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

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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)

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).

Procedure

ORDER 1
Consent
Demographic data
Visual Analogue Scale (VAS)
HADS

ORDER 2
Tutorial video 1 x per media
Habituation 2 min baseline
SAM 
VAS Presence

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

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

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)

REFERENCES