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Happiness through virtual lens : The influence of immersion, social and nonsocial contents on positive emotion induction

Katarina Pavic^{1,2,3,4}, Dorine Vergilino-Perez^{1,2}, Thierry Gricourt⁴ & Laurence Chaby^{1,3}

¹ Institut de Psychologie, Université de Paris; ² Vision Action Cognition, Université de Paris;

³ Institut des systèmes intelligents et de robotique, Sorbonne Université; ⁴ SocialDream

- katarina.pavic@u-paris.fr -

INTRODUCTION

- ⇒ **Positive emotions** have **health benefits** (1) and are tightly linked to **well-being** (2)
- ⇒ Critical issue : How to foster well-being and positive experiences among users?
- ⇒ **Positive technology** framework suggests technologies may improve users' subjective, psychological and social well-being (3)
 - **Virtual Reality (VR)** appears as a suitable technology for inducing positive emotions and promoting well-being
 - But VR's efficacy has mostly been assessed with "**subjective**" measures (questionnaires), more rarely with "**objective**" ones (e.g., physiological measures)
- ⇒ Widespread use of **natural (i.e., nonsocial) video contents** for inducing positive emotions in VR studies, yet social contents can have an influence on induced emotions and arousal (4)

AIM OF THE STUDY



- Investigate VR's (i.e., immersion) effects on positive emotion induction compared to a screen presentation
- Comparing social and nonsocial (landscape) contents influence on elicited emotions
- Confronting "subjective" and "objective" measures for assessing participants' emotional states

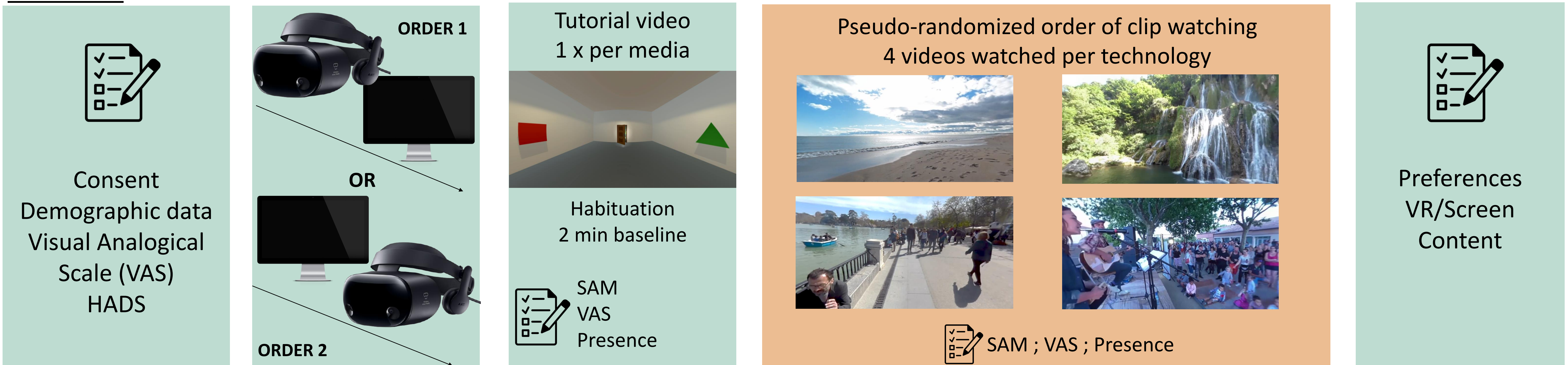
METHOD

Participants : 28 healthy undergraduate students
16 women, 12 men, 23 years ± 2.6
Non-inclusion of participants having major psychiatric and/or neurological disorders (epilepsy).

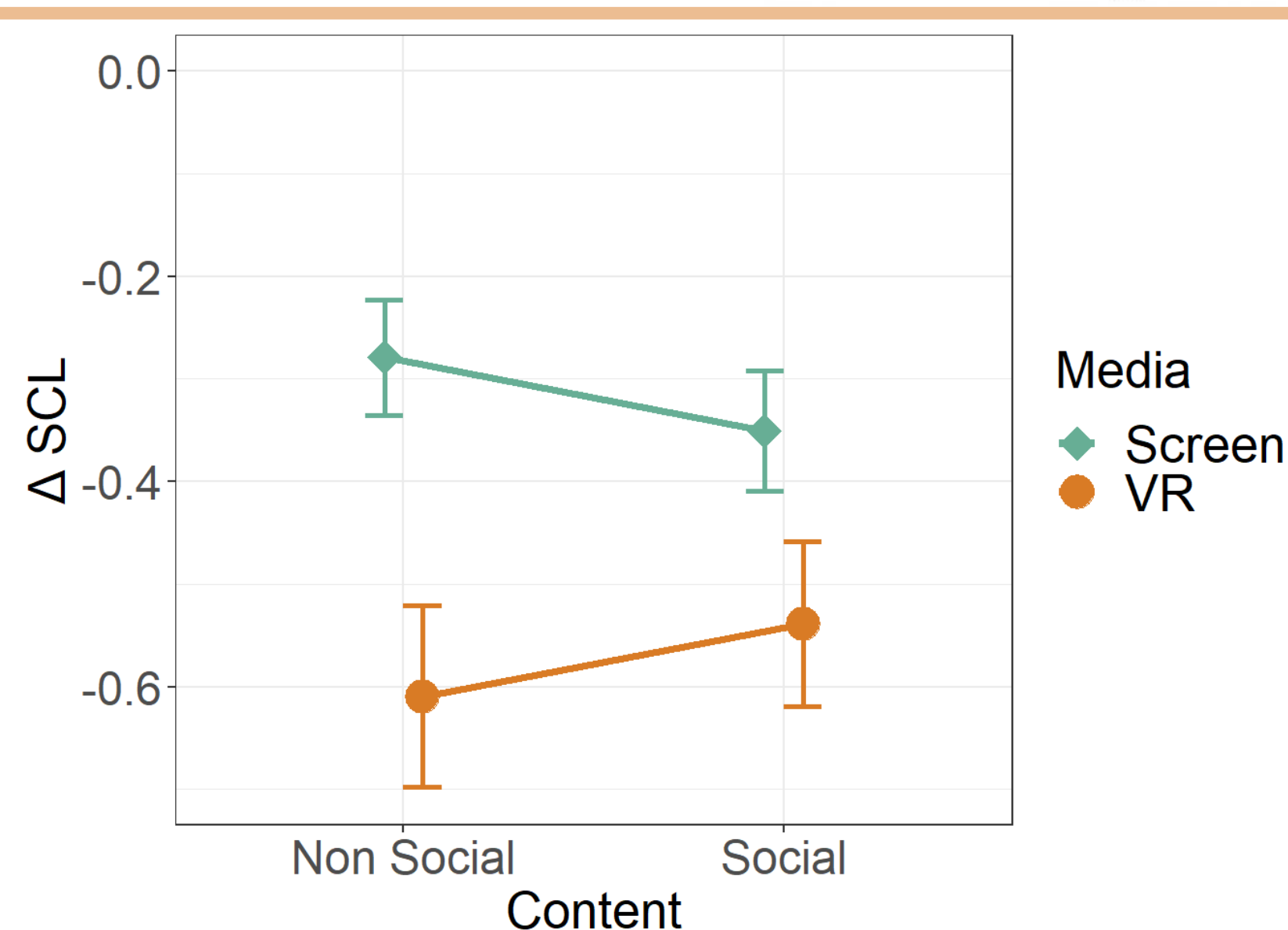
Material : 25" screen (resolution of 1920 x 1080 pixels)
HMD Samsung Odyssey+ (110° Fov, resolution of 1440 x 1600 pixels)
Empatica E4 wristband

Stimuli : Eight 360° videos shot with a GoPro 360° camera and a tutorial video

Procedure

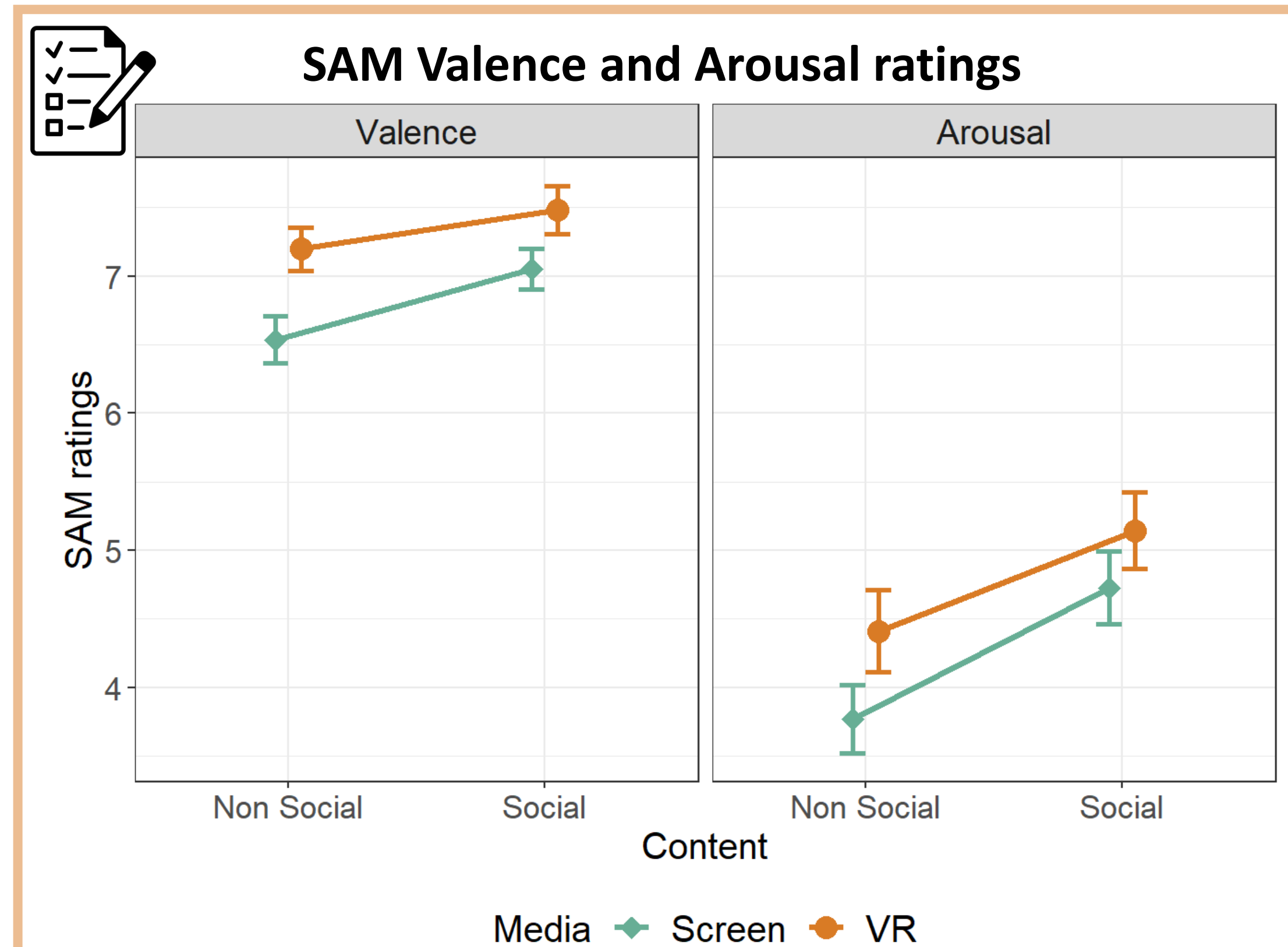


RESULTS

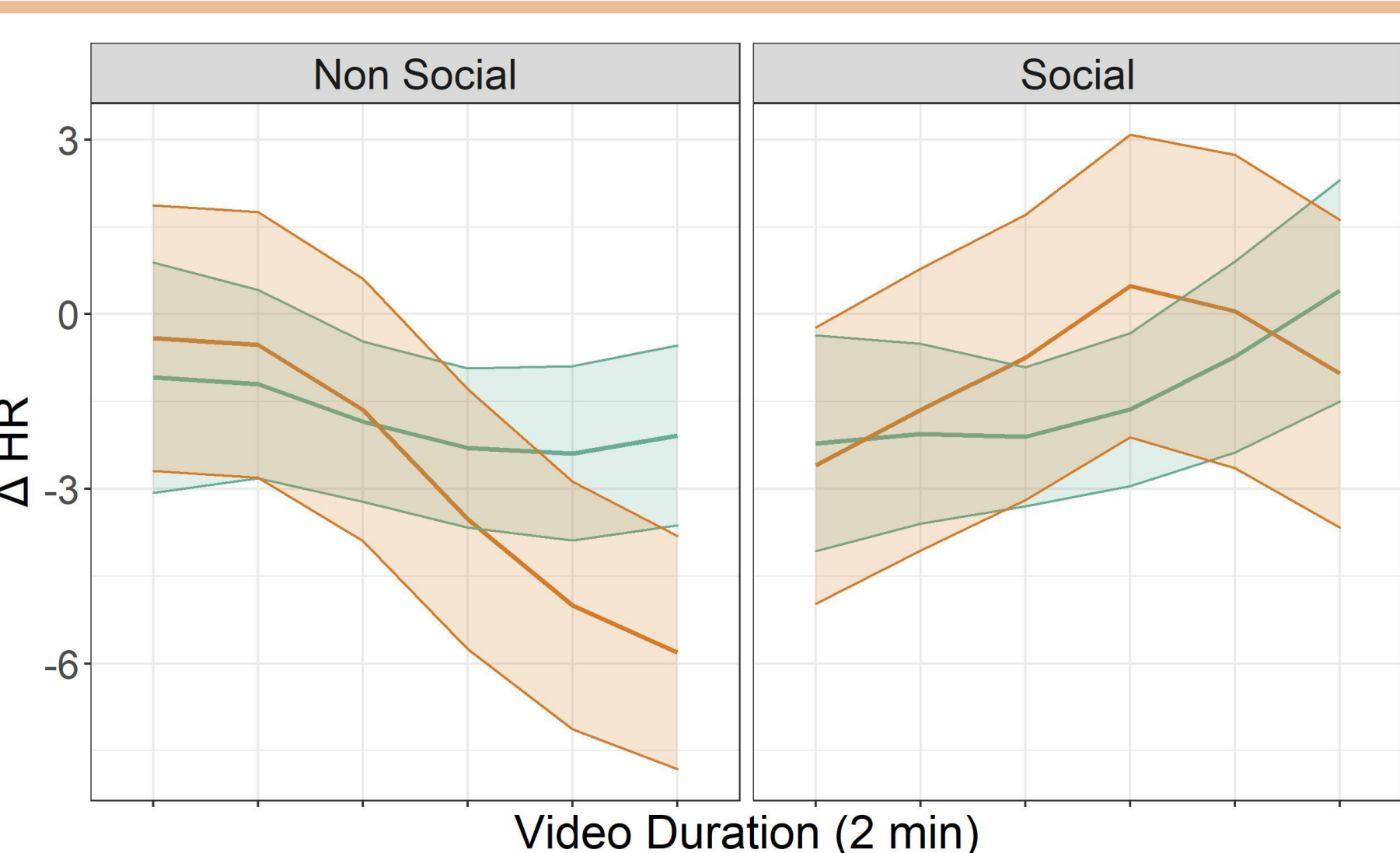


Effect of Media and Content on Skin Conductance Level Change (ΔSCL)

Significant **SCL decrease** when watching **nonsocial contents in VR** compared to a screen
⇒ **Natures' relaxing properties**
Same difference, in favor of VR, for social contents
VR tends to elicit higher levels of physiological arousal compared to a screen



Main effect of immersion : VR induced **more positive emotions and arousal** compared to screen presentation
Main effect of content : **Social videos** are perceived as **more positive and arousing** than nonsocial video contents
No Media x Content interaction on valence or arousal ratings



Temporal Heart Rate Change (ΔHR) in response to media and video contents

Important **HR deceleration** while watching **nonsocial contents in VR** compared to screen presentation
Less clear differences between VR and screen for social video contents
Perspective: **compute HR variability (HRv)**

CONCLUSION

- The **immersive nature of VR** leads to more positive emotions and arousal on both subjective and objective levels
- Nonsocial contents seem particularly efficient on a physiological level = **Natures' well-known benefits for relaxing and restoring resources** (5)
- **Social contents** seem to be more efficient on a **subjective level** for inducing positive emotions
- **Potential applications**: foster well-being through VR and positive emotions induction for more vulnerable and/or isolated users (e.g., elderly users)



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