Emotional intelligence compensates for low IQ and boosts low emotionality individuals in a self-presentation task

Marina Fiori

Faculty of Business and Economics

Department of Organizational Behavior

University of Lausanne

CH-1015 Lausanne-Dorigny

Switzerland

Correspondence regarding this article should be addressed to: Marina Fiori, Faculty of Business and Economics (HEC), University of Lausanne, Switzerland. Telephone: +41 21 692 36 83. Email: Marina.Fiori@unil.ch.

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Abstract

The research on emotional intelligence (EI) has focused mainly on testing the incremental validity of EI with respect to general intelligence and personality; less attention has been devoted to investigating the potential interaction effects. In a self-presentation task that required participants to obtain positive evaluations from others, individuals low in IQ but high in EI performed as well as the high IQ individuals. In addition, the low emotionality individuals performed significantly higher when also high in EI. The results extend the previous findings on the compensatory effect of EI on low IQ to the domain of interpersonal effectiveness and shed light on the effective functioning of personality traits when interpreted with the interaction of EI. Overall this study suggests that the role of EI in predicting performance might have been overlooked by checking solely for main effects and illustrates new venues for understanding the contribution of EI in explaining emotion-laden performance.

1. Introduction

One of the most debated issues in the subject of emotional intelligence (EI) concerns the extent to which EI may predict outcomes beyond general intelligence and personality (see Fiori & Antonakis, 2011; Rossen & Kranzlen, 2009). Although it is true that to be considered a valuable construct, EI needs to demonstrate incremental and discriminant validity with respect to pre-existing measures, the issue has been approached in most cases by evaluating the single contribution of EI in comparison with other individual variables as predictors of a given outcome. Much less interest and attention has been devoted to exploring the role of EI in interaction with other individual differences.

This research aims to provide a contribution to this issue by demonstrating the effect of EI on the prediction of individual performance in interaction with general intelligence and the personality trait of emotionality. These two individual differences were chosen because they are among the most important predictors of adaptation and performance (Kokko, Tolvanen, Pulkkinen, 2013), for example, in the workplace (Huang, Ryan, Zabel, & Palmer, 2014; Salgado et al. 2003). However, general intelligence and emotionality might provide limited contributions if not considered in conjunction with EI, which may complement their effect.

General cognitive ability, that is, the ability to solve problems and process complex information, is such a strong predictor of performance that it has been suggested to no longer discuss its relevance in the workplace (Schmidt, 2002). Yet individuals may possess complementary abilities that balance out the lack of strong cognitive abilities so that they succeed anyway. A compensatory effect of EI with respect to low cognitive ability was described in job performance as measured by the supervisor's ratings: EI became a stronger predictor as general intelligence decreased (Côté and Miners,

2006). A similar effect was found in academic performance: High trait EI was associated with better English performance in low cognitive ability students in secondary education (Petrides, Frederickson, & Furnham, 2004).

The aim of the current study is to test the compensatory effect of EI in an actual performance that requires individuals to manage a rather stressful task: Individuals introduce themselves in front of a large audience (approximately 80 people), knowing that they will be evaluated on a list of interpersonal effectiveness indicators. This task was chosen because it involves a performance in an emotion-laden situation. It was hypothesized that EI would help to obtain better interpersonal effectiveness ratings in low IQ individuals but not in high IQ individuals (Hypothesis 1). In fact, high IQ individuals already possess characteristics that may ensure positive self-presentation ratings, such as the use of effective reasoning in the arguments of the presentation. Therefore, they were not expected to benefit to a great degree from having a high EI.

This study also investigates the interaction effect of EI with a personality characteristic that is particularly relevant in anxiety-inducing situations, i.e., neuroticism (see Matthews, Emo, Funke et al. 2006). Individuals high in neuroticism performed poorly and showed a higher heart rate in role play in which they were instructed to exhibit positive as well as negative emotions (Bono & Vey, 2007). Indeed, being anxious may interfere with performance by subtracting cognitive and emotional resources that could be used more efficiently otherwise. In addition, the fear of unexpected events may prompt avoidance responses and ruminative thoughts that have a negative effect on the task. In contrast, being able to maintain emotional control in stressful situations fosters a proactive attitude and the engagement of more effective coping strategies (Huang, Ryan, Zabel, & Palmer, 2014).

Ashton and Lee in the HEXACO model of personality (2007) introduced a variation of the trait neuroticism that they called emotionality, which emerged from a different rotation of the main personality traits of Agreeableness and Emotional Stability. Emotionality takes on slightly different nuances than neuroticism and describes individuals that are, beyond fearful and high in anxiety, also sentimental and dependent on others for social support. An advantage of characterizing emotionality this way is that it limits the impact of social desirability: Individuals who are high in emotionality can be described as prone to anxiety, but also sentimental--which generally has a positive connotation; similarly individuals who are low in emotionality can be described as fearless and independent, but also as cold-hearted and unemotional—denoting a negative connotation of this trait (Ashton, Lee, de Vries et al., 2004).

This study investigates the effect of the combination of the trait of emotionality (high and low) with emotion-related abilities. Although being low in emotionality may be an asset in many circumstances, the current study posits that being in control of one's emotional reactions may not be enough to guarantee success when the goal is not limited to deliver a good performance, but also involves interpersonal interaction.

In fact, individuals low in emotionality may appear to others as emotionally detached and rather cold; these individuals would especially benefit from emotion-related abilities because such abilities would help to convey positive emotions and commitment to the task and ultimately to be perceived as more effective in interpersonal relationships. Therefore, it was hypothesized that EI would be a boost for low emotionality individuals, so that individuals low in emotionality would achieve better interpersonal effectiveness scores when high in EI (Hypothesis 2a). As for high emotionality individuals, these individuals are characterized by being prone to anxiety

and fear, and also being sentimental and dependent on others for social support (Ashton & Lee, 2008). It was hypothesized that a high EI would hinder high emotionality individuals to perform well in front of the class. In fact, being dependent on others for emotional support in a situation in which others are perceived as 'evaluators' may increase anxiety and worsen performance. Furthermore, knowing much about emotions (a characteristic that is present in individuals with a high EI), for example, knowing how emotions impact on performance, might impair highly emotional individuals who tend to ruminate about emotional events, particularly negative ones (Wupperman & Neumann, 2006). Ultimately, high emotionality individuals may increase their level of anxiety by knowing that a high level of stress hampers performance. Therefore, it was hypothesized that a high EI would hinder the performance of high emotionality individuals (Hypothesis 2b).

Within the different conceptions of EI, this research employs the definition of EI as a constellation of abilities concerning the recognition, comprehension, regulation and employment of emotions in different circumstances (Mayer & Salovey, 1997). More specifically, the aspect of EI that was investigated is emotion understanding, i.e., the capacity to envision how emotions unfold and develop in response to certain environmental characteristics. This aspect of EI was chosen because it is a core EI ability that plays an important role in interpersonal effectiveness. Individuals who understand that showing excitement may help to be perceived as committed to the task may try to align their knowledge with their actual behavior. Similarly, individuals who know that others may feel bored in front of a monotonous speaker may try to adjust their performance in order to avoid making people annoyed. Overall, emotion understanding enables individuals to put in place effective strategies to address a challenging interpersonal task.

The study hypotheses were tested in the context of the participation in a course that was meant to prepare students to enter the job market. Students filled out personality and intelligence tests, learned about the selection process and then were invited to deliver a one minute self-presentation in front of the class (as if they were in front of a panel of recruiters) with the goal of convincing the audience to choose them as potential candidates for a job post.

2. Method

2.1 Participants

One hundred and sixteen students with a Master in Management from a Swiss University participated in the study. Their participation was voluntary in exchange for course credits. Participants were 62% female, and the mean age was 23.91 years (SD = 1.91).

2.2 Measures

2.2.1 General intelligence

Intelligence was measured with the Wonderlic Personnel Test (Wonderlic, 1992), which is a 50-item, 12 minute long test composed of spatial, verbal, and numerical questions. It provides an objective measure of general cognitive ability, or g. The test was administered online and filled out individually. The total number of correct answers was employed in the statistical analysis. The test reliability ranges from .88 to .92 as reported in the manual (Wonderlic, 1992).

2.2.2 Emotionality

The trait of emotional stability was measured through the Emotionality scale of the personality questionnaire HEXACO short version (Ashton & Lee, 2009), which measures the basic dimensions of personality. This scale

differs from the emotional stability/neuroticism scale of the traditional Big

Five/FFM inspired personality questionnaire: Beyond the classical items

measuring the tendency of individuals to experience fear and anxiety when

dealing with life events, it also contains items that measure the tendency to

be sentimental and to feel dependent on others for emotional support.

Overall, individuals scoring low on emotionality may be described as those

who feel little anxiety in stressful situations and who do not bother sharing

concerns with others and may feel emotionally detached from others. The

scale contains 10 items such as "When I suffer from a painful experience, I

need someone to make me feel comfortable", "I remain unemotional even in

situations where most people get very sentimental". Reliability for the

Emotionality scale is reported to be .80. Raw scores were recoded as Sten

scores with a mean of 5.5 and a standard deviation of 2.

2.2.3   EI (Emotion Understanding)

The short form of the Situational Test of Emotional Understanding (STEU;

MacCann & Roberts, 2012) was employed in the current study. This is an

ability EI test that is composed of 25 descriptions of different emotional

situations requiring participants to select, among a list of five, which

emotion best describes how the person is feeling. Correct answers are

scored according to the Roseman's (2001) appraisal theory. Results have

demonstrated that the STEU is an ability EI measure that taps especially

into the crystallized component of g and that accounts to a certain extent for

the level of emotion knowledge individuals possess (Austin, 2010). The test

reliability of this scale is reported to be between $\alpha = .68$ and $\alpha = .81$

(MacCann & Roberts, 2012).

2.2.4   Performance (interpersonal effectiveness)

After participants were taught about the recruitment process, they took part in a simulation of a job interview in which they were given 60 seconds to introduce themselves and convince the recruiters (played by the other classmates) to hire them. The presentations were video-recorded to debrief the participants at a later time. After each presentation, 10 course participants randomly selected among the course attendees filled out an evaluation form. The fact of selecting a random group of evaluators for each presentation ensured that there was no evaluation done systematically by acquaintances. The course was a medium-large lecture-type class and students knew only a few of the course attendees. The evaluation form included a list of questions in which evaluators rated on a scale of 1 to 10, 1= not at all and 10 = very much, the extent to which they liked the presentation; the leadership skills of the presenter; his/her ability to convince others of his/her competences; and overall performance. The final and most important question asked the evaluators whether they would have hired the person if they were the recruiters (yes/no answer). The percentage of agreement on this question was employed as the indicator of Interpersonal Effectiveness.

3. Results

3.1 Descriptive results

Table 1 presents the descriptive statistics and correlations of the study variables. The five single items employed to evaluate the self-presentation task correlated highly with each other, although the decision to hire was somewhat less than the others. IQ is correlated positively with the different aspects rated in the self-

presentation task, whereas emotionality was negatively correlated, albeit not so strongly. IQ and emotion understanding (EI) exhibit a low-moderate correlation of .33, suggesting that EI may be viewed as a form of intelligence. The correlation between emotion understanding and the personality characteristic of emotionality is only .10 and supports the idea that EI as an ability is distinct from personality. Emotionality is negatively correlated with all the ratings of the presentation, indicating that being emotional is by itself a characteristic that may hinder interpersonal effectiveness.

3.2 Hypotheses testing

Data analysis was conducted with the software Stata version 13 (StataCorp., 2013), and it involved conducting a multiple hierarchical regression with robust standard errors in which the main effects and the interaction effects were entered in two separate steps to account for the unique variance in Interpersonal Effectiveness. Table 2 presents the regression results. Model 1, in which only the main effects were entered, was not significant, $F (3, 70) = 1.74$, $p > .05$. Importantly, Model 2, in which the interaction effects were added to the regression equation, was significant, $F (5, 68) = 3.32$, $p < .05$; the model added a significant amount of variance (27%) to Interpersonal Effectiveness. Hypothesis 1 predicted that EI would compensate for low IQ by improving the performance of high EI individuals. As predicted, the interaction effect between IQ and EI was significant. The analysis of the simple slopes (Figure 1) calculated by analyzing the average marginal effects of IQ at ±1 standard deviation from the mean of EI demonstrated that high IQ individuals do not differ in their Interpersonal Effectiveness across the different levels of EI ($b = -.00$, $p > .05$). Furthermore, low IQ individuals significantly performed better when possessing a high EI ($b = .018$, $p < .05$). Overall, the results

support the idea that a high EI may compensate for low IQ: Individuals who scored

low in IQ and high in EI performed as well as high IQ individuals.

As hypothesized, the results also demonstrated a significant interaction of

emotionality and EI. As predicted in hypothesis 2a, the analysis of the simple

slopes (Figure 2) demonstrated that the low emotionality individuals performed

significantly better when also high in EI (b = -.03, p < .05). High emotionality

individuals performed fairly similarly regardless of their level of EI (b = .026, p >

.05), a result that does not support the idea that high EI may be counterproductive

when paired with high emotionality (hypothesis 2b). Overall, the results suggest

that a high EI is a boost for low emotionality individuals and that being high in EI is

not a hindrance for high emotionality individuals.

4. Discussion

One of the main objectives among EI scholars is to demonstrate that this construct

predicts various outcomes *beyond* personality and intelligence. This study

demonstrates that the interesting contributions of EI may derive from investigating EI

in conjunction with personality and intelligence. None of the variables included in the

study significantly predicted interpersonal effectiveness when taken individually; it

was instead the joint effect of emotionality and intelligence with EI that explained a

significant portion of it. Individuals low in IQ were able to perform as well as high IQ

individuals when possessing a high EI, in particular, a high emotion understanding.

Emotion understanding concerns the ability to comprehend the type of message

emotions convey and to reason about how emotions unfold and develop. High EI

individuals may have comprehensively understood the emotional implications of the

self-presentation task—such as the extent to which the stress level may hinder or help

performance or the fact that showing enthusiasm about obtaining a job may positively

affect the evaluator's impression—and consequently have employed this information 'strategically' to deliver a more effective self-presentation.

As far as the interaction effect of Emotionality and emotion understanding, the results indicate that simply being cold-hearted, that is, being able to remain controlled and detached in an emotional situation, does not suffice to have a strong impact on others. Rather, a good understanding of how emotions unfold and develop may better help individuals to exploit their self-control during a performance. In fact, emotion understanding may have helped individuals to modulate their emotional experience in order to make the performance more effective, for example, by showing more excitement and engagement with the task than highly self-controlled individuals would normally do.

The results regarding High Emotionality individuals did not confirm the hypothesis that having a deeper knowledge about emotions may be counterproductive by generating more anxiety and more concern regarding being evaluated by others. It should be noted that some individuals decided not to take part in the self-presentation task (the participation in the task was voluntary). Although the comparison of the emotionality level of individuals who participated with those who did not has not shown any significant difference, it might still be the case that individuals who did not participate had an idiosyncrasy with regard to the self-presentation task. An additional issue that might explain the lack of significance of hypothesis 2b and may also constitute a limitation of this study is that the performance in the self-presentation task was evaluated rather positively for most participants, limiting the explanatory power of the variables included.

A look at the results of emotion understanding across personality and intelligence shows that low emotionality individuals benefited from having a deeper

understanding of emotions: They performed significantly better than high emotionality individuals in the condition of high emotion understanding. However, a similar (positive) effect did not emerge in the interaction with intelligence: high IQ individuals did *not* benefit from having deeper understanding of emotion as they performed at the same level of low IQ individuals in the condition of high emotion understanding.

It should be noted that the range of IQ scores of students in higher education is generally more restricted and above the mean of the general population, which might limit the generalizability of results. For example, a positive effect of high emotion understanding with high IQ might be observed in a sample of individuals with average IQ. Moreover, for very low IQ levels--which were not found in the sample of university students employed in the current study--EI might not help to compensate for low performance.

Further research might investigate whether the compensatory effects of EI would exert the same results over a broader range of tasks and situations. The present results were found in the context of a self-presentation task that was very brief (60 seconds maximum). Although social perception is strongly influenced by the first impression, as the literature on thin slicing shows (e.g, Albrechtsen, Meissner, & Susa, 2009; Ambady, Bernieri, & Richeson 2000), it would be interesting to test whether EI would improve self-presentation performance in low IQ and low emotionality individuals when participants have more time at their disposal to convince evaluators of their qualities.

In sum, the results of the current study provide further support to the compensatory effect of high EI in conjunction with low IQ and low emotionality on performance. It also expands on the importance of investigating the interaction effect

of EI with personality and IQ by demonstrating that the effect of the acknowledged predictors of performance can be better explained by considering their joint effects with EI. Emotion understanding emerged as an important asset that can either compensate for lack of other qualities (e.g., low IQ) or boost the effect of personality characteristics in an interpersonal effectiveness task. All in all, the results open new venues for understanding the role of EI in explaining emotion-laden performance.

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Variable	N	Mean	SD	Min	Max	Sex	EI	Emot.	IQ	Liking	Leadership	Comp.	Perf.	Hire
Sex	116	0.62	0.49	0.00	1.00	1.00								
EI (Emo. Unders.)	113	0.69	0.10	0.48	0.90	0.09	1.00							
Emotionality	116	5.47	2.19	1.00	10.00	0.18	0.10	1.00						
IQ	110	22.78	3.95	10.00	33.00	-0.27	0.33	-0.19	1.00					
Liking	80	7.29	0.78	4.80	9.20	-0.16	0.01	-0.14	0.26	1.00				
Leadership	80	6.75	1.00	4.09	9.18	-0.20	0.03	-0.19	0.31	0.89	1.00			
Competences	80	7.10	0.93	4.90	9.30	-0.15	0.12	-0.15	0.33	0.88	0.84	1.00		
Performance	80	7.22	0.86	5.18	9.30	-0.15	0.08	-0.14	0.31	0.93	0.89	0.91	1.00	
Interp. Effectiveness (hire)	80	0.86	0.20	0.11	1.00	-0.05	0.24	-0.05	0.25	0.67	0.68	0.67	0.70	1.00

Table 1. Descriptive statistics and correlations of the study variables. The sample size varies for the different variables because participation to the tasks was voluntary.

Step 1	Unst. Coef.	Std. Err.	t	P>t
Emotionality	-0.003	0.010	-0.340	0.734
IQ	0.009	0.006	1.510	0.135
EI (EmoUnders.)	0.385	0.302	1.270	0.207
R^2	0.09			
Step 2	Unst. Coef.	Std. Err.	t	P>t
Emotionality	0.282	0.083	3.38	0.001
IQ	0.103	0.049	2.09	0.041
EI (EmoUnders.)	5.460	1.828	2.99	0.004
EmoXEI	-0.401	0.120	-3.35	0.001
IQXEI	-0.130	0.068	-1.92	0.059
R^2	0.27			

Table 2. Results of the hierarchical regression with robust standard errors of the study variables predicting Interpersonal Effectiveness.
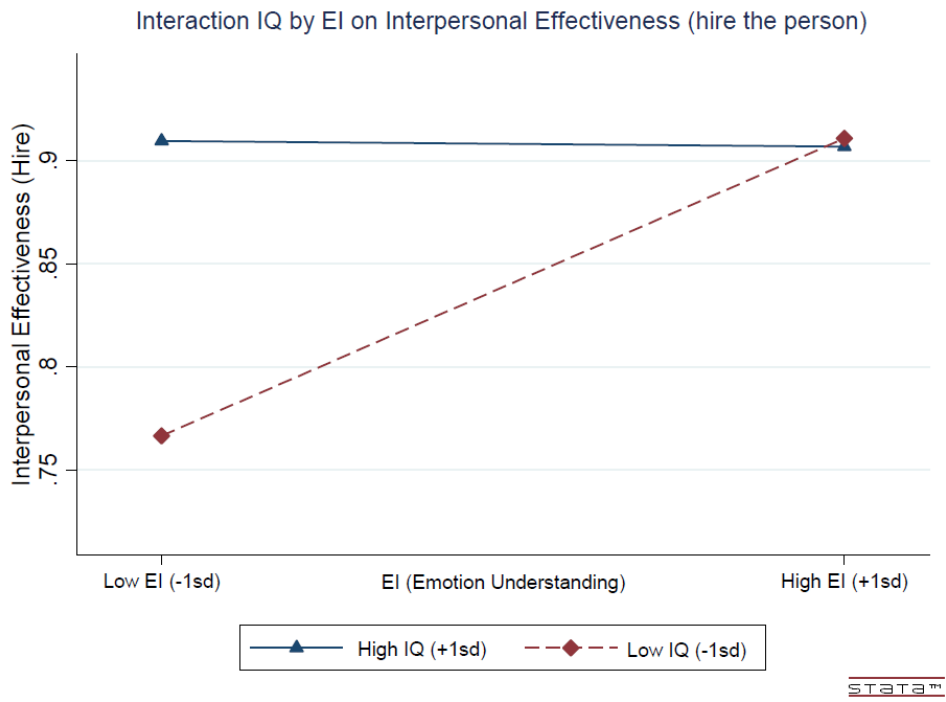
Figure 1. Representation of the interaction effect IQ by EI on Interpersonal Effectiveness.
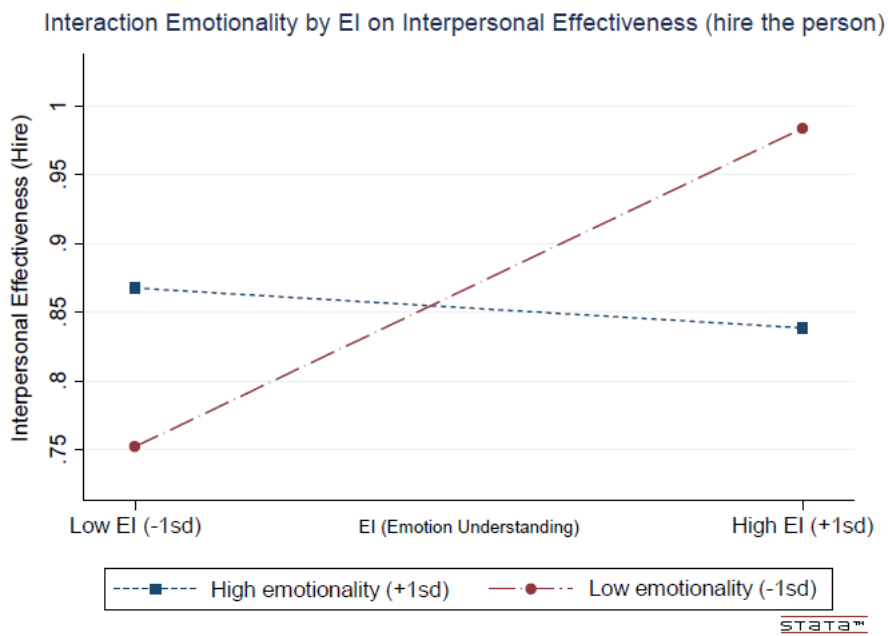

Figure 2. Representation of the interaction effect Emotionality by EI on Interpersonal Effectiveness.