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BRIEF REPORT

Can men do better if they try harder: Sex and motivational effects on emotional awareness

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Research indicates that women are more emotionally aware than men. Motivation was investigated as a possible source of this sex difference. A total of 242 women and 74 men completed the first half of an emotional awareness test, the Level of Emotional Awareness Scale (LEAS; Lane & Schwarz, 1987), received either motivational or control instructions, and then completed the second half of the awareness scale. Participants' LEAS scores were compared via a 2 (sex) × 2 (condition) × 2 (time) General Linear Model Analyses of Variance. The motivational intervention was successful in significantly increasing both male and female participants LEAS scores, although women generally demonstrated greater emotional awareness than men. Furthermore, the LEAS scores of motivated men equalled those of women in the control condition, but the motivated men had to work significantly longer on the task to achieve this equality. Additional covariance analysis revealed that there were significant sex differences even after controlling for self-report and behavioural measures of motivation. We discuss the implications of these findings for understanding sex differences in emotional awareness.

''Why are men so clueless about their emotions?'' This is often a question posed by popular media. Is it that men do not try as hard as they should to understand emotions? Or is it that women are just more emotionally talented, perhaps because they have practised their emotion skills more or because of some biological advantage? Or is the whole assumption about sex differences a myth?

Research has not yet answered the former two questions, but has provided evidence concerning the myth question. A substantial number of studies have now shown that women are more emotionally aware than men, when awareness is measured using the Level of Emotional Awareness Scale (LEAS; Barrett, Lane, Sechrest, & Schwartz, 2000; Ciarrochi, Caputi, & Mayer, 2003; Lane, Quinlan, Schwartz, Walker, & Zetlin, 1990).

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Emotional awareness has been defined as the ability of an individual to recognise and describe emotions in the self and others (Lane, Sechrest, Riedal, Schapiro, & Kaszniak, 2000). The present study sought to investigate the extent that motivational differences between men and women could explain this difference in awareness. We hypothesised that if sex differences are due largely to motivation, then we should be able to motivate men to perform as well as women. Also, we should be able to eliminate the sex difference by statistically controlling for self-reported and observed motivational levels.

Sex and emotion

Past research has found a substantial number of sex differences in emotion. For example, ''with few exceptions, results indicate that women are more emotionally expressive than men'' (Kring & Gordon, 1998, p. 688). Women are also more accurate at recognising the emotional expressions of others (see Hall, 1984, for a review). Finally, and of particular relevance to the present paper, a substantial number of studies have shown that women are more aware of emotions in both themselves and others (Barrett et al., 2000; Ciarrochi et al., 2003; Lane et al., 1990).

There is also evidence that sex differences are malleable. For example, some sex differences do not manifest until later in life (Brody, 1997; Buck, 1977; Hall, 1984; Prokasky & Raskin, 1973), which is consistent with the notion that the differences are socialised. The sex differences that do emerge appear to be consistent with cultural gender roles (Lupton, 1998; Murray, 1999; Wood & Eagly, 2002). Parents display both a wider variety of emotions and discuss emotions more with their daughters than with their sons (with the exception of anger and other outward-directed emotions, such as disgust: Keubli, Butler, & Fivush, 1995; Kuebli & Fivush, 1992). Parents are also more likely to use an elaborative narrative style with their daughters when conversing about past events (Fivush & Reece, 1992).

There is some evidence that situational cues can reduce sex differences. For example, differences in nonverbal expressions have been found to be larger when individuals are interacting with same sex, rather than mixed-sex groups (Hall, 1984). Individuals appear to moderate their behaviour with the opposite sex so that it approaches the other sex's norms.

Other research has found that girls hide disappointment more than boys when they receive a disappointing gift in the presence of an experimenter (Saarni, 1984). However, when the experimenter is absent, they express more disappointment (Cole, 1986), suggesting that situational cues can effect the sex difference. In another study, Davis (1995) told children that they could win or lose a prize depending on their ability to mask disappointment when receiving the undesirable gift. Boys did reduce their expression of negative affect. However, they still showed higher levels of negativity than did the girls in the motivation condition. This study suggests that a combination of situational and stable factors may impact sex differences in nonverbal expression. We sought to examine whether similar situational effects would be observed for emotional awareness.

The Level of Emotional Awareness Scale (LEAS)

Sex differences in the LEAS have been observed across numerous studies and are evident even after controlling for a number of potential confounds, such as verbal intelligence (Barrett et al., 2000; Ciarrochi, Deane, Wilson, & Rickwood, 2002). The LEAS is based

on a cognitive-developmental theory proposed by Lane and colleagues (e.g., Lane & Schwarz, 1987). It taps prepositional knowledge about emotion, rather than emotional responding per se. Lane and his colleagues assert that an individual's ability to recognise and describe emotions in oneself and others, called ''emotional awareness'' is a domain of cognitive development that unfolds in a manner parallel to that of intelligence. Emotional experience is said to become more differentiated and integrated with development, such that the representations of emotional states move from implicit to explicit forms.

There is a substantial amount of evidence that the LEAS is a valid measure of emotional awareness. It has been shown to relate to self-reported ability to identify and describe emotions (Lane et al., 2000; Lane, Sechrest, Reidel, Weldon et al., 1996) and to individual differences in cerebral blood flow in the anterior cingulate cortex during the processing of emotional stimuli (Lane et al., 1998). It has also been shown to predict actual emotion recognition, regardless of whether the recognition task is verbal or non-verbal (Lane et al., 1996). The LEAS has been found to correlate positively with two cognitive developmental measures, the Sentence Completion Test of Ego Development (Loevinger, 1970) and the cognitive complexity of the descriptions of parents (Blatt, Wein, Chevron, & Quinlan, 1979; Lane et al., 1990). The LEAS is related to the likelihood that people will seek help if they are experiencing emotional problems (Ciarrochi et al., 2002). Finally, across two experiments, the LEAS was shown to predict the extent of mood congruent biases, with those higher in awareness being less likely to allow an irrelevant mood to bias their judgements (Ciarrochi et al., 2003).

The experiment

We sought to manipulate people's motivational level to determine if motivated men could achieve the same level of awareness as unmotivated women. We also sought to measure motivation using multiple measures (self-report and behavioural) and to examine whether sex differences remained even after controlling for these measures.

METHOD

Participants

A total of 316 first and second year university students (74 males, 242 females) participated in the study in exchange for course credit. They signed up for the study via a notice board. These participants tended to come from majors in arts, humanities, nursing, and psychology. Participants ranged in age from 17 to 52 years ($M = 22.2$, $SD = 6.4$), and 96% were Caucasian. The other 4% were Asian (2.4%), aboriginal (0.3%), Melanesian (0.3%), Indian (0.3%), and Middle Eastern (0.6%). Men ($M = 23.5$) were slightly older than women ($M = 21.6$), $F = 5.46$, $p = .02$. Controlling for age in all the analyses below made no difference in our statistical conclusions. Thus, for the sake of simplicity, we collapsed across age.

Materials

Level of Emotional Awareness Scale (LEAS). The LEAS consists of 20 scenarios that involve two people, followed by two questions: ''How would you feel?'' and ''How would the other person feel?''. Each person's response receives two separate scores for

the emotion described: one for the self and one for the other. Each scenario is assigned a score of 0 to 5 (see Lane & Schwarz, 1987, for additional details on scoring). The rating procedure is based entirely on the denotative structure of the language used to describe emotional responses, which helps to ensure highly reliable scoring (interrater correlation for the present study: Time 1 = .92, Time 2 = .96). Due to time constraints, only 16 of the 20 LEAS items were used in the study ($\alpha = .80$).

Experimental manipulation. Two passages were created for the current research purposes—one for each of the conditions to which participants were assigned. Both passages contained an equal number of words and took approximately 1–2 minutes to read. Neither passage contained emotion-related words or material that would elicit any emotion. The motivation condition passage emphasised the importance of the construct being measured. The passage also told participants that their scores would be compared to those of their peers at the end of testing. The control condition passage contained a series of facts unrelated to the study.

Experimental validation check. Participants' motivation level was assessed in two ways: by the time taken for them to complete the LEAS at Time 2 (performance measure) and their responses to the following four questions on 7-point Likert scales (self-report measure): (1) Doing well on the last 8 scenarios was important to me; (2) I tried hard to do the best that I could on the last 8 questions of the test; (3) I wanted to perform really well on this test and; (4) I tried harder on the second 8 scenarios compared with the first 8 scenarios. Preliminary analyses revealed that participants responses to the first three questions significantly correlated with each other, so these items were combined to form a single measure of participants overall level of motivation ($\alpha = .83$). The final question required participants to compare their level of motivation at Time 1 with Time 2, and will be referred to as the ''comparative question''.

Procedure. Participants were randomly assigned to one of two experimental conditions (motivation or control). All participants were given a booklet containing instructions and were asked to complete the first eight LEAS scenarios. Participants then read either the motivation or control instruction and completed the remaining eight LEAS items (Time 2). Finally, participants responded to four self-report measures of motivation.

RESULTS

Validation of the motivation manipulation

The time variables were positively skewed, and were consequently log transformed. A General Linear Model (GLM) repeated-measures ANOVA was used to examine the impact of sex, condition (experimental vs. control), and time of measurement (Time 1 vs. Time 2) on the logged time to complete the LEAS. There were no significant effects involving sex, all ps > .1. As expected, there was a highly significant interaction between time and condition, $F(1, 321) = 20.92$, $MS_e = 0.057$, $p < .001$. Participants in the motivation condition spent more time after the manipulation ($M = 2.84$) then before it ($M = 2.69$), $t = 4.45$, $p < .005$, whereas the control participants did not differ in the time they spent at Time 1 ($M = 2.58$) or Time 2 ($M = 2.52$), $p > .1$. Control participants took an

average of 13.3 min after reading the control instructions, whereas the experimental group took an average of 18.4 min after reading the motivation instructions.

A GLM ANOVA was used to examine the impact of sex and condition on self-reported motivation. Participants in the motivation condition reported higher motivation on the overall self-report measure ($M = 4.9$, $SE = 0.12$) than participants in the control condition ($M = 4.3$, $SE = 0.11$), $F(1, 321) = 13.1$, $MS_e = 1.57$, $p < .001$. Women ($M = 4.73$, $SE = 0.08$) reported higher motivation than men ($M = 4.4$, $SE = 0.15$), $F(1, 321) = 4.88$, $p < .05$. Finally, the experimental group reported greater motivation on the comparative question ($M = 4.4$, $SE = 0.17$) than participants in the control condition ($M = 3.0$, $SE = 0.16$), $F(1, 321) = 36.6$, $MS_e = 3.2$, $p < .01$.

The more motivated participants reported themselves as being, the longer they spent at Time 2 completing the LEAS ($r = .29$ and .21 for overall and comparative motivation measures, respectively). Both motivation scores were related to the LEAS. The longer participants took to complete the LEAS at Time 1 (T1) and Time 2 (T2), the higher their LEAS scores at those times ($r_{T1} = .25$ and $r_{T2} = .32$, ps $< .01$). Also, the more motivated participants rated themselves to be on the overall and comparative self-report measures of motivation, the higher their LEAS scores ($r_{overall} = .16$, $r_{compare} = .15$, ps $< .01$).

Main analysis

A General Linear Analysis of Variance was used to examine the impact of sex, condition, time and the interaction between these variables on LEAS scores. A significant main effect of sex was found, $F(1, 322) = 13.06$, $MS_e = 0.34$, $p < .01$, indicating that women ($M = 3.6$, $SE = 0.03$) obtained significantly higher scores on the LEAS than did men ($M = 3.4$, $SE = 0.05$).

As expected, a significant interaction between time and condition was also found, $F(1, 322) = 8.4$, $MS_e = 0.073$, $p < .005$. As shown in Table 1, both males and females showed improvements after the motivation instruction compared to their Time 1 baseline. In contrast, there were no improvements in LEAS scores after the control instructions. A condition × sex × time interaction failed to approach significance, $p > .1$,

TABLE 1
The impact of sex, condition, and time on Level of Emotional Awareness scores

Sex	*Condition*	*Time*	*Mean*	(*SD*)
Female	Control	Time 1	3.50	(0.46)
		Time 2	3.52	(0.51)
	Motivate	Time 1	3.50	(0.39)
		Time 2	3.68	(0.47)
Male	Control	Time 1	3.35	(0.45)
		Time 2	3.32	(0.42)
	Motivate	Time 1	3.32	(0.40)
		Time 2	3.43	(0.49)

Note: The motivation or control instruction came after Time 1 and before Time 2.

indicating that the experimental manipulation had the same effect on both men and women.

In relation to the second hypothesis, planned contrasts between the LEAS scores of men in the motivation condition and women in the control group were performed. The difference between their scores was nonsignificant, $t(322) = .62$, $MS_e = 0.34$, $p > .1$, thus supporting the hypothesis that the LEAS scores of motivated men would not differ from those of women in the control group. However, another contrast revealed that motivated men ($M = 18.6$ min) took considerably longer than unmotivated females ($M = 13.2$ min) to complete the LEAS at time 2, $t(321) = 3.74$, $p < .001$. Thus, men were able to obtain equal scores as women, but only after spending much more time on the task.

Can motivation fully account for the sex difference?

Covariance analysis was conducted to ascertain whether motivation could entirely explain the differences between men's and women's LEAS scores. Regression analysis revealed that women continued to perform better on the LEAS than did men, even after controlling for motivation ($t = -3.7$; $\beta = -.19$, $SE = 0.06$, $p < .01$). However, condition no longer significantly predicted their LEAS scores ($t = -.02$, $\beta = .00$, $SE = 0.06$, $p > .50$), indicating that motivation could entirely account for the effect of condition on participants' LEAS scores but not for the effect on sex on LEAS scores. Further analysis revealed that it was the performance motivation measure in particular that completely mediated the relationship between condition and LEAS. Specifically, when condition and time were entered into the regression equation, condition was no longer significant, whereas time was ($t = 5.6$, $p < .01$). This finding coupled with the previous findings (i.e., condition was related to performance motivation and to the LEAS) provides evidence for mediation (Baron & Kenny, 1986). There was no evidence that the motivation variables mediated the relationship between sex and emotional awareness.

DISCUSSION

Motivational instructions boosted both men and women's level of emotional awareness scores. Motivated men managed to achieve equal levels of performance as unmotivated women, although this equality had its price. Men spent approximately 38% longer than women on the task in order to achieve the same scores. Covariance analyses revealed that both self-reported and behavioural measures of motivation could not entirely account for sex differences.

Motivation and awareness

Both men's and women's level of emotional awareness increased significantly after reading a passage designed to draw their attention to the importance of this skill. This motivational intervention was very simple, with most participants taking only a few minutes to read the passage provided. This finding suggests that motivation plays a role in emotional awareness, thus indicating that emotional awareness is not entirely a stable trait. From a practical perspective, the finding suggests that even individuals who may not have been socialised to maintain an awareness of their own and others' emotional state may significantly improve their ability to do so.

One of the most interesting findings of the present study emerged from the analyses comparing the level of emotional awareness displayed by men in the motivation condition compared to women in the control condition. Motivating men to attend to their emotional awareness resulted in them increasing their LEAS scores to the point that they were not significantly different from LEAS scores of women in the control condition. Thus, the seemingly stable sex difference in awareness found in numerous studies (Barrett et al., 2000) can be minimised by a motivational intervention.

When we compared men and women in the motivation condition, we again found a sex difference favouring women. In addition, neither a self-report nor behavioural measure of motivation could entirely explain the sex difference. This pattern of findings can be understood if we assume that women have an advantage over men resulting from years of practice attending to their own and others' emotions. From a very early age, girls are socialised to allocate more attentional and processing resources to emotional information than are boys (Brody & Hall, 1993; Kuebli et al., 1995; Kuebli & Fivush, 1992; Murray, 1999). In addition, emotional awareness in boys may be actively discouraged (Murray, 1999). Hence, any increase in women's motivation level resulting from the current motivational intervention would have been superimposed on a level which already exceeded that of males in a natural setting.

There are at least two possible explanations of the sex differences in awareness found in this and other studies. Sex differences in emotional awareness may exist because females have more emotion knowledge than men (Tulving and Pearlstone, 1966). Alternatively, both men and women may have equally amounts of emotion knowledge, but women have greater access to this knowledge (Tulving & Pearlstone, 1966). This may result from their using what they know about emotions more frequently than men do, or being more willing or motivated to use what they know. Indeed, women in the current study rated themselves as being significantly more motivated than men whilst completing the LEAS. Despite this, women did not take significantly longer to complete the LEAS, which could indicate that they access their emotion knowledge more efficiently. Also consistent with the efficiency explanation, men in the motivational condition achieved equivalent scores on the LEAS as unmotivated women, so they seemed to have the knowledge. However, they took considerably longer on the task in order to achieve this equality.

Limitations and future directions

We did not systematically explore how different contexts may effect LEAS scores. Given that motivation can often be situation-specific, it will be important for future research to look at other contexts. For example, are there some contexts in which men are more motivated than women, and therefore might show greater emotional awareness?

The current research made no attempt to assess the long-term nature of the gains participants made as a result of the motivational intervention. It is likely that gains were short-lived. Nonetheless, the current findings combined with the findings in the socialisation literature suggest that the repeated administration of motivational interventions over a longer period might result in longer lasting improvements in emotional awareness.

Motivating men in the current study did not require that their attention be drawn to the importance of language in obtaining high scores. Nor did it require that we directly inspire their emotions as neither the motivational or the control passage contained

emotion-eliciting words. It is feasible that a more intensive motivational procedure directed at men over a longer period could result in their consistently displaying the same level of emotional awareness as women.

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