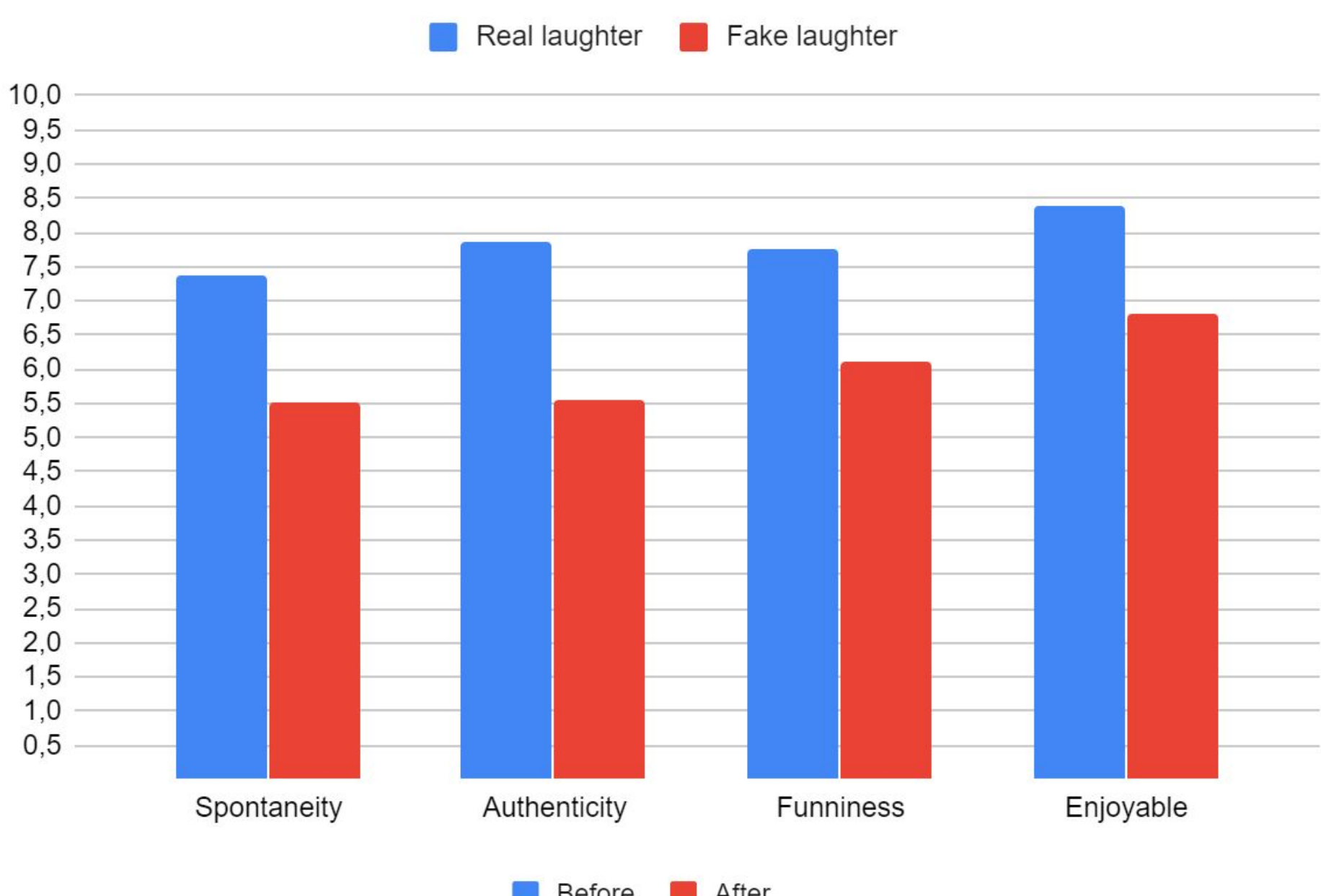


Figure 1 - Average values in spontaneously, authenticity, funniness and how enjoyable the laughing in the video was from user form

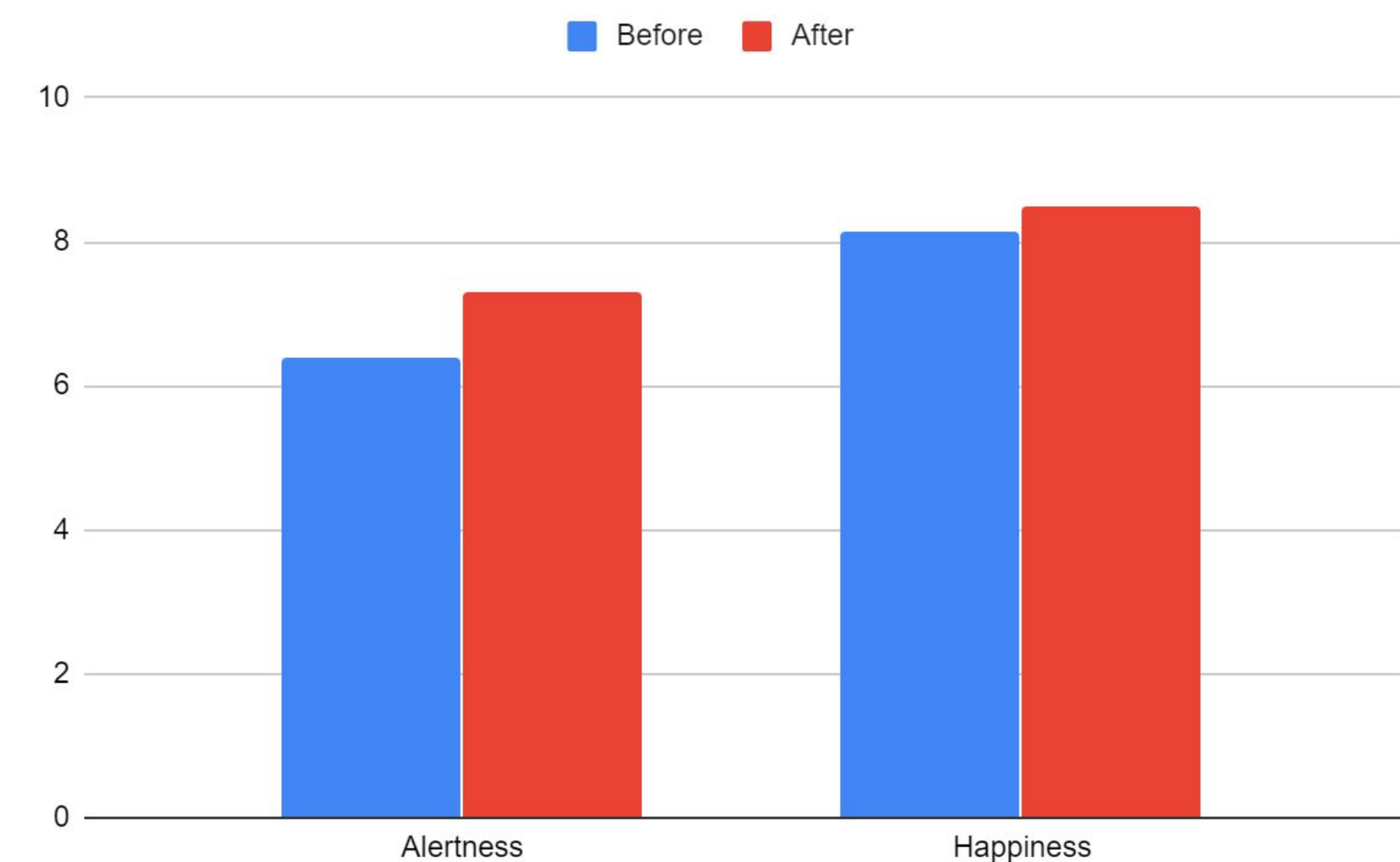


Figure 2 - Average change in alertness and happiness before and after conducting the study.

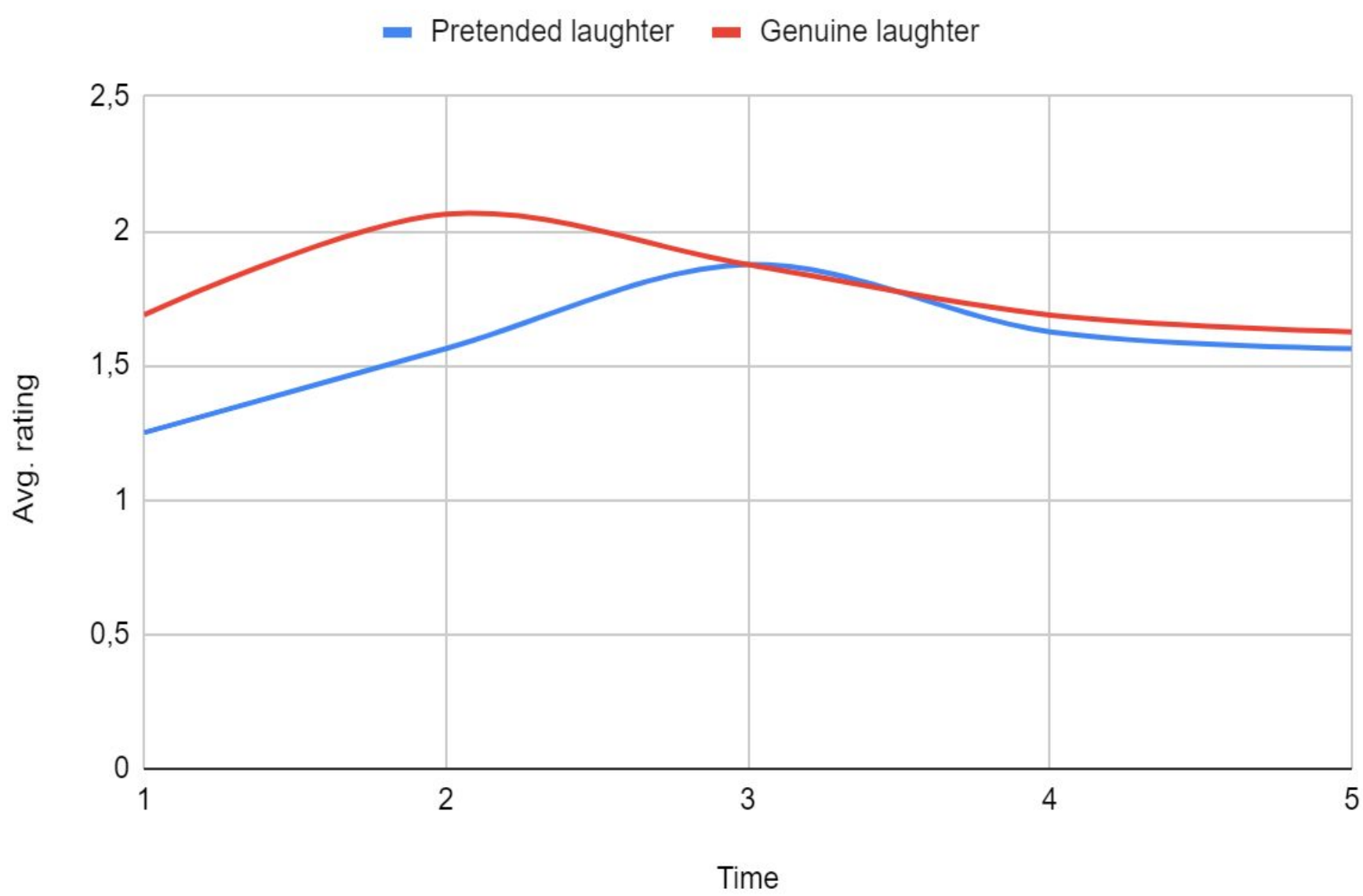


Figure 3 - Average participant laughing intensity for pretend/genuine laughter over time. Values from video analysis.

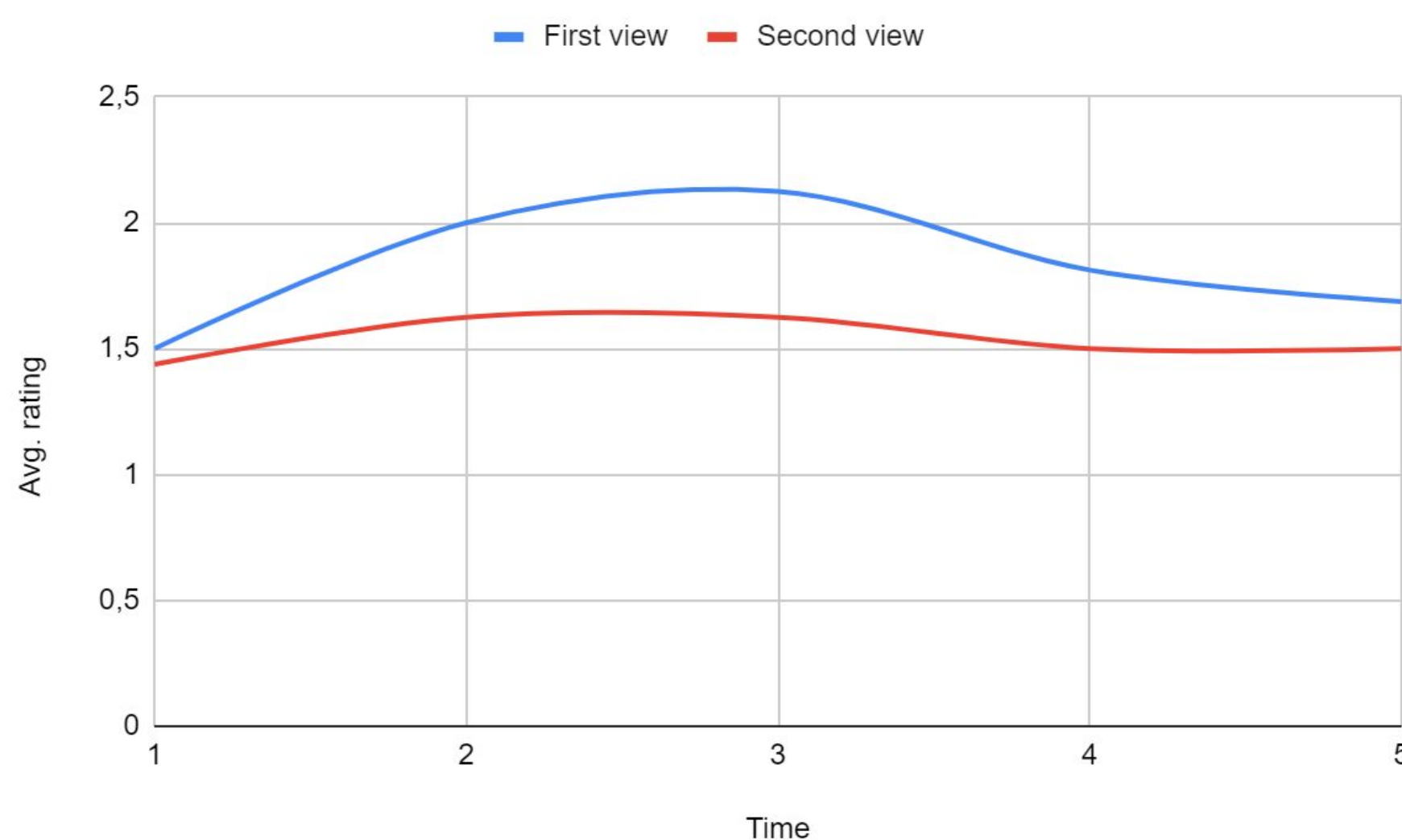


Figure 4 - Average participant laughing intensity first/second view over time. Values from video analysis.

**Conclusion:** This study found that the test subjects could easily distinguish the pretended laughter from the authentic laughter. Most participants enjoyed the authentic laughter more and most of them perceived the authentic laughter as more contagious.