Effects of Narrative Identities and Attachment Style on the Individual's Ability to Categorize Emotional Voices*

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Abstract. This research aimed to assess individual's abilities in decoding emotional vocal expressions according to attachment styles and Narrative Identities. To this aims 30 students (15 females, 15 males; mean age = 21.4 ± 2.47) were recruited at the Second University of Naples (Italy) and underwent an emotional-voice-decoding task after being tested through the "Experience in Close Relationships" (ECR) and Personality Meaning (PMQ) Questionnaire to assess their attachment styles and Narrative Identities. The results showed that Outward subjects were more accurate in decoding joy and surprise especially in the group of individuals with an Insecure attachment style, suggesting that emotional regulation dynamics and attachment parameters shape the ways individuals develop their ability to decode other emotional feelings.

Keywords: Emotional vocal expressions, emotional voice decoding, attachment style, Narrative Identities.

1 Introduction

The human capacity to recognize emotions is considered a fundamental innate activity for social communication and survival [1]. In the abundant literature that covers the factors at the basis of this ability, the role of attachment style is of significant interest. The Attachment theory hypothesizes that Secure individuals have a greater capacity to recognize emotions when compared to those individuals that are Insecure [2]. Insecure individual demonstrate particular difficulty especially in identifying negative emotions such as sadness [3,4]. However, to date, the research offers contrasting results that do not allow for an unequivocal explanation. Secure individuals are not always the most able in recognizing emotions, and there is not always an agreement on which attachment style is the less accurate in this task [5]. For example, the Fearful attachment style, in some studies [6] is associated with a poor ability to recognize emotions. However, according to other authors it is the second most accurate closely behind the Secure attachment style [7].

* The names of the authors are in alphabetic order since each made a significant contribution to the research reported.

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In this context, what has been neglected by current research investigations is the influence the Narrative Identity theory may play on the individual's attachment styles and her/his ability to recognize emotions [8,9,10,11].

The Narrative Identity theory was proposed in the context of the post-rationalist cognitive theory in order to "*mediate between the continuous aspect of identity and the variable….of personal experience*" (from [12], page 261).

According to this theory, the process of creating a Narrative Identity depends on both emotional regulation dynamics [13] and attachment parameters, in terms of the ways individuals develop their own emotional experiences shaped in turn by their attachment styles [14]. On the basis of this framework, individuals can be grouped into two basic categories of constructing identity: "Outward" or "Inward" (Narrative) Identity according to their ability to anticipate parental responses to their affective requests during childhood. For Inward individuals the ability to foresee the nature of the affective exchanges is quite apart from the quality and efficacy of the relationship with the caregiver. Outward individuals are capable of understanding their emotions by exploiting the same cognitive processes they exploit to understand situations and emotional responses of the caregiver. These basic identities differ in the regulation of emotional and cognitive processes: the Inward individuals are more focused on their inner experience whereas the Outward ones are more focused on external referential contexts.

Emotional voices are considered relevant signals/signs to understand other people's emotional states playing an important role in social interactions [15].

In the light of the above considerations, the present work hypothesizes that an individual with different attachment styles and Narrative Identities will show significant differences in her/his ability to decode emotional voices.

The hypothesis to be tested are:

- Secure subjects are more accurate than Insecure ones in decoding vocal emotional expressions;
- Inward/Outward Identities will play a role on the individuals' ability to recognize vocal emotional expressions. Outward individuals will be more accurate than Inward ones;
- There can be possible interactions between attachment styles and Narrative Identities.

2 Method

2.1 Participants

A sample of 30 subjects, equally balanced by gender and aged between 18 and 29 years was recruited at the Second University of Naples (Italy). The subjects (15 males, 15 females) with a mean age of 21.4 years (SD= 2.47) are mainly students at the Department of Psychology (76.7 %), and others departments (23.3%).

2.2 Experimental Tools

Attachment. The participants' attachment style was assessed by using the "Experience in Close Relationships" (ECR) questionnaire proposed by [16] and standardized for the Italian population by [17,18].

Narrative Identities. The individual's Narrative Identities were assessed through the Personality Meaning Questionnaire (PMQ) [19] identifying the key cognitive themes characterizing Inward or Outward personalities.

Vocal Emotional Voice Recognition Task. In order to evaluate the ability to recognize emotional feelings from voices, the subjects were asked to listen to a set of 20 emotional vocal stimuli associated with five out of the six basic emotions defined by [20]. The "emotional voices" were selected by one of the authors from a database of emotional voices already assessed and published in literature and details are therein [21,22].

2.3 Procedure

Each participant first filled in and signed a consent form providing his/her general information and completed the ECR and PMQ questionnaires for assessing the attachment style and the Narrative Identity. After filling out the questionnaires, they underwent the emotional-voice-decoding task. A suitable neutral setting was created in the laboratory, free of distractions and disturbing events. Each participant, after being informed of the ongoing experiment, was asked to listen to the emotional stimuli, that were randomly presented through headphones and asked to attribute one and only one of the following emotional labels: fear, sad, happy, anger, surprise, to each of the vocal stimuli listened by crossing the corresponding box on an answer grid reporting the five emotional labels. The stimuli were equally balanced among the 4 different emotion categories with 4 samples (two produced by an actor, two produced by an actress) for each emotion. Participants were allowed to listen to the stimuli no more than 3 times before selecting their answers.

2.4 Data Analysis

To assess the significance of the attachment style on the emotional decoding accuracy, an ANOVA analysis was performed with the attachment style as a between subject variable (2 levels of attachment Secure/Insecure) and the emotion categories as a within subject variable (5 levels for the 5 emotions considered). To assess the effects of the Inward/Outward Identity on the emotional decoding accuracy an ANOVA analysis was performed with the Narrative Identity as a between subject variable (2 levels, Inward/Outward) and emotions as a within subject variable (5 levels for the 5 emotions considered). Finally, to assess effects due to interactions between attachment styles and Narrative Identities, an ANOVA was performed on the percentage of correct emotional labels attributed to the each vocal stimulus by the Inward/Outward individuals with Secure and Insecure attachment style.

3 Results

Table 1 illustrates the distribution of attachment style and Narrative Identities among the participants. From such data it is possible to observe that 56.7% (n= 17) of the participants were Securely attached. Alternatively, 13.3 % (n=4) of the participants in the Insecure group were assessed as Avoidant, 26.7% (n=8) as Preoccupied and 3.3 % as Fearfully attached. With respect to Narrative Identities, 33.3% (n=10) were classified as Inward and 66.7% (n=20) as Outward individuals.

Table 1. Distribution of the attachment style and Narrative Identities among the participants

	Attachment style	
	Secure (n=17)	**Insecure** (n=13)
Gender	8 m, 9 f	7 m, 6 f
Inward (n=10)	6	4
Outward (n=20)	11	9

The overall percentages of correct identification obtained by all participants for each emotion category are reported as confusion matrices in Tables 2.

Table 2. The confusion matrix reporting the percentages of accuracy (on the diagonal) in the emotional voice decoding task obtained for the entire sample

Emotion to identify	% Answers				
	Joy	**Fear**	**Anger**	**Surprise**	**Sadness**
Joy	**80**	1.6	0.8	11.7	5.9
Fear	0.9	**90.8**	2.5	3.3	2.5
Anger	0.8	4.2	**86.7**	0	8.3
Surprise	4.2	1.6	1.7	**90.8**	1.7
Sadness	0	14.2	0.8	4.2	**80.8**

3.1 Attachment Style Effects

A one-way ANOVA was performed to test differences between Secure and Insecure subjects in the decoding accuracy of vocal emotional expressions. Results showed no significant differences between Secure and Insecure groups in each emotional category (joy $F(1,30) = 3.275$, p=n.s.; fear $F(1,30) = 1.543$, p=n.s.; anger $F(1,30) = .191$, p=n.s.; surprise $F(1,30) = 2.033$, p=n.s.; sadness $F(1,30) = .755$, p=n.s.).

3.2 Narrative Identities Effects

Figure 1 displays the means of correct answers (for each emotional category under examination) obtained by grouping participants as Inward (white bars) and Outward (red bars) individuals. The data highlights a tendency of Outward individuals to perform better that Inward ones.

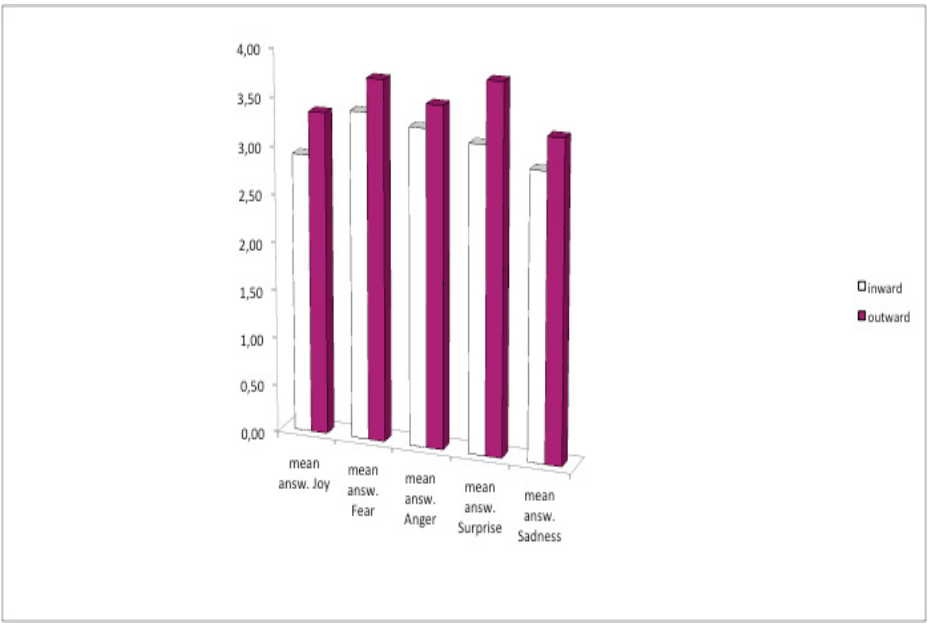

Fig. 1. Means of emotion's correct labeling by Inward and Outward individuals

A deeper analysis performed through a one-way ANOVA showed that Outward significantly outperformed Inward individuals only in the recognition of surprise ($F(1,30) = 4.345$, $p = .046$, $\eta^2 = .1$). No significant differences were found in the decoding of the remaining emotional categories (joy $F(1,30) = 2.447$, p=n.s.; fear $F(1,30) = 1.882$, p=n.s.; anger $F(1,30) = .684$, p=n.s.; p=n.s.; sadness $F(1,30) = 1.113$, p=n.s.).

3.3 Attachment Style and Narrative Identities Interaction

In order to check if the attachment style and Narrative Identities affected the emotion-decoding task, a 2 x 2 (attachment style [Secure, Insecure] x Narrative Identities [Outward, Inward]) mixed analysis of variance (ANOVA) was conducted on each of the five emotional categories under examination, using the number of correct answers-to-emotional-voices as the dependent variable. The ANOVA revealed that Secure individuals outperformed Insecure ones in the decoding of joy ($F = (3,30) = 3.107$, $p = .023$, $\eta^2 = .185$) and surprise ($F = (3,30) = 3.613$, $p = .038$, $\eta^2 = .155$), whereas no effects were found for the remaining emotional categories (fear $F(3,30) = 1.578$, p=n.s.; anger $F(3,30) = 1.036$, p=n.s.; sadness $F(3,30) = 1.142$, p=n.s.). In addition, the ANOVA revealed that these effects were due to the fact that Insecure-Outward individuals significantly outperformed Insecure-Inward ones in the recognition of joy $F(3,30) = 4.063$, $p = .054$, $\eta^2 = .135$), and surprise ($F(3,30) = 6.563$, $p = .017$, $\eta^2 = .202$). No main effects of Narrative Identities were found for the remaining emotional categories (fear $F(3,30) = 2.565$, p=n.s.; anger $F(3,30) = 1.108$, p=n.s.; sadness $F(3,30) = 1.660$, p=n.s.). This data suggested that Outward subjects were more accurate in decoding joy and surprise especially in the group of individuals with an Insecure attachment style.

No interaction effects were found between attachment style and Narrative Identities for each emotion under examination (joy ($F(3,30)= 2.461$, p=n.s.; fear $F(3,30) = 1.017$, p=n.s.; anger $F(3,30) = 2.251$, p=n.s.; surprise $F(3,30)= 3.044$, p=n.s.; sadness $F(3,30) = 1.435$, p=n.s.). Table 2 illustrates the details of this analysis.

Table 3. Averaged correct responses and standard deviations (SD) to the emotional vocal stimuli obtained by participants with Secure and Insecure attachment styles and Inward/Outward Narrative Identities.

		Attachment style		
		Secure	**Insecure**	
Emotional Voices	**Narrative Identities**	Mean (SD)	Mean (SD)	total
Joy	Inward	3.33 (.82)	2.25 (.96)	2.90 (.94)
	Outward	3.45 (.52)	3.22 (.67)	3.35 (.59)
	total	**3.41 (.62)$_a$**	**2.92 (.86)$_b$**	
Fear	Inward	3.67 (.52)	3.00 (1.41)	3.40 (.97)
	Outward	3.82 (.40)	3.67 (.50)	3.75 (.44)
	total	3.76 (.44)	3.46 (.88)	
Anger	Inward	3.50 (.84)	3.00 (1.41)	3.30 (1.06)
	Outward	3.36 (.67)	3.78 (.44)	3.55 (.61)
	total	3.41 (.71)	3.54 (.88)	
Surprise	Inward	3.67 (5.16)	2.50 (1.91)	**3.20 (1.32)$_a$**
	Outward	3.91 (.30)	3.78 (.44)	**3.85(.37)$_b$**
	total	**3.82 (.39)$_a$**	**3.38 (1.19)$_b$**	
Sadness	Inward	3.33 (.82)	2.50 (1.73)	3.00 (1.25)
	Outward	3.36 (.67)	3.33 (.50)	3.35 (.59)
	total	3.35 (.70)	3.08 (1.04)	

Means with different subscripts within a row or column are significantly different at $p<.05$.

4 Conclusions

This research aimed to assess individual's abilities in decoding emotional vocal expressions according to her/his attachment styles and Narrative Identities. It was discovered that Narrative Identities play a significant role, in particular for individuals with an Insecure attachment style. This legitimate the theoretical constructs and suggests that both emotional regulation dynamics and attachment parameters shape the ways individuals develop their own emotional experiences and their ability to decode other emotional feelings. These are however, the results of a pilot study. More data are needed to increase our understanding on how emotions are decoded and relate to the individual's personality style and experience.

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