

ABSTRACT

The present study examined relationships between emotional intelligence, measured by the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), and right hemisphere processing measured by a free vision chimeric face test. The total emotional intelligence score and the understanding emotions branch of the MSCEIT were positively correlated with males' right hemisphere involvement. The emotion management task was negatively correlated with right hemisphere involvement for females. These results indicate that males with more aroused right hemispheres tend to have greater emotional intelligence and greater knowledge of how feelings evolve and combine to form different feelings, and that women with less right hemisphere arousal can identify the most effective actions to experience a specific emotion.

BACKGROUND

- The present research explores a potential link between emotional intelligence (EI) and right hemisphere (RH) emotional processing.
- Neuropsychology research has established that the RH is more involved in the expression and processing of emotional information (for a review, see Heller, Nitschke, & Miller, 1998).
- A free-vision test developed by Levy and colleagues (Levy, Heller, Banich, & Burton, 1983) has been used successfully to measure cerebral hemisphere arousal asymmetries during the analysis of human faces (Chiang, Ballantyne, & Trauner, 2000; Kee, Cherry, Neale, McBride, & Segal, 1998).
- Alternatively, Mayer, Salovey, Caruso, and Sitarenios (2003) describe EI as an ability that "involves problem solving with and about emotions" (p.97).
- Recent studies have begun to explore potential relationships between brain activity and EI measuring electroencephalogram activity (Jaušovec & Jaušovec, 2005; Jaušovec, Jaušovec, & Gerlic, 2001; Freudenthaler, Fink, & Neubauer, 2006).
- However, these relationships have not been investigated from a neuropsychological perspective.
- Jaušovec and Jaušovec (2005) report that "highly [emotionally] intelligent males displayed greater decoupling of frontal brain areas."
- Furthermore, relationships among EI and behavioral outcomes such as drug and alcohol abuse, as well as aggression, have been found for men but not for women (Brackett, Mayer, & Warner, 2004).

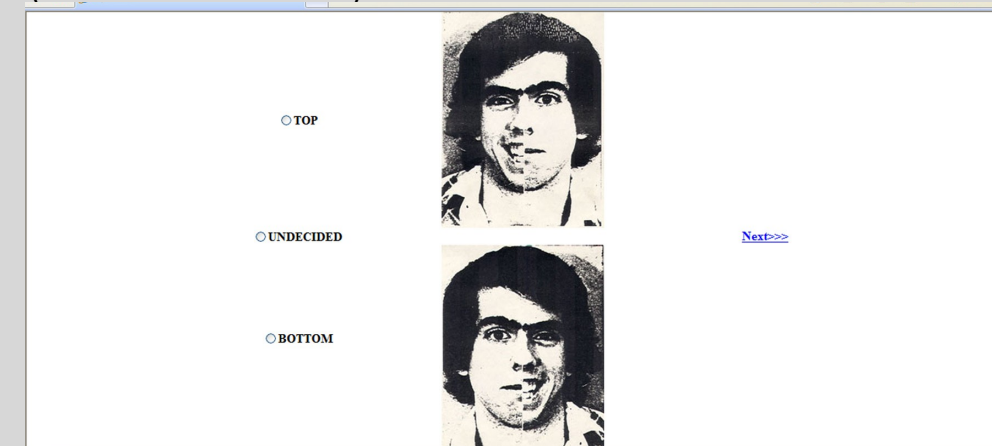
PRESENT STUDY

- Prior research does not offer sufficient grounding for hypotheses about specific relationships between EI and right hemisphere emotional intelligence. However, gender dimorphic patterns are suggested by the extant studies.

METHOD

- 122 ethnically diverse (45 White, 34 Latino, 23 Asian, 6 Black, and 14 Other) college students, 68 females (mean age = 18.71, $SD = 1.31$) and 54 males (mean age = 19.15, $SD = 1.70$) volunteered at California State University, Fullerton.
- Participants were tested in small groups in a computer classroom.
- The Levy chimeric free-vision test (Levy et al., 1983) was completed followed by the MSCEIT.
- The free-vision test consisted of copies of the original 36 chimeras used by Levy et al. (1983).
- The chimeras were presented on the computer in pairs with their mirror images (one above the other).

Chimeric Face Task



- Participants were instructed to judge which face looked happier.
- Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)**
- The MSCEIT is an ability-based test with 141 items designed to measure skills in the four EI branches (i.e., perceiving emotions, using emotions, understanding emotions, and managing emotions).
- The MSCEIT provides a score for each branch of EI and two sub scores for each branch of EI.

Perceiving Emotions:

Indicate how much of each emotion is present in this picture.

Emotion	Not Much		Very Much		
Happiness	1	2	3	4	5
Fear	1	2	3	4	5
Sadness	1	2	3	4	5
Surprise	1	2	3	4	5

Using Emotions:

What mood(s) might be helpful to feel when meeting in-laws for the very first time?

Mood	Not Useful		Useful		
Tension	1	2	3	4	5
Surprise	1	2	3	4	5
Joy	1	2	3	4	5

Understanding Emotions:

Tom felt anxious, and became a bit stressed when he thought about all the work he needed to do. When his supervisor brought him an additional project, he felt _____. (Select the best choice.)

- a) Overwhelmed b) Depressed c) Ashamed d) Self Conscious e) Jittery

Managing Emotions:

Debbie just came back from vacation. She was feeling peaceful and content. How well would each action preserve her mood?

- Action 1: She started to make a list of things at home that she needed to do.
Very Ineffective..1.....2.....3.....4.....5..Very Effective
- Action 2: She began thinking about where and when she would go on her next vacation.
Very Ineffective..1.....2.....3.....4.....5..Very Effective
- Action 3: She decided it was best to ignore the feeling since it wouldn't last anyway.
Very Ineffective..1.....2.....3.....4.....5..Very Effective

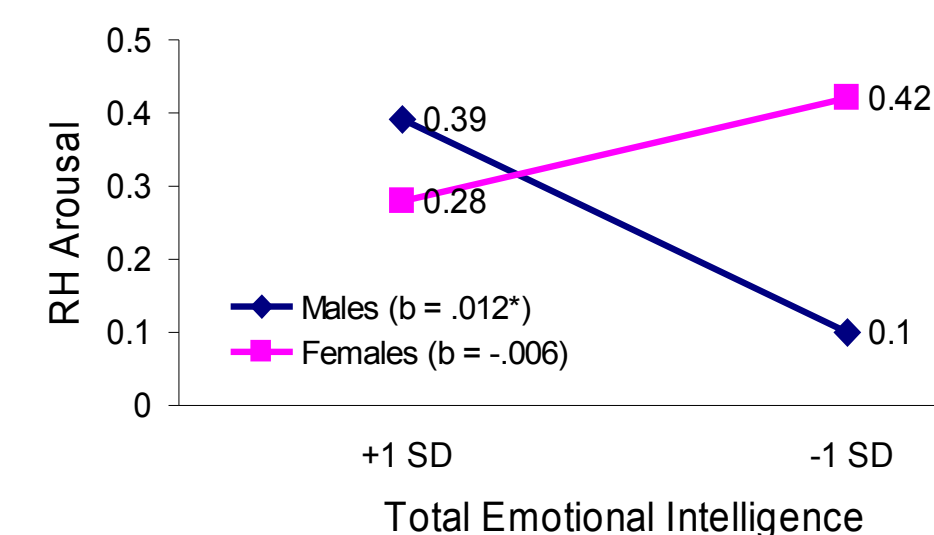
RESULTS

Table 1. Means(SD) for the Chimeric Face Task Bias Score and MSCEIT Scores

	Overall (N = 122)	Males (N = 54)	Females (N = 68)
Chimeric Face Task	-.29 (.52)	-.23 (.51)	-.34 (.53)
MSCEIT Branch	Skill		
Perception		101.22 (14.29)	101.10 (16.16)
	Faces	112.71 (22.88)	113.77 (24.38)
Using	Pictures	95.52 (11.90)	94.42 (13.89)
		96.55 (13.55)	95.86 (13.86)
Understanding	Facilitation	100.42 (13.77)	99.94 (12.18)
	Sensations	95.32 (11.59)	94.64 (12.69)
Management	Changes	94.45 (9.85)	94.16 (8.91)
	Blends	93.09 (9.75)	92.64 (10.17)
Area	Emotion	94.19 (9.85)	92.24 (9.27)
	Relationships	93.91 (10.12)	92.80 (10.22)
Emotional Experiencing		98.93 (14.21)	98.19 (15.11)
	Emotional Reasoning	93.24 (8.48)	92.14 (8.97)
Total EI Score	95.56 (12.22)	94.11 (12.57)	96.72 (11.90)

- Consistent with past research, the mean bias score was $-.29$; a value significantly less than 0, $t(121) = 6.24, p < .001$.
- The bias score was higher for females ($M = -.34$) than males' ($M = -.23$); however, the 95% confidence interval for the mean ($-.20$ to $-.39$) indicated that the difference was not significant.
- Table 2 shows correlations that suggest males with greater right hemisphere arousal while processing emotions tend to exhibit greater knowledge of how feelings evolve and combine to form different feelings.
- Females with less RH arousal while processing facial emotions tend to show better "management" when faced with decision-making scenarios about emotions.

Figure 1. Regression Lines for Relations Between Total EIQ and RH Arousal as Moderated by Gender



RESULTS

Table 2. Correlations between the Chimeric Face Task Score and MSCEIT Scores

	Overall	Males	Females
Total EI Score	.07	.30*	-.14
Branch	Skill		
Perception		-.01	.12
	Faces	-.03	.02
Using	Pictures	.01	.19
		.06	.19
Understanding	Facilitation	-.02	.11
	Sensations	.11	.19
Management	Changes	.16	.39**
	Blends	.06	.27*
Area	Emotion Management	-.03	.14
	Emotional Relationships	-.09	.11
Emotional Experiencing		.06	.24
	Emotional Reasoning	.05	.27*

* $p < .05$, ** $p < .005$

- The male correlations for the Total EI score ($\beta = .29$), Understanding branch score ($\beta = .27$), and Emotional Reasoning area score ($\beta = .30$) are significantly different from their corresponding scores on the female sample ($t[121] = 2.38, p < .05$; $t[121] = 2.24, p < .05$; $t[121] = 2.38, p < .05$, respectively). Figure 1 illustrates this moderating effect of gender for the first mentioned relationship.
- The male correlations for the Changes and Blends tasks failed to reach significance ($\beta = .22, t[121] = 1.95, p = .053, \beta = .24, t[121] = 1.97, p = .051$, respectively) and so did the female correlation for the Emotion Management task ($\beta = .22, t[121] = 1.93, p = .056$).

CONCLUSIONS

- This study found significant correlations indicating that males and females differ in the ways in which they process emotion-laden information.
- Results indicate that males with more aroused right hemispheres tend to have greater emotional intelligence and greater knowledge of how feelings evolve and combine to form different feelings.
- Women with less right hemisphere arousal can identify the most effective actions to experience a specific emotion.
- Findings from this study are in line with the theory that women are more bilateral than males in processing emotions (Wager, Phan, Liberzon, & Taylor, 2003).
- The present research supports the importance of studying gender differences in intelligence and brain activity (Jaušovec & Jaušovec, 2005).