Introduction

“The world today is a fast world.” [1]

We are surrounded by fast paced people and seemingly never ending pressure. Many people work in busy offices and still have to keep calm in order to complete their work efficiently. But: is it really possible not to get affected by the hectic atmosphere around us?

Prior research investigated the influence of stereotype cognitions on automatic behavior. Bargh, Chen, and Burrows [2] used priming procedures to show that people’s behavior like, for instance, the speed of walking can be influenced by activated stereotypes. They report that participants who were confronted with words stereotypically associated with old people walked more slowly after this priming procedure. In the current study we examined whether videos showing movements of high-/low-velocity will lead to comparable priming effects, i.e. whether people visually confronted with fast/slow movements are influenced by the accordant hectic/quiet atmosphere of the video and whether they will show differences in the speed of their own movements.

The commercial gaming hardware Microsoft Kinect is a tool that can be used to control and move elements on a screen with one’s own movements. Further, it allows to record a person’s movements, e.g. in terms of speed and accuracy. Thus, Kinect can be applied to directly assess bodily reactions that are of interest in the current study.

Method

Participants.

In total, 28 students participated in our experiment. This sample consisted of females only, having a mean age of 22.3 years (SD = 6.1, range = 19-51 years). They were randomly assigned to the experimental conditions (high-/low-velocity video).

Apparatus.

The basic test set-up consisted of a Microsoft Kinect system connected to a computer and a projector. Kinect is a sensor system primarily used for controlling the video game console Xbox 360 via movements of one’s body. It is built up of several sensors: for example, a video camera, microphones and a depth sensor. With the depth sensor (= an infrared laser projector and a corresponding camera) we tracked the motion of the participants’ hands. We used the OpenNI (1.5.4.0) framework [3] to read data recorded by Kinect; in order to enhance simplicity and to enable Java support we applied the SimpleOpenNI (0.27) [4] wrapper. Visualization was implemented by use of Processing (1.5.1) [5], a Java based language for image processing that allows very easy graphics programming. For displaying the videos we used the Google’s GSVideo (1.0) [6] library.

Method (cont.)

All results were written into .csv-files and evaluated by another tool later on.

The Kinect sensor was placed in front of the participants capturing the upper part of their bodies. Videos and the drawing task (cf. Procedure) were projected onto the wall above the sensor (Fig. 2).

Procedure.

The experiment was conducted in a shaded room. The main procedure consisted of three parts:

1. Kinect drawing task (pretest): Participants had to retrace the contours of seven circles projected on the wall (cf. Fig. 1) and push them out of a pre-defined area. They could control the cursor via Kinect by moving their dominant hand.

2. Video: Participants watched a video showing different people walking by fast (high-velocity condition) or slowly (low-velocity condition). In order to ensure that participants directed their attention onto the speed of movement, only the walkers’ legs were visible.

3. Kinect drawing task (posttest): Participants repeated the drawing task as described above (5 circles).

Subsequent to this main procedure, participants were asked to fill in a shortened version of the empathy questionnaire by Enz [7] and a short survey that captured their level of concentration.

Results

We analyzed participants’ speed and accuracy in retracing the circles’ outlines and their speed in moving the circles by conducting a mixed-design ANOVA with the following factors:

- within-subject factor (repeated measures) phase (pretest vs. posttest)
- between subjects factors velocity (high- vs. low-velocity video) and ideomotoric empathy (high vs. low; as measured by the accordant subscale of the empathy questionnaire, groups defined by median split).

We only found a significant main effect for the factor phase with regard to participants’ speed in moving the circles outside a pre-defined area, F (1,19) = 21.8, p < .0001, n2 = .535. Regardless which video participants had watched, they moved the circles with less speed after the video than before (cf. Fig. 3).

With regard to retracing the circles’ outlines there was a tendency for participants who had watched the low-

Discussion & Outlook

In the current experiment, we did not detect an effect of watching high- vs. low-velocity movements on observers’ own movements – neither with regard to speed nor with regard to accuracy. The following aspects might have contributed to the absence of the expected effects:

(a) The contrast between the high- and low-velocity video maybe was not clear enough, i.e. the treatment was not strong enough. (b) The sample was too small. According to a power analysis [8] a sample size of n = 210 would have been required to detect a medium effect (f = .25) for an α of .05 with the given design. (c) The fact that the participants in the two conditions differed significantly in terms of ideomotoric empathy (F = 12.1, p = .003, n2 = .388) might be problematic. However, the scale used to assess this personality variable [7] itself might be called into question, e.g. due a Cronbach’s a of only .48. (d) Technical problems associated with the sensor system (e.g., “trickling” of the cursor during the drawing task and problems with moving the circles) might have frustrated the participants. A consequence of this might be the reduction of speed when moving the circles that arose independent of treatment (cf. Fig. 3).

These aspects should be accounted for in potential future studies on this topic using Kinect, i.e. the contrast between treatment material for the different experimental conditions (high-/low-velocity video) must be stronger; the sample of participants has to be larger and technical problems that are still present have to be solved!

References