RESPONSE CHARACTERISTICS AND LABILITY IN AN EDA-DMILS STUDY USING EMOTIONAL STIMULI

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INTRODUCTION

Research in DMILS has been fairly successful over the years (Schlitz and Braud, 1997), but the effect is not well understood. Often the direction of the effect is reversed (Braud, Shafer and Andrews, 1993; Schlitz and Braud, 1997) or the EDA shows a greater differential effect between influence and rest periods, rather than between activate and calm periods, which are often designated as the main experimental conditions. In a re-analysis of data from two DMILS studies (Watt, Ravenscroft and McDermott, 1999; Delanoy, Morris, Brady and Roe, 1999), Stevens (2000) found that the variance of the EDA between influence (calm and activate) and rest periods in the two studies showed a similar, statistically significant, pattern as opposed to the inconsistent results as originally reported for the two studies. Stevens (2000) argues that, because the EDA patterns of those two studies are considerably different and a comparison of these EDA patterns with the results of a study that exposed subjects to weak electromagnetic fields (Stevens, 2001) showed no apparent similarities, the DMILS effect is more likely to be due to a direct influence effect, rather than a transposed response to sensory input. The fact that the EMF study showed a similar pattern when examining variance, i.e. more variance in the EMF periods (equated to influence) than in the control periods (equated to rest), to the two DMILS studies also supports this view.

Stevens (2000) also compared the rest period variances in the two DMILS studies to the variances in the influence periods and found that responders (those with a response greater than 0.2 sigmas at any point after the start of the influence period) had significantly greater mean variances than non responders. Together with findings from Braud and Schlitz (1983) it suggests that people with greater electrodermal lability might be better receivers in a DMILS situation.

The present study was designed to investigate the effects of emotional stimulation of the sender on the EDA of a remote receiver and by also monitoring the EDA of the sender it makes a direct comparison of responses possible. Thus it can be assessed whether the DMILS response is similar to the sender's sensory response, or whether it is indicative of a direct influence (if there is any such influence) as shown by deviations in mean variance across conditions. A comparison between more traditional measures and the variance measure can offer clues as to the possible cause of the responses.

HYPOTHESES:

1) The mean variance in the emotional ("influence") periods will be greater than the mean variance in the neutral ("rest") periods.
2) "Labile" receivers will show a larger difference in mean variance between emotional and control periods when the sender is a "stabile".
3) There will be an interaction between electrodermal type of the sender and receiver.
4) Type of relationship between sender and receiver will have an effect on the difference between mean variances of the emotional and control periods.
5) Intensity of relationship between sender and receiver will have an effect on the difference between mean variances of the emotional and control periods.
METHODS

Participants

90 pairs (10 pairs in a pilot study, 80 pairs in the formal study) of participants will take part. These pairs will consist of males and females (in no particular combination) and their relationship may vary, but the pairs are all recruited by asking one participant to bring a friend or family member.

Apparatus / Materials

The stimuli will consist of a selection of pictures from the International Affective Picture System (IAPS) database. A total of 20 pictures per subject will be used (the same pictures will be shown to all participants, but in a different, randomized order), with 10 pictures around the IAPS mean of 5 for valence and the lowest arousal ratings for the neutral condition, 5 pictures around the highest valence/arousal ratings for the positive condition and 5 pictures with (approximately) the highest arousal rating and the lowest valence rating for the negative condition. Data will be collected according to standard procedures (for the greater part as outlined by Schmidt and Walach, 2000) using two 24 bit serial port model EDA devices, connected to separate, but synchronized pc's. There is also a questionnaire assessing the type (friends, family, etc.) and intensity of relationship.

Procedure

After the purpose of the study is explained to the participants, and the questionnaires filled out, a decision is made as to who will act as sender for the first half of the total session (participants will swap roles between sessions, so that each participant will act as both sender and receiver for one half of the total session). After this, participants will be led to their respective rooms, where the electrodes will be applied and further instructions given. The sender is instructed to immerse themselves (“get into”) each picture to ensure proper mood induction for the duration of the picture presentation (30 s). When both participants are ready the session will start with a relaxation period of 10 minutes in which both the sender and the receiver will hear the sound of waves. A fixation cross is visible on the sender's screen. Then there will be a three minute data collection period prior to picture presentation. The data of these three minutes will be used to determine the electrodermal type of the participant (by calculating the mean variance). After this three minute data collection (at rest) picture presentation will start. Each picture will be presented (in a random order) for 30 s followed by a reaction/recovery period of 15 s, in which the fixation cross will be shown on the screen. Total time per picture will thus be 45 s. Between picture blocks (picture plus fixation cross) there will be a random interval between 0 and 5 s before the next picture will be presented. Each session will last around 25 minutes. After the first session is over, participants will swap roles and receive instructions according to their new roles. Then the second session starts and at the end of that participants are debriefed and the total session ends.

RESULTS

Since this is an ongoing study, no results can be reported as yet, but results will be available for presentation at the convention.

Planned analyses: For hypothesis 1 a t-test between mean variances of emotional and control periods will be performed. In addition, a Wilcoxon Signed Ranks Test and PSI scores will be calculated for the means of the EDA. Hypotheses 2, 3, 4 and 5 will be analyzed using a 2x2 ANCOVA with type and intensity of relationship as covariates. Post hoc tests will be done where appropriate.
DISCUSSION

The results of this study will hopefully add to our understanding of the DMILS effect, by shedding light on the question whether the DMILS effect is like a transferred sensory response (i.e. a transference of a sender's similar state) or more likely to be as a result of a direct influence. This study will also allow a comparison between different measures of the DMILS effect (those based on mean SCR against analyses of mean variance).

In addition to this, it will add to the database pertaining to the relationship between psi performance and agent-receiver couplings and explore the suitability of emotional states as independent variable in DMILS research.

REFERENCES


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