Perception of Emotional Expressions in a different Social Contexts Allows People to Infer Each Other Preferences

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Primary objective We investigate whether observers* inferring accuracy differs when the consumer is in the presence of a friend compared to being completely alone. We test whether observers* brain activations during inferring observation differ...

Ethical review	Not approved
Status	Will not start
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON41991

Source
ToetsingOnline

Brief title
Perception of Emotional Expressions

Condition

- Other condition

Synonym
brain activations using fMRI research when people infer emotions

Health condition

brein activaties doormiddel van fMRI onderzoek maar is geen aandoening

Research involving

Human

Sponsors and support

Primary sponsor: Erasmus Universiteit Rotterdam
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: emotions, expressions, preferences, social context

Outcome measures

Primary outcome

Main study parameters/endpoints:

Behavioural

Main behavioural parameter will be the inferring accuracy which will be calculated as the percentage of items correctly identified as preferred versus not preferred choice. As a second measure of inferring accuracy we will calculate Pearson correlation between observers* and consumers* ratings on choice preference as well as between consumers* and friend*s ratings on subjective feelings. Self-assessment manikin (SAM) scale will be used to measure emotions (subjective feelings) valance and arousal in relations to visual stimuli. Consumers* emotional expressiveness will be assessed by the observer using 7-likert scale. Consumers* choice preferences will be assessed by means of 7-likert scale.

Neuroimaging

For the observer neural activity will be measured with functional magnetic resonance imaging (fMRI) derived from blood-oxygenation-level-dependent (BOLD) signal in regions-of-interest (ROI) from subjects performing experimental task. Main study parameter will be the level of inter-subject correlation (ISC) across conditions and in relation to task performance. For the consumer and his friend neural synchronization will be assessed with electroencephalogram (EEG). Again, main study parameter will be the level of inter-subject correlation (ISC) across trials in relation to participant*s self-assessed subjective feelings.

Secondary outcome

Not applicable.

Study description

Background summary

The social perspective of emotions implies that they have the purpose to co-ordinate social interactions by means of conveying information which assists and facilitates individuals in their reasoning about the others* feelings, mental states, preferences and intentions (Parkinson, 1996). Experiencing others* emotional states by mere observation and internal simulation is giving the observer an appropriate somatosensory framework that promotes deducing their goals, attitudes, and preferences (Keysers, Kaas, and Gazzola, 2010). The presence of friend is likely to facilitate individual emotional expression and communication, a process known as social facilitation (Buck, Losow, Murphy and Costanzo, 1992). Being in familiar social environment as opposed to being in complete isolation might enhance emotional behaviour and expressiveness in relation to certain external stimuli. We believe that an observer will perform better in inferring others* mental states, feelings, and preferences from their facial expressiveness in relation to emotionally relevant stimuli when the observed people are in the presence of friend (social context) rather than in complete isolation. We assume that the degree of inferring accuracy will be reflected in specific inter-subject synchronization patterns across observers* brain activity which in turn might be modulated by

the different social conditions in which the observed person is placed.

Study objective

Primary objective

We investigate whether observers* inferring accuracy differs when the consumer is in the presence of a friend compared to being completely alone. We test whether observers* brain activations during inferring observation differ across conditions. We examine whether observers* brain activation correlates with successful inferring performance and we control for moderating effect of social condition.

Secondary objective

We examine whether the emotional expressiveness of the consumer is moderated by the social context. We also examine whether stronger stated preferences/more emotionally arousing stimuli by consumer are better inferred by the observer (in general or in relation to specific social context). We investigate whether consumer show different activation patterns across condition. We test whether he and his friend show higher inter-subject synchronization during equally rated (subjective feelings) viewing trials.

Study design

Experiment 1: Static visual stimuli (pictures)

Experiment 1 consists of two separate phases which will be accomplished in different days.

Phase 1: Social condition variation with Dual Electroencephalogram (EEG)

In the first phase we will have to separate session. The order of the session will be counterbalanced across the subjects. In the first session the participant (we will refer to this participant as a consumer from here on) will be completely alone.The consumer will be instructed to attentively watch a sequence (full randomization) of 50 product pictures (e.g., beverages, ice cream, and chocolates) and rate each one after seeing it on a 7-point Likert scale with *strongly not preferred/ strongly preferred* as end-points and *neutral* as mid-point. Visual stimuli will be selected on the basis of a validation study for the emotional qualities. The consumer will be asked to indulge himself into emotional situations and to facially express his emotional feelings as soon as they arose. Particular care will be taken to ensure that the consumer understood correctly that he was not meant to pose emotional expressions but to try not to restrain his emotional feelings as they arose.

Each picture will be shown only ones during the specific EEG session. The visual stimuli will be delivered on LG computer screen (27 inch; 1920 x 1080 pixels) using Presentation software PsychoPy (). The experiment will begin with 60s fixation screen. Next, each picture will be shown on the screen for 10-s, followed by 6-s period in which the consumer can express preference. Finally, 5-s fixation cross will appear on the screen before the consumer can view the next generic product. To assure that consumer will rate each product in accordance with his real preferences, he will be told that at the end of the experiment he will receive some randomly selected products base on his stated preferences and that one of the products need to be consumed immediately after the end of the experiment. The consumers* face will be recorded during the entire experiment with small web camera. During the experiment he will be completely unaware of the fact that the video recordings will be used in the second phase of the experiment where another person (observer) will have the task to infer his preferences based on his facial expressions.

In the second session (social condition) we will invite another person (consumers* friend) to join the consumer in the EEG room. He will be seated beside the consumer and they will both watch another sequence (full randomization) of 50 completely different product pictures. The timing and sequence of events will exactly the same as in the first session (Figure 2). Both consumer and his friend will be asked to express their preferences on a 7-point Likert scale with *strongly not preferred/ strongly preferred* as end-points and *neutral* as mid-point. At the end of the experiment both participants (consumer and friend) will receive some randomly selected products base on their stated preferences and subsequently asked to eat one of them. Again as in the first session only the face of the consumer will be video recorded.

The data collection process will employ self-assessment questionnaires and brain signal monitoring equipment. The brain signal monitoring system will be represented by the Emotiv EPOC EEG wireless headset with 14 channels (). The Emotiv EPOC is a high resolution, neuro-signal acquisition and processing wireless headset that monitors 14 channels of EEG data and has gyroscope measure for 2 dimensional control. The electrodes will be located at the positions AF3, F7, F3, FC5, T7, P7, O1, O2, P8, T8, FC6, F4, F8, AF4 according to the International 10-20 system forming 7 sets of symmetric channels.

After both EEG sessions participants will be separated and seated in two different rooms. They will be ask to rate their emotional state related to the visual stimuli using Self-Assessment Manikin (SAM) scale questionnaire for each picture separately.In addition, both the consumer and his friend will be asked to indicate how well they knew each other before the experiment on a 7-point scale ranging between total stranger (1) an best friend (7). Finally, we debrief consumer and his friend and tell them about the video camera. We will

ask permission to use their videotaped images in the second phase of our study.

Phase 2: Observer inferring accuracy with functional magnetic resonance imaging (fMRI)

Phase 2 of the experiment will be performed a few weeks after phase 1 (EEG data collection). Phase two will be also composed of two separate sessions. The order of the sessions will be again counterbalanced across participants. The recorded videos of the consumers* experimental sessions (alone and social condition) will be shown to the observer. In total we will recruit 30 observers and to each of them we will randomly assign one of the 30 consumer experimental video registration. The observer will be placed in an MRI scan and instructed to watch a video of another persons* face in order to infer his preferences.

He will be asked to explicitly mentally simulate, as accurately as possible, the thoughts, feelings, and preferences of the observed individual. It will be stressed that no actual motor actions should be performed during the experiment except for giving an answer for the consumer preferences. The observer will be informed about the moment in which the consumer is viewing the stimuli/resting and told about the exact moment in which he will be asked to infer consumers* preference (6s). Observer will view consumers* face all the time except for the moment in which he will need to make a judgment about consumer*s preference (6s). To assure that the observer will put maximum effort in the game he will be told that for each correct trial he will receive money (1 euro per correctly inferred preference). Eye movements will be allowed and recorded during the task, because high-level human perception strongly depends on saccadic eye movements.

The observer will not be informed that the difference between the two sessions is the social context in which the consumer is placed. Only the consumers* face will be visible to the observer.

The data collection process will employ self-assessment questionnaires and brain signal monitoring equipment. The brain signal monitoring system will be represented by whole body 3T MAGNETOM Prisma fit
(). Immediately after the fMRI session the observer will be seated in a room and asked to fill in a questionnaire. The observer will be asked to indicate the degree of emotional expressiveness of the consumer on a 7-point scale ranging between not expressive at all (1) and extremely expressive (7) for each of the two sessions separately.

Experiment 2

Dynamic visual stimuli (commercials)

Experiment 2 fill follow the exact same experimental procedure. All participants will receive exactly the same instructions. Phase 1 of experiment

1 and 2 will be performed in the same day (in counterbalanced order) and data will be collected from the same subjects. They will do again alone a with a friend sessions (counterbalanced). The experiment will begin again with 60s fixation screen. The only difference will be that this time we will replace the 10s static pictures (50 per condition) with 60s dynamic audio-video commercial movies (4 per condition). Sounds will be manually adjusted and the loudness will be individually fine-tuned to a comfort level. Consumer will not be asked to give a preference for each video. Instead, after each stimulus consumer will be told to rate valance and activation using the Self-Assessment Manikin scale. In Phase 2 (Experiment 2) of the experiment will be performed in the same day with Phase 2 (Experiment 1), counterbalanced across participants. The observer will be asked to infer the consumer valance and activation after each commercial video for both alone and social condition. Eye movements will be allowed and recorded during the task, because high-level human perception strongly depends on saccadic eye movements.

Again, at the end of the fMRI session observer will be asked to indicate the degree of emotional expressiveness of the consumer on a 7-point scale ranging between not expressive at all (1) and extremely expressive (7) for each of the two sessions separately. He will be informed about his inferring performance and he will receive the respective amount of money.

Study burden and risks

Not applicable.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

All subjects need to be female healthy adults (age 20-50) with self-reported normal or corrected-to-normal vision and normal hearing.

Exclusion criteria

Individuals with a history of neurological or psychiatric disease or current medication affecting the central nervous system (CNS) will be excluded from the experiment. Individuals having ferromagnetic objects in the body will not be allowed to participate. In addition, individuals wearing jewelry, metal objects, external prostheses, cards, keys, etc. will be asked to leave them in the locker outside the MRI scanner room. Subjects who refuse to comply will be excluded from the experiment. Moreover, participants will be asked to fill in safety instruction and screening forms (Example 3). Individuals who refuse to fill in the safety instruction and screening form or do not fully comply with the rules for safety MRI examination will not be allowed to do the experiment.

Study design

Design

Study phase:	2
Study type:	Observational non invasive
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Diagnostic

Recruitment

NL

Recruitment status:	Will not start
Enrollment:	90
Type:	Anticipated

Ethics review

Not approved

Date:	16-02-2015
Application type:	First submission
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL52328.078.15