Running Head: AUTOMATIC PROCESSING IN EI

A New Look at Emotional Intelligence: A Dual-Process Framework

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Abstract

In this paper, I provide a framework to guide research in emotional intelligence. Studies conducted up to the present bear on a conception of emotional intelligence as pertaining to the domain of consciousness, and investigate the construct with a correlational approach. As an alternative, I explore processes underlying emotional intelligence, introducing the distinction between conscious and automatic processing as a potential source of variability in emotionally intelligent behavior. Empirical literature is reviewed to support the central hypothesis that individual differences in emotional intelligence may be best understood by considering the way individuals automatically process emotional stimuli. Providing directions for research, I encourage the integration of experimental investigation of processes underlying emotional intelligence with correlational analysis of individual differences, and foster the exploration of the automaticity component of emotional intelligence.

KEYWORDS: emotional intelligence, unconscious processes, dual-process models, individual differences, ability model, process-oriented approach, automatic processes, emotionally intelligent behavior, automaticity, awareness.

A New Look at Emotional Intelligence: A Dual-Process Framework

Since the construct of Emotional Intelligence (EI) was introduced in the scientific psychological literature by Salovey and Mayer (1990), a variety of opinions about emotional intelligence as a useful psychological construct have been expressed, ranging from unconditional glorification, such as that emotional intelligence is the best predictor of success in life (Goleman, 1995) to strenuous denigration, such as that emotional intelligence is an invalid concept because individuals cannot reason with emotions (Locke, 2005). From 2001 to the present, leading journals including *Emotion* (2001, Volume 1, Issue 3), *Academy of Management Review* (2003, Volume 28, Issue 2), *Psychological Inquiry* (2004, Volume 17, Issue 3), and *Journal of Organizational Behavior* (2005, Volume 26, Issue 4) have devoted commentaries and special issues to controversial questions regarding EI, such as the definition of the construct, its measurement, and the components that should be included in a model of emotional intelligence. The debate is particularly fervent because considering the ability to deal with emotion in oneself and others as a form of intelligence is, in many ways, groundbreaking. Up to thirty years ago the term emotional intelligence would have seemed like an oxymoron: Emotion and cognition were considered opposite forces, reflecting a dualistic conception of instinct and mind (Damasio, 1994). Recently, research has demonstrated the interplay of emotional and cognitive processes in human functioning (Bechara, Damasio, & Damasio, 2000; Phelps, 2005), and the flourishing of articles on emotional intelligence to some extent reflects this paradigm shift.

Despite the excitement derived from considering emotional intelligence (EI) as a 'novel' form of intelligence, deep criticisms also have been raised. Researchers lament broad and unclear theoretical definition (Becker, 2003; Matthews, Roberts, & Zeidner, 2004); lack of incremental validity (Davis, Stankov, & Roberts, 1998; Landy, 2005; Matthews, Roberts, & Zeidner, 2004; Van Rooy & Viswesvaran, 2004); and poor psychometric standards of

current measures of EI (Becker, 2003; Conte, 2005; Davis, Stankov, & Roberts, 1998; Matthews, Zeidner, & Roberts, 2004).

My purpose in the present paper is to advance research in the field by addressing some of these concerns. I propose to reconceptualize EI within the scientific literature of social cognition and emotion, in particular dual-process models, and to use this framework to clarify controversial results regarding the theoretical definition and incremental validity of EI.

Although attempts to ground EI within emotion and intelligence literature exist (Barrett & Salovey, 2002; Matthews, Zeidner, & Roberts, 2004), little attention has been placed on considering a literature particularly important to the social psychologist, namely work in social cognition, and connecting it to research on EI. Furthermore, most research in EI has been conducted with a differential approach, overlooking the psychological processes underlying individual differences in EI. I contend that the distinction between conscious and automatic processing in emotional experience is fundamental to both understanding the psychological dynamics of EI and accounting for additional variability in emotional intelligent behaviors.

Theoretical Background

Two schools of thought characterize current literature on EI. On the one hand, ability models conceive EI as a form of intelligence, encompassing abilities to manage emotions (e.g., Mayer & Salovey, 1997). On the other hand, mixed models conceptualize EI as represented by a wider range of skills, including competence and traits such as zeal, persistence, self-control (e.g., Bar-On, 1997; Goleman, 1995). Approaches differ with respect to not only the definition of EI, but also its assessment. Whereas ability models rely on performance measures, mixed models mainly use self-report questionnaires. In performance measures a correct answer may be identified: individuals are asked to pick from a list which emotion best describes how a person is feeling in a hypothetical situation. In contrast, self-

report measures allow for a variety of answers: individuals are asked to indicate how good they are at identifying other people's emotions. In this case, there is no correct answer – the emotion describing the person's feeling – but individuals are allowed to express their opinion modulating it on a likert-type scale.

Research reveals that the mixed models of EI are most susceptible to criticism (Brackett & Mayer, 2003; Brackett, Mayer, & Warner, 2004; Caruso, Mayer, & Salovey, 2002; Daus & Ashkanasy, 2003; Day & Caroll, 2004; Jordan, Ashkanasy, & Hartel, 2003; Lopes et al., 2004; Mayer, Caruso, & Salovey, 1999; Mayer, Salovey, & Caruso, 2004). In consideration of these findings, and consistent with the position of some authors (Ashkanasy & Daus, 2005) who advocate for converging efforts toward the most promising field of research in EI, namely ability models, I conceptualize EI as the ability to process emotional information by means of specific skills. Hence, I embrace the definition of Mayer and Salovey (1997, p. 5) that EI is "the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth." I employ their model based on the distinction of four subabilities or 'branches' of EI as the starting point of my theoretical revision.

I investigate the possibility that Mayer and Salovey's model may be improved by positing that conscious and automatic processes come into play. I employ the theoretical framework of dual-process models – which assume that behavior depends on the interplay of automatic and conscious processes – to describe processes underlying EI and integrate it with the analysis of individual differences in EI.

Throughout the paper the term automatic is used with a generic connotation; it indicates processes that possess one or more characteristics of automaticity: unintentionality, efficiency, uncontrollability, and unawareness. As the level of discussion requires a more

fine-grained approach to automaticity, I introduce a specific terminology to refer to different aspects of automatic processing.

This paper is organized as follows: I first present an overview of Mayer and Salovey's EI model (1997), elucidating how their theorization lacks attention to processes that may be involved in EI, in particular automatic processes. I then support the hypothesis that automatic processes play a role in EI by describing research that shows automaticity in emotional processing and its effect on behavior. I next introduce a reconceptualization of EI according to a process-oriented approach, with particular attention to a dual-process framework, in which I suggest that individual differences in EI may be associated with differences in the way conscious and automatic processing operates in high and low EI individuals. Specifically, I propose to focus the attention on processes characterized by lack of awareness, named unconscious processes, and to distinguish the psychological mechanisms associated to the presence or absence of awareness as a way to understand the automaticity component of EI. I finally discuss assessment methods aligned with the reconceptualization of EI and provide directions for future research.

Mayer and Salovey Four-Branch Model

The term EI as described by Mayer and Salovey (1997; Salovey & Mayer, 1990) refers to the extent to which people use emotions to guide and inform their thinking. Processing of emotional information is part of everyday life; yet, people differ in the way they pay attention to and rely on their emotional abilities: Some use emotions in a productive way, for example to improve the quality of their performance, or to accomplish their goals. Others use emotion in a less efficient way, for example to direct attention away from the task they are engaged in.

The main characteristic of the model is that it considers EI as an ability. The authors emphasize the intelligence component, which underlies the mental abilities required to

process emotional information, as opposed to dispositional components responsible for categories of behavior, like traits. For this reason, Salovey and Mayer (1990) claim that EI cannot be assessed with self-report measures, which tap into personality constructs rather than abilities. Instead, they propose to assess EI by means of performance-based measures. The test the authors introduced to measure EI – the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT, 2002) – is composed of a series of tasks, such as recognition of emotional stimuli and analysis of emotional situations, for which a correct answer may be identified. Consistent with Mayer and Salovey's theorization of EI as a general factor arranged in 4 subabilities, the test provides a general EI score and four scores for each ability or branch of the model: (a) the ability to perceive emotions in oneself and in others, (b) the ability to use emotion to facilitate thought, (c) the ability to understand emotions, and (d) the ability to manage emotions.

The first branch regards individual differences in perceiving emotions in oneself and in others. Recognition of other individuals' feelings occurs mainly through the perception of nonverbal cues, like facial expressions and body language. Although the ability to perceive basic emotions is universal (Ekman, 1989), people differ in how accurately they perceive their own and others' emotions. Some people may be resistant or unable to understand how they are feeling; others may tend to perceive emotions as pleasant or unpleasant only; a few people may possess a vast repertoire of emotional nuances to describe their and others' emotional experience.

The second branch represents a more complex ability than emotion perception: using emotions to enhance or facilitate thought. This ability plays a role when people make a choice by anticipating how they would feel in a certain situation or when they pay attention to what a certain feeling is communicating in a decision-making process. Individuals differ in the way they use emotional information to pursue their goals.

The third branch refers to understanding emotion, and includes knowledge about the causes, the consequences, and the evolution of emotional reaction. Individuals high in EI are able to figure out the impact of their behavior on other people and use this knowledge to improve interpersonal relationships. Emotion understanding encompasses empathy, which is the ability to experience others' feelings.

The previous three branches constitute the foundation upon which the most sophisticated ability can flourish: management of emotions. This branch is based on awareness of emotional reaction as well as regulation of mood and emotions in oneself and in others. Individuals may be more or less successful at improving bad mood or at attuning themselves to the mood required in a particular circumstance.

Mayer and Salovey's work on EI undoubtedly presents advantages compared to other theorizations (e.g., Bar-on, 1997; Goleman, 1995); for instance, the authors' definition of EI as composed by four clearly defined abilities – as opposed to the blanket definition of EI as a mixture of skills, competence, and personality characteristics – allows for testing theoretical assumptions, for example that EI should be treated as an ability (Mayer & Salovey, 1997). Furthermore, the test they introduced to measure EI – the Mayer Salovey Caruso Emotional Intelligence Test or MSCEIT – has been improved during the years and has become the best ability measure of EI in circulation. Despite these acknowledgements, it seems as if some features of EI have not been considered in their model. Limitations of Mayer and Salovey's model are considered next.

Where Do We Go From Here: Looking Into Mayer and Salovey's EI Model

Among the top list of priorities for research in EI, Mayer, Salovey, and Caruso (2004, p. 211) argue for "understanding the processes underlying EI." Indeed, their model is predominantly descriptive. The authors describe the abilities that should be included in a model of EI without developing an in depth analysis of what processes might be involved to

produce them; their emphasis on general qualities (Matthews, Roberts, & Zeidner, 2004), such as the ability to regulate emotions, says little about the specific functions that differentiate high and low emotionally intelligent individuals. Mayer and Salovey follow a psychometric taxonomic approach to EI: Their main interest was in identifying a reliable and valid test to measure differences in EI and to correlate the test's results to various outcomes. However, they did not include in this approach the investigation of what processes exactly lead to successful emotion-based performance. The issue of clarifying the nature of EI may be addressed by inquiring into how high and low EI individuals process emotion information. The analysis of processes underlying EI may reveal that individuals differ in how they engage in mechanisms responsible for emotionally intelligent performance.

Mayer and Salovey's assumption of entirely conscious emotional experience raises concerns in terms of how EI is measured, in that conscious processes may not be the only component responsible for emotionally intelligent performance. Most items of the MSCEIT represent performance in hypothetical situations, not actual performance. For example, emotionally intelligent individuals are those who are able to identify the best strategy to cope with a situation characterized by high emotional involvement. Yet, some individuals may be good at *mindfully thinking and describing* how they or a generic person should behave in hypothetical situations, but not as good at actually *performing* the behavior.

The distinction between declarative and procedural knowledge (Anderson, 1985) may clarify this point. Declarative knowledge refers to representation of facts, rules, and procedures necessary to perform a task successfully. It is also called the *knowing what* of a task because it is related to general principals of functioning. In contrast, procedural knowledge represents the skill to use declarative knowledge in actual performance. It is called the *knowing how* because it is related to practical execution of a task. The top-down approach in cognitive literature (Sun, Peterson, & Merrill, 1996) emphasizes that practice

strengthens the relationship between declarative and procedural knowledge. First, individuals acquire explicit knowledge of how to do something, and then, with practice, they learn how to use it in procedural skills. Thus, in early stages of skill acquisition, individuals may know the rules for executing a task without being good executors. With respect to EI, this means that individuals scoring high on the MSCEIT may not show emotionally intelligent behavior in real emotionally salient situations, because they may have declarative knowledge about emotions, which helps to score high on the test, but lack the procedural skill necessary to use emotions successfully in actual behavior.

In addition, research also supports another alternative: Individuals may be good at performing a task, but not at describing how they perform it (Sun, Merrill, & Peterson, 2001). In fact, once a skill becomes highly proceduralized, it can be performed without having much support of declarative knowledge. For instance, individuals may be able to 'automatically' perform a task despite not consciously relying on the steps needed to do it. According to this possibility, individuals scoring low on the MSCEIT may show high EI in interpersonal encounters. In fact, individuals may lack declarative knowledge responsible for high scores on the MSCEIT, but have highly proceduralized skills responsible for emotionally intelligent behavior in real situations.[1] Either possibility points to the importance of considering automatic processes – processes that strongly rely on procedural knowledge – as an additional source of individual differences in emotionally intelligent behavior beyond conscious processes.

Mayer and Salovey's theorization raises concerns not only in terms of how EI is measured, but also of how it is conceptualized. In fact, the authors rely on the assumption that emotional experience pertains to the domain of consciousness. They did not address the point that a automatic component might be involved in EI, nor did they mention any automatic processing underlying EI. Indeed, the test they introduced to measure EI – the MSCEIT – is

strongly based on conscious processing: Items require subjects to recognize emotions conveyed through pictures, identify emotions matching a certain situation, choose which emotion best describes how a person would feel in a certain situation, and identify the strategy that would best work to cope with an emotionally demanding situation. Although automatic processes may contribute to some extent to the choice of the correct answer (see Jacoby, 1991), the assumption underlying such items is that individuals are aware of their emotional experience, they intentionally use emotions to facilitate thought, they mindfully understand what they or other people are feeling, and are able to regulate emotions consciously – even though in different degrees. Indeed, to find the correct answer individuals need to be engaged in thoughtful reasoning about their own and others' emotions.

However, recently, one of the most salient issues in emotion research has been the relationship between emotion and the unconscious (see, for example, Feldman Barrett, Niedenthal, & Winkielman, 2005). Despite the fact that the role of automatic processes has not been clarified thus far, it seems unquestionable that there is an automatic component in emotional experience: Research supports that automatic affective reactions may influence preferences and behavior (Winkielman & Berridge, 2004). Similarly, in social cognition literature a vast array of studies emphasizes automaticity in attitudes and behavior (e.g., Bargh, 2007): Processes we are not aware of profoundly influence judgments about ourselves and other people. The issue has not been approached with respect to EI yet, even though it may clarify debated issues, such as the theoretical definition and the validity of the construct.

The acknowledgment of a potential automaticity component of EI has been brought up by Zeidner, Matthews, and Roberts (2003, p. 71), who observed that "...much emotional behavior, ranging from facial expression to responding to nonverbal social cues, appears to be implicit." Although they touched on the point of automatic processing of emotional information, Zeidner, Matthews, and Roberts have not followed up this claim with any

further elaboration in relation to EI.

The analysis of conscious and automatic processes involved in EI might clarify what outcomes EI predicts. In fact, current theorization might be missing variability in emotionally intelligent behavior due to automatic processes that have not been considered thus far. Thus, it appears appropriate to incorporate the debate about automatic emotional experience and to inquire about the role automaticity might play in EI theorization and research. I address this issue in the following section.

Evidence Supporting The Effect Of Automatic Processing In Emotional Experience

The purpose of the literature review is twofold: First, by relating the construct of EI to the core mechanisms of emotional processing, I aim to shift the debate from the mere description of what is EI to the explanation of what processes might constitute EI, including automatic processes. Second, consistent with the perspective of those who encourage the integration of individual differences with the analysis of emotion processes (e.g. Gohm & Clore, 2000; Seo & Barrett, 2007; Underwood, 1975), I intend to show that the construct of EI may be best understood considering how individuals differ in processing emotion information.

Studies are surveyed from emotion and social cognition literature and have been conducted with an experimental approach, i.e., manipulating variables and comparing effects *between* experimental conditions. At the end of each subsection I discuss how an individual difference perspective may complement this approach. Specifically, I analyze how variables might differ not only between conditions, but also *within*, depending on individual differences in EI.

The distinction between conscious and automatic processes is controversial. Some authors claim that these processes should be considered as extremes of a continuum, others two different ways to process information (see Psychological Inquiry, 2006, Volume 17,

Issue 3). Because evidence indicates a different brain localization for conscious and automatic processing (e.g., Morris, Ohman, & Dolan, 1998) and research seems to move toward considering differences in processing as "a core-processing distinction in the study of social cognitive neuroscience" (Lieberman, 2007, p. 276), herein I embrace the latter position: the term 'conscious' is used to indicate qualitatively different processes than 'automatic.'

Research has been included in the literature review according to a conception of automaticity for which any of these conditions suffice to characterize a process as automatic (Bargh, 1994): The process is not accessible to awareness; the process is not intentional, or individuals do not recognize it as the cause of their action/state; the process is not controlled, or individuals are not able to stop it once it started; the process is efficient and operates under low cognitive resources.

Surveyed studies are arranged in subsections reflecting the four components of EI model. This organization is chosen to facilitate the illustration of the main argument, namely that automatic processing may account for emotionally intelligent behavior, and it does not imply that each of the four subability of the model is distinctively associated with specific automatic processes.

Automatic Processing in Perceiving Emotions

A consistent body of research supports the idea that individuals may perceive a stimulus without awareness of perception (Merikle, Smilek, & Eastwood, 2001). Perception of emotional expressions is a fundamental skill for daily life: A person who realizes that her boss is disappointed in her work, rather than pleased, may plan a more efficacious course of action. After all, accurately detecting emotional signals has increased the chances of survival throughout human evolution.

Murphy and Zajonc (1993) conducted one of the seminal works analyzing the effect of

subliminal affective priming on information processing. In a series of experiments, they compared the effects of two categories of priming stimuli (affective and cognitive), upon different exposure times (4 ms and 1000 ms) on liking rates, and judgments of objective characteristics of stimuli. More specifically, in one experiment, researchers primed participants either subliminally or supraliminally with angry and happy face; then they showed an ambiguous stimulus (Chinese ideographs) for 2 seconds, asking participants to rate how much they would like it. Results showed that the effect of priming was related to the length of exposure: In the subliminal condition, subjects exposed to priming of happy faces liked the target more than subjects exposed to angry faces; in the supraliminal condition, differences in liking rates after happy and angry face priming were not significant. Interestingly, when the judgment of the target referred to objective characteristics, such as its shape instead of liking rates, and subjects were primed with cognitive stimuli (circles, squares) rather than affective ones, the pattern of results was exactly the opposite: Participants' judgments were influenced only by the supraliminal prime. Overall, results suggest that affective evaluation may occur very fast and without awareness, whereas cognitive evaluation requires more conscious processing.

Along the same lines, Winkielman, Berridge, and Wilbarger (2005) hypothesized that subliminal presentation of angry versus happy faces would influence subsequent beverage consumption (study 1), and willingness to pay for the beverage (study 2). In study 1, after rating their level of thirst and hunger, subjects were subliminally primed with angry, happy, or neutral faces (exposure time 16 ms). Participants were then asked to indicate the gender of a visible target (exposure time 400 ms). Afterwards, subjects rated their current mood and arousal, and performed a drinking task in which they poured and consumed as much fruity beverage as they wanted.

Results showed that thirsty participants exposed to happy faces drank and poured

more beverage than participants exposed to angry faces. The effect disappeared when participants were not thirsty, revealing an interaction of affective and motivational factors, suggesting that automatic affective reactions may influence behavior under certain incentive conditions. Results were replicated in the second experiment in which subliminal priming of happy faces not only influenced participants' drinking behavior, but also their willingness to pay more for it.

Liddell, Williams, Rathjen, Shevrin, and Gordon (2004) investigated the effect of subliminal and supraliminal priming on emotional perception by analyzing event-related brain potentials (ERP). Faces with fearful and neutral expressions were presented either subliminally, with a stimulus onset asynchrony (SOA, the interval between the onset of the target stimulus and the onset of the masking stimulus) of 10 ms, or supraliminally, with a SOA of 170 ms, followed by a neutral masking stimulus. Ratings of emotion accuracy and intensity were collected after each stimulus presentation. Results showed that overall ERP responses were significantly larger and faster for fear expression, as opposed to neutral expression. Furthermore, the pattern of activation was different between supraliminal and subliminal exposure: Subliminal priming activated faster ERP reactions, indicating more rapid processing. Also, localization of responses was different in the two priming conditions, supporting the idea that processing of visual information may follow different pathways than conscious perception, a finding confirmed by other studies (Morris, Ohman, & Dolan, 1998). Finally, only supraliminal stimuli were consciously detected by subjects, as indicated by a post-test emotion identification task in which most participants correctly identified expressions of the target only in the 170 ms SOA condition.

In summary, research shows that individuals may perceive emotional cues even when stimuli are shown under the threshold of conscious perception. Furthermore, subliminal perception of emotional stimuli may affect cognition and behavior without conscious

awareness from the perceiver. Although much research has been conducted to show the pervasive characteristics and effects of subliminal perception, less has been done to show that individuals may differ with respect to how they respond to emotional cues subliminally presented. In fact, in reviewed studies researchers manipulated a stimulus to analyze effects on further information processing or behavior averaging data across all subjects within each experimental condition. In general, this is a good strategy when individuals are supposed to react in the same way to stimuli; however, when individuals differ, averaging may be misleading. A more accurate analysis may be conducted by introducing an individual difference variable. In particular, one of the components of EI is emotional perception, defined as the ability accounting for how people vary in their accuracy in perceiving emotions (Mayer & Salovey, 1997). High emotionally intelligent individuals might be more accurate than low emotionally intelligent ones to identify emotional stimuli subliminally presented because of their sensitivity to emotional cues.

Support to this claim comes from Matsumoto and colleagues (Matsumoto et el. 2000), who found stable individual differences in people's ability to accurately detect briefly displayed emotional expressions. The authors used the masking paradigm employed in many studies involving subliminal perception, with 56 pictures representing facial expressions of the basic emotions displayed for 200 ms and followed by the same person's neutral expression lasting 1 sec. Scores were collected according to the correct number of guessing of the emotion displayed. Importantly, the authors found that individuals who were more accurate in recognizing emotional expressions were also more socially effective. In particular, international students studying in the US who were good at detecting expressions of anger, disgust, and surprise in others were better at adjusting to the new social environment (Yoo, Matsumoto, & LeRoux, 2006).

Correct recognition of emotions, especially negative ones, may be a strong advantage

for guiding interpersonal relationships. Still, sometimes facial expressions may appear for as little as a fraction of a second, as it happens for microexpressions; hence, only those who are particularly responsive to emotions, or high EI individuals, can notice them and adjust their behavior to this perception, resulting in more efficacious social relations. High EI individuals are characterized by social effectiveness (http://www.unh.edu/emotional_intelligence/). Fast recognition of emotion cues might be the automatic process underlying this characteristic.

Automatic Processing in Using Emotion to Facilitate Thought

Research shows that mood influences the way individuals process information and make decisions: when in a good mood individuals are inclined to judge the target more positively than when in a bad mood. These mood congruency effects, consisting of judgments biased toward the current mood state, have been explained by the fact that emotional information activates thoughts in memory with the same affective valence (Bower, 1991; Isen, 1987).

Schwarz and Clore (1983) provide an explanation of mood congruency effects that does not involve memory processes. According to the mood-as-information theory, current mood is considered a source of information for the judgment at hand: Individuals rely on how they feel about the situation/target for making a decision, even when the feeling depends on unrelated factors. In fact, generally individuals are not able to distinguish between incidental feelings and feelings elicited by the target, drawing mistaken conclusions about it. When individuals question the relationship between their feeling and the object of judgment, mood congruency effects may disappear. Of note, according to this theory feelings do not always bias decision-making; they may serve as an accurate source of information when feelings are in fact attributable to the target, such as when they provide signals regarding the most optimal choice (Damasio, 1994). Yet, how do people realize when it is the case to trust feelings? The answer to this question lies at the core of EI. One way through which individuals may

distinguish when an emotional reaction is incidental – and therefore misleading – from when it provides information on the current situation may be related to questioning the source of emotional reactions and becoming aware of the possible effects of emotion on behavior. When participants realized the potential influence of primes on an impression formation task, contrast instead of assimilation effects were observed (Lombardi, Higgins, & Bargh, 1989; Newman & Uleman, 1990). Similarly, high EI individuals might be more skilled at using affective responses only when they matter. One way to test this hypothesis would be by comparing the effect of emotion priming on behavior in high and low EI individuals. In consideration of the fact that angry individuals tend to be more punitive in judging unrelated targets (Goldberg, Lerner, & Tetlock, 1999) one could induce a certain emotion, such as anger, and observe its effect on an impression formation task. High EI individuals would be expected to show evaluation less biased by anger than low EI ones when the target of evaluation is not related to the object of anger.

When feelings are not incidental and arise as an appropriate reaction to the current situation, individuals obtain better outcomes if they are able to attend to what they are feeling and integrate emotional experience into their decision process. In an investment simulation, Seo and Barrett (2007) found that investors who were better at describing and differentiating feelings related to the situation obtained better investment outcomes. In this specific case, affective experience was analyzed at the level of conscious description of feelings and their association to the task at hand, but other findings support that individuals may rely on feelings without having accessible introspection to their effect during the decision-making process.

For instance, Damasio's Somatic Marker Hypothesis (Damasio, 1991) is based on the assumption that decisions are guided by somatic sensations signaling the goodness of different options and directing attentional resources to the choice that is more promising.

Somatic markers may operate at an overt level, such as when individuals realize of their body changes and emotional reactions associated to the choice, or at a nonconscious level, such as when individuals are not aware of their body activity. According to Baumeister, Vohs, DeWall, and Zhang (2007) somatic markers represent the automatic affective response to the learned experience of having done something right or wrong; thus, in the authors' view, affective responses promote adaptive behavior through facilitation of learning.

Using a gambling task in which participants have to chose cards from four decks, two of which are more advantageous than the others, Carter and Smith Pasqualini (2004) found that individual differences in skin conductance responses before the disadvantageous choice predicted higher money gain. Individuals who performed worse tended to produce less intense markers. The authors did not measure EI, but it might have influenced results. High EI individuals might have stronger autonomic responses, not necessarily perceived at a conscious level of awareness, which guide their behavior. Such sensitivity to visceral sensation may represent a strong advantage for guiding behavior toward the most profitable choice, an advantage that individuals may possess to varying degrees.

In summary, much research emphasizes the effect of mood on cognition and behavior. The introduction of an individual difference variable may complement results. In fact, what is supposed to be a generalized effect of mood on performance might exert different effects in high versus low EI individuals. In particular, high EI individuals might be characterized by a more profitable use of mood/emotion as a source of information by either discounting its effect when the feeling is incidental, or integrating it within the decision process when the feeling is contextual. Subgroups of high and low EI individuals may be compared with respect to processes accounting for how emotion information is integrated into decision processes, for example by using physiological detectors as well as inducing emotion and observing its effect on behavior.

Automatic Processing in Understanding Emotion

People differ in the way they understand emotions. Some of them parse their emotional experience simply as pleasant or unpleasant, whereas others are able to differentiate nuances of feeling (Feldman, 1995). Although conscious processing is likely to play a major role in people's ability to understand their own and other people's emotion because interpretation of behavior highly relies on deliberate thinking, studies demonstrate that individuals may also understand emotions effortlessly and without conscious awareness. For instance, the literature on the chameleon effect (Chartrand & Bargh, 1999) shows that automatic perception of other people's gesture or behavior leads to imitation by the perceiver. Based on the same principle, studies conducted on mood contagion show that individuals unintentionally express emotion consciously and nonconsciously perceived in others (Hatfield, Cacioppo, & Rapson 1994). Individuals exposed to facial expressions react by spontaneously moving facial muscles (Dimberg, 1997): A happy face evokes *zygomatic major* muscle activity, related to the lips' movement to produce a smile, whereas a sad face evokes *corrugator surecilii* muscle activity, related to eyebrow motion indicating disapproval (Dimber & Thunberg, 1998). Dimberg, Thunberg, and Elmehed (2000) investigated whether perception of a facial stimulus presented outside of conscious awareness elicited emotional facial expression. Subjects were randomly assigned to one of three conditions: 30 ms presentation of happy, neutral or angry faces as the target stimulus, followed by 5 s presentation of neutral faces as the masking stimulus. A previous pilot test had shown that 30 ms stimulus presentation was not accessible to conscious perception. Facial EMG of *zygomatic major* and *corrugator supercilii* activity was recorded. As expected, subjects exposed to the happy-neutral combination showed higher *zygomatic major* activity than the neutral-neutral or angry-neutral combinations. Furthermore, subjects exposed to the angry-neutral combination showed higher *corrugator supercilii* activity than neutral-neutral and

happy-neutral combination. Overall, results confirmed that despite the conscious exposure to the same neutral stimulus, subjects showed more sensitivity to emotional facial expression displayed outside of conscious awareness.

Findings suggest that perceivers may not simply mimic expressions, but they also understand others' feeling, and experience the same emotion. For example, a study conducted by Neumann and Strack (2000) investigated whether imitating other people's emotional behavior led to experiencing the same emotion with no awareness of emotional contagion. More specifically, students took part in a laboratory session presented as an experiment on oral comprehension (Neumann & Strack, 2000; experiment 1). Subjects listened to 5-min philosophical text presentation and subsequently answered questions about their current mood and the content of the presentation. The oral presentation was manipulated so that the tone of the speaker was neutral, slightly sad, or slightly happy. Subjects were told to pay attention to the content of the presentation, to avoid their consciously noticing the emotional tone. Results showed a significant effect of mood manipulation on participants' mood ratings; simple contrasts revealed that after listening to the presentation, individuals exposed to the slightly happy tone condition reported higher ratings for happiness, as opposed to those exposed to the slightly sad and neutral condition. The fact that individuals reported feeling the same emotion the target was feeling suggests that they detected/understood other people's feeling. Thus, a possibility is that mimicry is the result of one's understanding of emotional messages. Another possibility is that mimicry arises from automatic imitation of someone else's expression, which induces an emotional reaction through the feedback elicited by facial muscles (Strack, Martin, & Stepper, 1988). In the latter case, individual differences in the ability to understand emotions would be caused by mimicry-related facial feedback, which, in turn, results in understanding others' emotions.[2] Both explanations emphasize the importance of mimicry as an automatic process underlying the ability to understand other people's

emotions.

Emotion understanding has been said to involve "the comprehension of the meaning of emotions, coupled with the capacity to reason about those meanings" (www.unh.edu/emotional_intelligence). Empathy, defined as the ability to recognize and feel what another person is feeling, was found to correlate with branch 3, understanding emotion (Mayer, Caruso, & Salovey, 1999; Mayer, DiPaolo, & Salovey, 1990), thus reflecting an aspect of EI (Mayer and Salovey, 1990). An individual differences study compared high and low empathic individuals with respect to mimicry reactions (Sonnby-Borgström, Jönsson, & Svensson, 2003). Angry and happy faces were presented at different exposure times: 17 ms, 56 ms, 2350 ms, with constant presentation order. The researchers varied exposure time to investigate the effect of different levels of conscious perception on mimicry. In a within-subject design, subjects looked at angry and happy faces, which were displayed 10 times at each exposure time. A masking picture was also shown for 63 ms after the target face, as a distractor. Level of empathy was measured using the Questionnaire Measure of Emotional Empathy (QMEE, Mehrabian & Epstein, 1972). The dependent variable was facial muscle activity, particularly the *zygomaticus major*, indicating smiling reaction, and the *corrugator supercilii*, indicating furrowed brow, recorded with electromyography (EMG). Mimicking reactions were defined as the correspondence between exposure to angry face and activity of the *corrugator supercilii*, and exposure to happy face and activity of the *zygomaticus major*.

At 17 ms exposure time results showed no mimicking behavior. At 56 ms, an ANOVA combining affective stimulus by empathy level revealed that, after being exposed to an angry face, high empathy individuals reacted with more *corrugator supercilii* activity than low empathy individuals; similarly, after being exposed to a happy face, high empathy individuals reported higher *zygomaticus major* activity than low empathy individuals. At 2350 ms exposure time, there was no interaction effect and a main effect was found only for

the *corrugator*. Although results of this study need to be carefully considered because of limitations regarding the design of the experiment – particularly lack of control for anxiety as a possible confound in detecting threatening stimuli – they suggest that individuals may differ in the way they react to emotional stimuli, and that their reaction may occur at an automatic level of processing. Assuming that emotionally intelligent individuals are also empathic persons, this study suggests that high EI individuals might more frequently mimic other people's behavior as a spontaneous indication of understanding others' emotions.

A way to make sense of how mimicry as an indicator of automatic understanding of others' emotions may be related to EI is by considering the social advantage of imitating others' behavior. Automatic mimicry as been proposed to function as "social glue" (Dijksterhuis, Chartrand, & Aart, 2007) in consideration of several studies demonstrating correlations between rapport/liking and mimicry of behavior. The fact that automatic mimicry may endorse affiliation is well demonstrated by Lakin and Chartrand (2003). In the first experiment the authors tested whether conscious and automatic affiliation goals led participants to mimic the target of affiliation. Participants were exposed to one of three experimental conditions: subliminal priming with affiliation words, such as 'friend' (automatic-affiliation goal condition); explicit indication that they would lately interact with a person to perform a task together (conscious affiliation goal condition); no goal indication (control condition). Soon after, participants observed the behavior of a confederate with the instruction to memorize her behavior. The confederate acted by touching her face several times; subjects were analyzed for how long they touched their face when watching the target. Participants in the two goal conditions – automatic and conscious – mimicked more than no goal condition, supporting the hypothesis that individuals use automatic strategies to pursuing their goal of which they may not be aware.

Importantly, in the second experiment the authors demonstrated that automatic

strategies may help individuals to succeed in their goal to be liked more by others: Participants automatically primed with an affiliation goal were liked more by a confederate (blind to the study) as a function of mimicking. The amount of mimicking was higher when participants had failed in a previous attempt to establish good interpersonal relationships, demonstrating that mimicking was used as an automatic strategy to create affiliation.

Better social relations characterize high EI individuals (Mayer, Roberts, & Barsade, 2007). Automatic mimicry might be the mechanism underlying individual differences in EI: high EI individuals might show more mimic, which in turn generate better social perception and better interpersonal relationships.

Automatic Processing in Managing Emotion

Managing emotion refers to the way individuals regulate emotions. Most of the time emotion regulation strategies help to maintain or induce positive affective states, and to avoid or reduce negative ones (for a review see Erber & Erber, 2001). However, depending on the adaptive function of emotion, regulation strategies may also serve a different purpose. For instance, individuals may delay immediate gratification when they think they can gain better advantages later on (Mischel, Shoda, & Rodriguez, 1989).

Since the pioneering work of Sigmund Freud (Freud, 1930/1961) on repression as a regulatory mechanism to suppress intolerable thoughts or memories, research has started to explore the role automatic processes play in emotion regulation (e.g., Mauss, Cook, & Gross, 2007). In addition, research supports the idea that repressors, defined as individuals showing discrepancy between levels of anxiety at the physiological and behavioral level (high) and at the self-descriptive level (low), are not aware of their reaction in stressful situations (Derakshan & Eysenck, 1999) and that the effect of such a discrepancy may be costly in the long term, causing negative health outcomes such as exhaustion. Conversely, more recent studies raised the point that automatic emotion regulation may be an efficacious way to

manage emotions at no cost (e.g., Mauss, Evers, Wilhelm, & Gross, 2006).

In two experiments Mauss, Cook, and Gross (2007) showed that subjects primed with words referring to controlling emotion reported no maladaptive cardio-vascular responses (experiment 2), and lower experience of negative emotion (experiment 1) than subjects primed with words referring to expressing emotion.

In experiment 1, students were primed with either 'control' or 'express' emotion strategy with the Sentence Unscrambling Task (SUT, Srull & Wyer, 1979). This task requires subjects to form four-word sentences from a list of five disarranged words. About half of the sentences contained either a 'control' or an 'express' synonym (such us 'impulsive' or 'restrain'). After the prime procedure, which was meant to activate the corresponding emotion regulation strategy, participants completed a mood questionnaire and were then involved in an anger provocation situation characterized by a tedious task and interaction with a noxious experimenter. A mood questionnaire concluded the experimental session, together with the debriefing. None of the participants was aware of the priming manipulation.

Results demonstrated that the 'control' prime affected participants' anger reaction, as demonstrated by subjects' lower anger ratings in the 'control' versus 'express' condition following the anger provocation. This result supported the hypothesis that automatic priming influenced emotion regulation strategy.

To corroborate the finding that emotion regulation may be automatically induced, and to further explore the idea that the effects of regulation are cost free in terms of physiological reactions – not only subjective reports – Mauss, Cook, and Gross (2007) conducted a second experiment. The procedure was similar to experiment 1, but an initial anger provocation was added to identify the baseline arousal of each participant, together with recording of physiological reactions. Results showed no differences in anger activation before priming; after priming, the group exposed to the 'control' condition reported less negative experience

of anger than the 'express' group, confirming previous results. But, no significant effect of priming on physiological response was observed. This result, on the one hand confirms that automatic regulation was done at no cost; on the other hand, it poses some concerns about the effect of the priming manipulation, in that one might have expected lower cardiovascular responses in the 'control' condition, compared to 'express' condition, rather than no effect at all.

Support for the idea that emotion regulation may rely on automatic processing comes also from individual differences studies. According to Koole and Jostmann (2004) two different styles of self-regulation may occur when people deal with emotional response: state orientation, which maintains the status quo by passively enduring the emotional state, and action orientation, which actively regulates affective states. Individuals high in action orientation are supposed to be skilled in *intuitive affect regulation*, which refers to an automatic form of affect regulation activated only in potentially stressful situations with the purpose of improving mood. To assess the effect of intuitive affect regulation, Koole and Jostman used the paradigm of the face in the crowd (Ohman, Lundqvist, & Esteves, 2001), in which participants, after filling out a questionnaire designed to identify their action or state orientation, were asked to identify a single discrepant face among a crowd of identical ones. Action-and state-oriented individuals were first engaged in a visualization task in which they had to recall either a demanding or accepting person from their past experience (Koole & Jostmann, 2004; experiment 3). Then, they were exposed to 3 x 3 matrices of either identical faces (happy, neutral, or angry), or 8 identical and one discrepant face (happy, neutral, or angry). They had to press a different button when the faces were all the same, or one was discrepant.

In performing this task, individuals are generally faster to indicate when an angry discrepant face is present, due to higher receptivity to threatening stimuli (Ohman, Lundqvist,

& Esteves, 2001). This effect was found in both state- and action-oriented subjects; additionally, and as expected, the researchers found that action-oriented individuals were quicker to detect happy faces in a crowd of angry ones after visualization of a demanding person, but not after visualization of an accepting person. State-oriented individuals displayed no difference in the two visualization conditions. This finding demonstrates that action-oriented individuals, presumably relying on intuitive affect regulation, were more efficient to switch from negative to positive affect – indicated by quicker detection of a happy face in a crowd of angry ones – as a strategy to mitigate negative emotions.

Moon and Lord (2006) investigated the effect of individual differences in fast and slow emotion regulation processes on task performance. They tested the hypothesis that fast emotion regulation processes (FERPs), but not slow emotion regulation processes (SERPs), predict performance on a task characterized by emotional involvement; furthermore, individual differences in FERPS were expected to predict performance beyond intelligence and self-report measures of emotions. The assumption underlying 3 studies Moon and Lord conducted was that FERPs work by inhibiting or suppressing inappropriate emotions when individuals cannot spend much effort on the task at hand; for this reason, individuals highly skilled in FERPs were expected to perform better in tasks characterized by need for fast or automatic emotion regulation. The first study and the other two follow-ups were based on the same procedure, which was meant to measure individual differences in FERPs : Participants watched for 150 ms two stimuli presented on the screen conveying opposite emotions (i.e., a happy and a sad face); they were instructed to pay attention to one (the target) and ignore the other (the distractor). Afterwards, a lexical decision task required participants to indicate whether a word was meaningful or not; the word was either consistent (e.g., the word sad after a sad face) with the target, consistent with the distractor, or unrelated to both (control condition). Participants' reaction times (RT) to the lexical task, in particular time taken to

process the distractor-congruent words, were considered indicative of effectiveness of suppression mechanisms; individual differences in RT were also considered. The criterion measure was performance on two tasks requiring fast emotion regulation: a scrambled sentence task, in which participants were instructed to correct spelling errors without paying attention to the content of the text and an editing task, in which participants had to form any sentence using only emotionally negative words. To investigate the effect of emotion suppression in fast and slow emotion regulation processes, researchers manipulated the SOA between the two tasks, using intervals of 350 ms (supposed to activate FERPs), and 2000 ms (supposed to activate SERPs). Both tasks were characterized by high emotional content – which could in principle interfere with performance, if not controlled, because subtracting attention from the main task – and time pressure.

Results showed that performance was predicted by individual differences in RTs to the distractor-congruent word in the lexical task, indicating an effective suppression mechanism. Furthermore, and as expected, results were significant in the 350 ms SOA condition, i.e. at a subliminal level, but not in the 2000 ms condition, demonstrating that suppression of inappropriate emotions was effective only during fast emotion regulation processes. Finally, in line with hypotheses, individual differences in the ability to suppress emotions during FERPs predicted performance after controlling for conscientiousness and verbal intelligence.

Most of the literature on emotion regulation focuses on intentional strategies individuals use to influence their emotional state. Although effortful strategies play a relevant role in emotion regulation, studies I have presented demonstrate that emotions may be regulated automatically. Introducing EI as an individual difference construct, findings suggest that high emotionally intelligent individuals might be more efficacious than low emotionally intelligent individuals at automatically regulating emotions for better outcomes and to pursue their self-regulatory goals.

For instance, in a similar vein to Koole and Jostman's research (2004) Chartrand, Dalton, and Cheng (2005) found that participants who failed at automatic goal pursuit (that is, at successfully resolving an anagram task when they were told to do their best) were more likely to engage in self-enhancement to maintain self-esteem as an implicit strategy to correct for negative emotion generated by failure. EI was not measured in this experiment, but there might be differences in the level by which individuals engage in automatic self-enhancement. High EI individuals tend to have higher self-esteem (Brackett et al. 2006). Automatic self-enhancement might be the mechanisms through which some individuals, high EI ones, preserve high self-esteem.

Reconceptualizing EI within a Process-Oriented Approach

A look at the emotion and social cognition literature has revealed that the conception of EI as composed of a set of abilities to deal with emotion based solely on reflective mechanisms appears too restrictive: Affective reactions are processed instantaneously and may influence behavior with no or little involvement of conscious thinking.

Furthermore, considerations on the mechanisms involved in emotional processing have raised the possibility that individuals may differ with respect to how they engage in emotional processing. Research on the perception-behavior link (Bargh 1990; Bargh & Chartrand, 1999) emphasizes the ubiquitous effect of automatic activation of concepts on congruent behavior: Participants subtly primed with word referred to rudeness were more likely to behave rudely (Bargh, Chen, & Burrows, 1996).

EI and the underlying core mechanisms of emotional processing may be conceived as of the factor(s) intervening between perception and behavior when the stimulus to be perceived is emotional or has hedonic valence (Figure 1). The assumption is that perception of emotional stimuli does not exert the same behavior in all individuals: Some people may behave less rudely than others after being primed with rudeness because they integrate

emotion with thought and action in a more profitable way, so as to make their behavior more effective with respect to the context. These are high emotionally intelligent individuals.

According to this conceptualization, understanding individual differences in EI implies analyzing the steps involved in emotional processing: they include reacting to a stimulus as the first affective response; paying attention to physiological reactions activated by the stimulus and integrating them with current judgment; and understanding the effect of an affective reaction on behavior and regulating its magnitude by either intensifying, lessening, or maintaining it. The steps involved in emotion information processing, which by and large map into the four branches identified in Mayer and Salovey's model, may occur with no particular order during an emotional episode and are thought of as basic phases of emotional processing common to all individuals (Gahm & Clore, 2000). Still, "for any psychological mechanism or process proposed by a theory, there may exist individual differences in the tendency or ability to engage this mechanism or process" (Gohm & Clore, 2000, p. 682). Individuals may be more or less sensitive to emotional cues, they may differ with respect to the ability to discriminate feelings and integrate them as a source of information for judgment, and they may vary in their ability to regulate emotional reactions. In addition, because each step of emotional processing may be executed consciously and automatically, individuals may differ with respect to how they engage in each type of processing.

A Dual-Process Framework

According to dual-process models (e.g., Devine, 1989; Smith & DeCoster, 2000), behavioral and emotional responses depend on the interplay between conscious and automatic processing. Specifically, event perception elicits information processing characterized by low cognitive effort, and no conscious awareness; automatic processing is accompanied or followed by conscious processing, which may adjust the initial perception by

means of cognitive resources. The framework of dual-process models may be used to describe EI in that both conscious and automatic processes characterize emotion processing and contribute to successful emotion-based performance. In this section I explore how.

Automatic processing has evolved as a highly adaptive function. Without it individuals would not be able to handle the large amount of information that needs to be processed for executing daily activities. Automatic processing may sometimes result in undesirable effects. The literature on stereotypes well documents the risks of relying heavily on automatic processing. At the same time, individuals who are able to manage emotional reactions effortlessly and with no need for conscious attention have an advantage compared to individuals who do not, because they end up having additional resources at disposition that may be useful for other purposes.

So far I have used automatic as an umbrella term indicating processes underlying automaticity that posses different characteristics. Automaticity has been defined as uncontrollable, unintentional, efficient, and occurring outside of awareness. These features hardly occur in an all-or-none fashion, being the most common scenario the one in which a process may possess some features of conscious and some of automatic processing (Bargh, 1994). Because automaticity is not a unitary concept (Evans, 2008; Moors & De Houwer 2006) and its feaures are conceptually distinct, considerations about its occurrence may change according to the specific features analyzed.

Hence, to understand the role of automatic processes in EI it becomes important to focus the attention on one feature only. The characteristic of automaticity I believe is most relevant to EI is awareness. Processes occurring below awareness are also known as 'unconscious' (Moors & De Houwer, 2006) and from now onward I will use this term accordingly. Unconscious may refer to different aspects of emotion as individuals may be (un)aware of: a) the *causes* of emotion, that is, of emotional cue in the environment that

elicited the emotional reaction; b) the *content* of emotion, that is, the emotion they felt (anger, happiness, contempt etc.); c) the *effect* or consequences of emotional reaction on cognition and behavior. Each aspect of awareness involves different unconscious processes, and as such, requires a different paradigm of investigation.

Awareness of the *causes* of emotion is concerned with studying processes of emotion perception that may not require consciousness to elicit emotion processing. These processes may be investigated with the subliminal perception paradigm, that is, varying stimulus' presentation time in a way that allows for observing how individuals differ in accuracy of perception and its effect on behavior when the stimulus is presented under the threshold of conscious perception. Awareness of the causes of emotion involves also the analysis of processes of allocation of attention. Theories of selective attention (Broadbent, 1958) point out that individuals possess attentional mechanisms that focus on some information in the environment instead of others. Allocation of attentional resources to emotional stimuli triggers emotion processing that eventually affects cognition and behavior. Still, individuals who do not respond to emotional cues do not start emotion processing in the first place. Thus, exploring differences in allocation of attention to emotional stimuli may reveal the origin of individual differences in EI.

Awareness of the *content* of emotion concerns the study of processes of differentiation of affective reactions and integration of body sensation into information processing. Individuals who are better at detecting body changes experience feelings more intensely (Wiens, Mezzacappa, & Katkin, 2000). Introspective sensitivity to body changes was found to be related to better detection of subliminal emotional stimuli and better anticipation of electric shocks (Katkin, Wiens, & Öhman, 2001). Furthermore, the ability to discriminate emotions was associated with several positive outcomes, such as successful emotion regulation and better decision-making (Barrett & Gross, 2001; Seo & Barrett, 2007).

High EI individuals, as measured by the MSCEIT, were better at heartbeat detection (Schneider, Lyons, & Williams, 2005). Collectively, this line of research highlights that awareness of emotional reactions is an important requirement for using emotion appropriately. Yet, individuals may not be aware of what they are feeling; of note, this fact does not compromise the effect of emotion on behavior.

Awareness of the *effect* of emotions is concerned with studying accessibility of beliefs about emotion and the effect of such beliefs on behavior. Knowledge of the effect of emotion remains largely inaccessible to individuals (Cleeremans, 2004) and may be at the origin of biased behavior. Individuals formulate beliefs about the causes and effects of emotion that eventually are used to explain their own and others' behavior in the form of lay theories. As demonstrated in the seminal work by Nisbett and Wilson (1977), these naïve explanations may be very little or not at all related to the real determinants of conduct. Instead, having a more accurate representation of emotions and, in particular, of the possible effects of emotion on behavior may prevent unwanted effects and foster better adjustment to the context. Realizing that primes may influence impression formation, participants reacted with contrast instead of assimilation effects (Lombardi, Higgins, & Bargh 1987; Newman & Uleman, 1990). Furthermore, individual differences in implicit theories of emotion predicted better socio-emotional adjustment (Tamir, John, Srivastava, & Gross, 2007); in particular, students who believed that emotions were malleable had a better transition to college than students who believed them to be fixed and not subject to control. Knowledge of the causes and effects of emotion characterizes high EI individuals, as indicated in Mayer and Salovey's theorization and findings (Mayer & Salovey, 1990).

The first step for understanding automaticity in EI is identifying which aspect of the unconscious (cause, content, effect) is subject to investigation. The next is looking into the pathways through which a process may or may not be associated to awareness. The

assumption is that unconscious processes may be of different kinds and, importantly, they may be linked to emotionally intelligent behavior through different psychological mechanisms (Figure 2).

Preconscious processes are characterized by a lack of awareness at a given time, but may become conscious when attention is directed to them (Baars, 1988), which means that these processes are potentially accessible. The hypothesis I made that high EI individuals may have higher sensitivity (or attention) to emotional cues implies that for these individuals preconscious emotion processes related to the cause, content, and effect of emotions on behavior may more easily enter awareness and become a source of information for decision-making and accurate perception of others' emotions. According to that, high EI individuals are characterized by an awareness of emotional aspects that in common people are not accessible. Individual differences in preconscious processes underlying EI may be investigated with free verbal reports regarding situations in which individuals are encouraged to come up with explanations of the way emotions may influence behavior.[3]

Of a different nature are processes that may not become aware even when attention is directed to them. An example of these processes, that herein I will call *implicit processes*, are mental processes, such as rapid affective appraisal leading to emotion or intuitive affect regulation processes as described by Koole and Jostman (2004), in which the input stimulus or the process may not reach the threshold of awareness because too fast to be perceived or because structurally inaccessible to awareness. Individual differences may emerge through experimental tasks that look at the occurrence of the process with indirect measures, that is, making inferences on the process on the basis of its effect on performance. Appropriate awareness checks (see Bargh & Chartrand, 2000) should be used to make sure that awareness was not implicated.

Finally, another kind of unconscious processes regards skill-based or learning-based

processes that have also been labeled by some scholars as automatic (Logan, 1992) and that I will call *automatized* to differentiate them from the automatic processes with a generic connotation that I have used throughout the manuscript. Automatized processes develop with practice and involve changes in awareness as a function of automatization. They may start as preconscious processes. For instance, before I was talking about the importance of being aware of the effects of emotion on behavior as a way to prevent unwanted emotion contagion. Awareness of effects of emotion may be conceived of as a preconscious process that becomes accessible under certain conditions: The more you pay attention to emotional aspects, the more you are likely to use emotional information in your decision process. Still, knowledge of the effects of emotion, once inferred from instances and experienced through effortful and conscious processing, may become 'automatized' and guide behavior as an habitual response (Bargh & Gollwitzer, 1994). Habits, as a form of goal-directed automatic behavior, may be activated without conscious awareness (Aarts & Dijksterhuis, 2000); this implies that the simple presence of emotional cues may be sufficient to activate the habitual response that, in high EI individuals, corresponds to highly adaptive behavior. Baumeister, Vohs, DeWall, and Zhang (2007) propose that consciously experienced emotions leave in memory the trace of the behavior associated to a certain situation; when a similar situation is encountered, the same emotion is automatically activated as a guide for behavior. Logan (1988) describes automatized performance according to a single-step memory retrieval account: Initially individuals perform a task going through a series of steps, or if-then rules, connecting the input to the production of the output. With practice, an association between the input and output is formed in memory so that once the input is perceived, the output automatically follows bypassing the intermediate steps. The fact that automatized performance results from direct association of input and output suggests that the intermediate steps may not be consciously accessible. Hence, methods based on conscious recalling of the steps executed

during performance, such as guided recall or 'think aloud' protocols (Ericsson & Simon, 1998), may not reveal all the pathways leading to unconscious behavior; indirect measures based on speed of execution in which proof of automaticity is detected by rapidly performing emotion operations would be a good complementary solution.

The distinction of different types of unconscious processes is fundamental to identify the source of individual differences in EI. Furthermore, as illustrated in Figure 2, it provides directions on which assessment methods, such as direct and/or indirect measures,[4] would be most appropriate to detect variability in emotionally intelligent performance. Notably, the various EI subabilities are likely to rely on more than one type of unconscious process, with each of them following a different route to automaticity.

For instance, the source of automaticity of 'Perceiving Emotion' may be dissected as having preconscious, implicit, and automatized components. The preconscious component is the one responsible for the detection of emotional information in the environment without the individual being mindfully conscious of doing that. Individual differences could be analyzed by asking individuals to spontaneously recall emotional details of a situation or come up with explanations regarding the effect of emotion on behavior; high EI individuals would be expected to have greater awareness of emotional stimuli and their effect when attention is directed to them. Implicit processes in Perceiving Emotions come into play when individuals incorporate emotional information in the environment into thinking processes or behavior without being able to report that they have done so. Here, individual differences could be investigated using the subliminal presentation paradigm in which the presence of implicit processes would be revealed indirectly by the effect of the stimulus on subsequent performance/behavior, with the assumption that high EI individuals should manifest higher effects when the stimulus is emotional. Automatized processes may also play a role in Perceiving emotion. For instance, there is evidence that individuals may be trained to

consciously recognize microexpressions (Ekman, 2003). Emotional signals that initially escape awareness may become detectable through attention and learning. Yet, once individuals become experts in doing that, they may perceive emotional signals without being aware of their perception as the result of automatization.

A line of research that well illustrates the different components of unconscious processes in EI is the one on lie detection. Experts in detecting deception may be considered examples of high EI individuals, particularly because of their use of nonverbal emotional cues to understand others' true intentions and feelings (see O'Sullivan, 2005). Several studies assessed people's ability to detect deception in experts such as police officers and individuals from law-enforcement agencies. On average, people's ability to detect deception is slightly above chance (Bond & DePaulo, 2006); good lie detectors use more nonverbal cues and microemotional signals, such as foot movement changes or variations in size of the pupils, to understand whether the person is truthful or not (DePaulo et al., 2003). From the analysis of the strategies used to identify liars, it was found that some of them were conscious and directly accessed by experts, such as observing liars' eye gaze, which is also a strategy recommended in popular forensic textbooks (although not very helpful in deceiving liars); other strategies emerged through procedures that encouraged participants to think aloud and disclose the strategies they followed to catch deception. Indeed, some strategies are based on 'preconscious' processes, that is, they may become accessible through deep thinking about it and attention.

Of note, the fact that lie-catchers may access mental processes does not necessarily imply that those processes led to the correct detection. A growing body of evidence points out to that lie detectors may fail when asked to make explicit assessment of veracity and succeed more often when truthfulness is assessed through indirect measures, such as judging how much the liar was sympathetic, which captures a more spontaneous and immediate

evaluation of the target than the systematic approach of the 'think aloud' protocols (Granhag, 2006). Collectively findings suggest that there may be aspects of lie-detection that escape conscious thinking and direct recall of strategies used to make a decision, but rely on gut feelings and intuitions as the main source of the correct decision (DePaulo & Morris, 2004; Granhag, 2006). It seems likely that such aspects are related to what Lieberman calls 'social intuition' (Lieberman, 2000), or the ability to make inferences about others' feelings and intentions without having a conscious understanding of how these inferences were originated.

The idea that behavior may be efficient and 'intelligent' without awareness is somehow counterintuitive: In the social psychology literature, unconscious processes are often associated with negative outcomes, such as prejudice and stereotyping. However, unconscious processes may lead to positive as well as negative outcomes depending on the characteristics of the individual, such as the content of the mental representations related to emotion, and the characteristics of the context. In fact, once a stimulus - whether coming from the internal world or perceived in the environment - activates emotion processing, emotion information may be processed without the perceiver being aware of its occurrence. At that point, what makes the difference between emotionally intelligent and emotionally unintelligent behavior is (a) the accuracy of beliefs relating emotion to behavior, which may have become tacit, that is, used in practical behavior but difficult to verbalize, and (b) how much such beliefs apply to the current situation.

Mechanisms of emotional processing are supposed to be the same for all individuals, but individuals differ with respect to the level of awareness by which emotion information is processed and the content of emotion processes, which influence whether the outcome is positive or negative. Individuals with chronic egalitarian goals were able to counteract the activation of stereotypes (Moskowitz, Gollwitzer, Wasel, & Schaal, 1999). Similarly, high EI individuals might have more accurate lay theories about the influence of mood/emotion on

behavior, which inform their conduct. Accurate lay theories include the acknowledgement that emotion may or may not relate to the target of evaluation, with consequences on how emotion reactions are integrated into decision-making and, in turn, affect behavior. With practice, managing emotions according to accurate beliefs might have become an unconscious and efficient source of 'intelligent' emotional behavior, as opposed to relying on mistaken lay theories as a guide for behavior in low emotionally intelligent individuals. Note that in this case the preconscious process of knowing of the effect of emotion on behavior would become accessible to awareness through attention and, after extensive practice, reach again the condition of unawareness due to highly proceduralized or automatized behavior.

Individual factors, such as knowledge about emotion, are not the only ingredients influencing emotionally intelligent behavior: contextual factors also play a role. Contextual factors may provide cues to make the automatic response 'situated', as emotion concepts are not context-free and knowledge of appropriate emotional reactions originates in the context where such reactions occur (Barrett, 2006). Indeed, automatic responses are not immutable and rigid, but they are sensitive to the characteristics of the context as well as other characteristics, such as the perceiver's goals and focus of attention (Blair, 2002). Cervone and colleagues found that some aspects of self-knowledge were relevant to certain contexts, but not others (Cervone et al., 2008). The knowledge appropriate for the situation at hand may be activated by environmental cues. For instance, Macrae, Bodenhausen and Milne (1995) found that the same stimulus (a Chinese woman) could be automatically categorized in different ways (woman or Chinese) depending on contextual cues, such as chopsticks or makeup. The ability to use the right emotion knowledge in the right place at the right time is an important characteristic of high EI individuals as the positive outcome of emotion-based performance often depends on the context in which behavior occurs. Showing empathic reactions may be appropriate in cultures valuing emotion expressivity, but not in that endorsing emotion

suppression. The choice of which emotion content to bear on in a given situation may be done unconsciously and through integration of 'background' information, such as cultural norms, or peripheral emotion cues, such as faces expressing emotion as opposed to unexpressive faces.

Another way in which contextual factors may influence emotion-based performance is by providing the conditions that enable conscious and automatic processing to occur. In general, any behavior is the result of both processes. Still, conscious processes are more likely to play a major role when there is plenty of time and availability of attentional resources; in such circumstances individuals may be able to consciously perceive stimuli and reflect on the effect of this perception on cognition and behavior. Conversely, when resources are scarce, such as when attention is captured by many stimuli at the same time or the person is engaged in multiple tasks, then automatic reactions are unlikely to be modified by conscious ones.

In summary, a deeper understanding of which processes might constitute EI requires specification of which aspect of automaticity is under consideration and the mechanisms associated to it. Analysis of the awareness aspect has revealed that processes related to being aware of the cause, content, and effect of emotion requires distinct considerations and paradigms of investigation; furthermore, the exploration of the mechanisms associated to awareness or lack of it has uncovered some important source of individual differences in EI. As far as regards the issue of how the discussed automatic mechanisms may contribute to successful emotionally-based performance, I have proposed that both individual and contextual factors play a role.

The New Look of EI: Considerations on How to Investigate It

The picture of EI emerging from the analysis of automatic processes in affective experience is quite complex: Emotion processes underlying EI may be executed consciously

and automatically, interrelate with each other, and contribute differently to performance according to the characteristics of the person, such as sensitivity to emotional cues or beliefs about emotions, and characteristics of the situation, such as availability of attentional resources and contextual features in which the stimulus is embedded.

Mayer and Salovey's theory of EI has focused on analyzing individual differences in how individuals mindfully reason with emotion and reflectively use emotion to enhance thinking and behavior. Still, emotion processing includes automatic processes. To move forward, EI theory needs to take this fact into account as the first priority. In addition to developing models of EI that contemplate automatic emotion processing, researchers should specify which aspect of automaticity is the object of investigation and which processes contribute to it. In the present manuscript I have emphasized the feature 'unconscious' over the other characteristics of automaticity; yet, a thorough analysis of the contribution of other aspects - particularly of efficiency - to emotionally intelligent behavior would also be advisable to further explore the automatic component of EI.

Concerning the issue of how to assess individual differences in automatic processes underlying EI, herein I suggest a way to proceed in this direction. It takes inspiration from what was called the cognitive correlates approach in cognitive psychology (see Pellegrino and Glaser, 1979) and is based on investigating emotion processes that are differentially related to high and low EI individuals.

Groups of high and low emotionally intelligent individuals are identified and their performance in laboratory tasks is compared to see whether individuals differ with respect to how they process emotion information. Subgroups may be arranged according to scores on the EI test (the MSCEIT, being the most reliable ability test in circulation). Alternatively, a criterion measure different from performance on the MSCEIT may be employed to identify high and low EI individuals. In fact, as already mentioned, the risk of using an assessment

method mainly tapping into declarative knowledge of emotion such as the MSCEIT, is that individuals who have highly proceduralized emotion knowledge do not necessarily fall into the group of those who score high on the MSCEIT. A way to avoid this risk is to use an external criterion for identifying groups of high and low EI individuals. For instance, patients suffering from expressive agnosia, which is a pathology characterized by the inability to distinguish facial expressions, intonation and body language in others, or patients suffering from alexithimia, which is a deficit in describing and understanding one's feelings, may represent the group of low EI.

On the other extreme of the spectrum, highly emotionally skilled individuals might be identified according to a specific domain. In the domain of emotion understanding I already mentioned the experts in deceiving deception. In the domain of emotion regulation, good performers are those who are able to regulate their feelings according to the situation and use feelings to pursue their goal. Professional actors or professional athletes might well fall into this group as individuals who need to regulate feelings and use them appropriately to be good performer in their profession.

Once target groups are identified, assessment methods may be compared within and between groups to understand how high and low EI individuals process emotion information. In choosing which laboratory task to use, researchers should consider which aspect of automaticity they are interested in and what underlying mechanism is associated to its occurrence. Considerations on the former define the domain of automaticity; on the latter provide information on whether individual differences in EI are more likely to occur at the conscious or automatic level. Furthermore, researchers should also bear in mind the correspondence between the task they pick and the subabilities of EI the task refers to. For instance, the subliminal perception paradigm may be used to identify individual differences in Perceiving Emotion. Subliminal priming is based on displaying emotional pictures at very

brief presentation time immediately followed by a mask that has the function to delete the image of the prime in visual memory after the stimulus has disappeared. The hypothesis to test would be that high EI individuals are more sensitive than low EI ones to emotional, but not neutral, stimuli. Of note, the fact that a laboratory task is chosen to map into a specific subability of EI does not imply that correlations with the other subabilities would not be expected. In fact, experimental tasks are meant to tap into mechanisms of emotion processing, which may all be related to the abilities included in EI. Thus, accuracy in subliminal perception of faces would be expected to correlate with emotion perception as well as emotion regulation because individuals may regulate their behavior according to emotional stimuli perceived in the environment. Similarly, emotional contagion may be analyzed as a process common to emotion perception as well as emotion understanding because it may indicate perception of emotion in others but also interpretation of others' emotions.

Suggestions about which laboratory tasks may be better suited to study processes underlying EI come from the literature of priming and automaticity in social cognition (see Bargh & Chartrand, 2000) and personality psychology (see Robinson & Neighbors, 2006). Laboratory tasks are based on indirect (or implicit) methods; that is, they rely on performance of mental processes as a measure of individuals' characteristics as opposed to direct (or explicit) methods based on introspection and self-ratings. Because I already mentioned tasks that may be employed to analyze the unconscious aspect of automatic processing in EI, I will now turn to describe tasks well suited for testing other two aspects of automaticity, named efficiency and unintentionality.

Being able to allocate processing resources to certain stimuli instead of others may be an important factor influencing emotionally intelligent performance. Attention determines where emotion processing starts. High EI individuals might have a preference for allocation

of attentional resources to emotional stimuli. Earlier I mentioned the relevance of paying attention to what one is feeling as a way to either integrate emotional reactions into thinking processes/decision-making and to regulate intensity of feeling (Seo & Barrett, 2007). Attention to emotional signals may be helpful to perceive microemotional signals that guide interaction with others, as Matsumoto and colleagues demonstrated (Yoo, Matsumoto, & LeRoux, 2006). Some measures of attention allocation employ time taken to react to a stimulus as an indication of the amount of resources devoted to it and for this reason are suitable for assessing the 'efficiency' aspect of automaticity. The lexical decision task is an example of such measures. Strings of letters that spell as a word or a nonword are presented and subjects indicate whether the string is meaningful or not. The claim that EI individuals automatically allocate attention to emotion stimuli implies that high EI individuals should be quicker to recognize a string that spells as an emotion word compared to nonword and neutral word spells. To distinguish the contribution of automatic and conscious processes on emotionally intelligent performance it would be helpful to vary the level of conscious awareness in each task, in a similar vain to the contrastive analysis proposed by Baars (1988).

Other tasks helpful in revealing underlying processes are based on the manipulation of attentional demands. High EI individuals are characterized by using less cognitive effort to solve emotional problems (http://www.unh.edu/emotional_intelligence/). This claim may be tested using the dual-task paradigm: Subjects are asked to perform two tasks at the same time under conditions of loaded attention capacity (see also Gilbert, Pelham, & Krull, 1988 on cognitive busyness). An emotional task is automatic and efficient to the extent that it may be completed without being affected by a secondary task. One could test whether high EI are as effective in understanding someone's feeling when under cognitive load as opposed to a situation in which they have full attentional resources available.

Beyond attention allocation, accessibility of chronic beliefs about emotion is another

process underlying EI that might be analyzed with laboratory tasks. Chronically accessible constructs are those that are habitually activated. The association between representation of a situation and related behavior is strengthen with frequency of use and may become automatic and occur outside of awareness with practice (Bargh & Gollwitzer, 1994). Mental representations that individuals use to guide behavior are also known as naïve theories and, as a form of schemata, contain both declarative and procedural knowledge (Snow & Lohman, 1989). Accessibility of schemas is increased by saliency and priming, and schemas are activated without intention and awareness. Inferences about the structure of schematic knowledge are based on assessing response time to associate emotion constructs. For instance, subjects may be required to decide as quickly and as accurately as possible which emotion may have influenced behavior in a certain situation: Speed of association is taken as an indication of accessibility of the emotion-behavior connection (Robinson, 2004). The ease with which individuals spontaneously come up with explanations of behavior may be another way to identify implicit theories about emotion, as is spontaneous recall of emotion details referenced in explanations of behavior. Because the activation of certain associations in memory is spontaneous, these techniques may be employed to reveal the unintentional component of automaticity in emotionally intelligent behavior.

In summary, research in areas akin to EI provides insightful suggestions about how to expand the study of EI to include underlying processes. Laboratory tasks may be much more informative for understanding the nature of EI than the correlational studies that have dominated the field so far. Their employment is fundamental to reveal the underpinnings of a complex and fascinating construct such as EI.

Implications for Future Research: A Research Agenda

About thirty years ago Underwood (1975) suggested analyzing psychological processes in light of naturally occurring individual differences. More recently, the issue of

combining a process-oriented and an individual differences approach has been raised in emotion research (Gohm & Clore, 2000; Larsen, 2000): As a way to deepen the study of hypothesized processes, researchers are encouraged to not only manipulate variables, but also measure characteristics in which individuals may differ. In the present work I proposed to put into action this advice with respect to the study of EI. I contend that the analysis of individual differences in EI should be complemented by the investigation of how processes underlying EI operate in high versus low EI individuals.

Within a process-oriented approach, I outlined a framework based on the distinction between conscious and automatic processes and discussed the importance of dissecting the automaticity component of EI according to the features of, as well as the mechanisms associated to awareness. This new look at EI expands and complements Mayer and Salovey original theorization in several ways: By looking into the processes underlying EI, it sheds light on mechanisms that might be responsible for differences in emotionally intelligent behavior, an aspect that has received little attention from current theorization and research. By investigating the relevance of automatic processing, and its interplay with conscious processing, it challenges the idea that EI should be thought of as a construct pertaining to the domain of consciousness. By combining a process-oriented and a differential approach, it expands the study of individual difference to the investigation of processes underlying such differences.

Importantly, the present contribution provides a framework to guide further investigation in the field. Indeed, if automatic processing plays a role in EI, as I argue in this paper, then current research is missing an important aspect accounting for the construct and a source of variability in emotionally intelligent performance. Further research should take into account automatic processing to develop theory and assessment of EI.

Evaluating Construct Validity of EI

Research should test the validity of the construct of EI as defined by conscious and automatic processes. The assertion that both conscious and automatic processes constitute EI would be supported if different methods used to measure EI converge toward the same underlying construct. More specifically, measures of EI such as the MSCEIT, and measures based on laboratory tasks such as the subliminal affective priming, should converge toward the same construct of EI.

A multitrait-multimethod approach (MTMM; Campbell & Fiske, 1959) may be employed to test convergent validity. MTMM analyzes intercorrelations among two or more traits or constructs, and two or more measurement methods. With respect to EI, multiple traits would be the four abilities or branches of Mayer and Salovey (1997) model, whereas the 2 methods would be measures based on conscious and automatic processing . By means of the correlation matrix between traits and methods, different patterns of relationship among variables may be analyzed, such as correlations between the two measures of EI for each trait, and correlations among the four abilities of EI within each method. Furthermore, the use of Confirmatory Factor Analysis (CFA) to MTMM data allows to compare the goodness of fit between predicted and observed models representing the construct (Marsh, Martin, & Hau, 2006). Competing models may be tested against each other as far as regard the expected overlapping of automatic and conscious processes. Measures based on conscious and automatic processes would be expected to show a mild correlation with each other; in fact, no task is process pure (Jacoby, 1991) and both type of processing are expected to influence any performance to some extent. Moreover, measures of conscious and automatic processes would be expected to load on the higher order factor of EI and correlate with more than one subability due to the fact that some underlying emotion processes may be in common with more than one subability of EI.

Assessing Incremental Validity of EI

The distinction between conscious and automatic processes calls for testing the incremental validity of EI. The issue of whether EI predicts outcomes such as quality of interpersonal relationships, successful career, or academic achievement beyond personality and intelligence is controversial. Among research conducted on the ability model, some authors found support to incremental validity of EI (Lopes et al., 2004; Lopes, Salovey, & Strauss, 2003), while others found less encouraging results (Amelang & Steinmayr, 2006; Brackett and Mayer, 2003).

The reconceptualization of EI according to a dual process framework provides another way to approach the issue: A portion of unexplained variance of previous studies might be accounted for by automatic processes, a component that, to the knowledge of the author, has never been included in any study on EI. In light of results found in research on the relationship between implicit and explicit processes in social and personality psychology (Perugini, 2005), I expect that automatic processing will account for unique variance in the criteria. Still, the weight of automatic processes depends on which performance conditions are appraised. Automatic processing should predict spontaneous emotionally intelligent behavior or behavior under scarce attentional resources, whereas conscious processing should predict deliberate behavior and action performed under availability of attentional resources. It is also possible that automatic and conscious processing interact to produce emotional intelligent behaviors.

Exploring the Origin of Individual Differences in EI

Further research should explore the antecedents of automatic and conscious emotional processing. Appraisal theories emphasize that emotions are elicited by evaluations of stimuli; such evaluations occur for the most part nonconsciously (Scherer, 2005). Emotion perception, use of emotion to facilitate thought, emotion understanding, and emotion regulation may arise from conscious and automatic appraisals of stimuli. Because appraisal

processes depend on knowledge structures (Cervone, 2004), at the origin of individual differences in patterns of appraisal between high and low emotionally intelligent individuals there might be differences in emotion knowledge, as Wranik, Feldman Barrett, and Salovey (2007) suggest.

Previous experience, and the cultural environment in which a person is embedded contribute to persons' knowledge about emotion, and eventually shape their appraisal of situations. A situation may be interpreted in many different ways – and consequently determine different emotional experience – according to the context. For instance, the gesture of kissing on the cheek to greet a person may be perceived as appropriate and welcoming in some cultures, but intrusive and perhaps outrageous in others. Complex emotion knowledge might be associated with fine-grained appraisal processes, which ultimately lead to appropriate adjustment to the context (realizing when it is the case to kiss on the check to greet a person). High emotionally intelligent individuals might have more complex emotion knowledge than low emotionally intelligent ones, perhaps because they developed a wider range of associations between situations and appraisals, and/or because they possess a larger repertory of explanations for a certain event, and/or because they experienced the efficacy of different strategies in dealing with the situation. Of note, the complexity of emotion knowledge includes 'knowing what' and 'knowing how' of emotion, and the association between knowledge and appraisal works even when individuals are not aware of what determined their emotional reaction.

Investigating the Relationship between Culture and EI

The extent to which EI may be considered culturally bounded is still open to debate (Zeidner, Matthews, & Roberts, 2001). All human beings share the basic emotions of happiness, anger, fear, contempt, surprise, disgust, and sadness. Yet, the influence of culture on how such emotions are expressed, regulated, and even decoded is pervasive. The cultural

environment directs the focus of attention, and therefore the object of perception, toward emotional cues that are valued in a certain culture (Mesquita, 2003). Also display and decoding rules, or rules about how to express and interpret such emotions, vary a great deal across cultures (Matsumoto, Yoo, & Chung, 2007). Explicit and implicit norms about the most appropriate emotional responses in a given culture shape individuals' reactions to emotion to the point that they become a spontaneous and automatic way to regulate emotions (Mauss, Bunge, & Gross, 2007).

Given the growing body of evidence that culture influences emotional experience, it is reasonable to wonder whether EI remains a key construct across cultures. Because emotions had played a fundamental role in human evolution (Darwin, 1872/1965), the ability to use emotions for one's own advantage must be crucial in any culture. Yet, the manner in which being emotionally intelligent is conveyed may change according to cultural factors, such as social norms and customs. The study of EI across culture may reveal some important aspects of the construct, such as the universality of its features. For instance, individual differences in EI may be investigated as depending in part on the content of emotion knowledge, and in part on the mechanisms of emotion knowledge acquisition. A comparison of high emotionally intelligent individuals across countries might reveal that the former varies according to culture, whereas the latter functions the same way regardless of the country of origin.

Another issue worth exploring across culture is the extent to which emotional adaptation may be due to unconscious processes, such as implicit learning. Implicit learning has been defined as "the acquisition of knowledge that takes place largely independently of conscious attempts to learn and largely in the absence of explicit knowledge about what was acquired." (Reber, 1993, as cited in Lieberman, 2000, p. 112). More specifically, Lieberman (2000) proposes to consider implicit learning as the cognitive basis of social intuition: individuals decode details of nonverbal behavior that provide crucial information about

others independently of conscious learning attempts. Social intuition and implicit learning may be the keys of social and emotional adaptation, and they may be investigated studying individuals who changed their culture of origin, such as global managers or individuals who moved from their home country. Successful global managers might be characterized by greater plasticity for acquiring new emotion knowledge; for them adaptation to new environment should be faster and less costly than for common people, perhaps because once they (unconsciously) learned how to pick up emotion information in the environment, they were able to apply what they had implicitly learned to new situations and cultures and get a fairly good understanding of others' intentions and feelings with little effort.

Conclusion

The construct of EI is located at the junction of three psychological domains: cognition, emotion, and social cognition. Most research on EI conducted to date has been developed within a differential approach, as is typical in studies of abilities in cognitive psychology (Matthews, Zeidner, & Roberts, 2004). This work represents an effort to merge this consolidated tradition of research in EI with a process-oriented approach, prevalent in emotion and social cognition studies. Arguing for the need to incorporate findings regarding automatic emotional experience with research on EI, I have proposed a framework based on the distinction between conscious and automatic processing.

The major implication of reconceptualizing EI within this framework resides in guiding further research, first and foremost by encouraging the investigation of automatic processing. Ultimately, this paper calls for research exploring the automaticity component of emotional intelligence.

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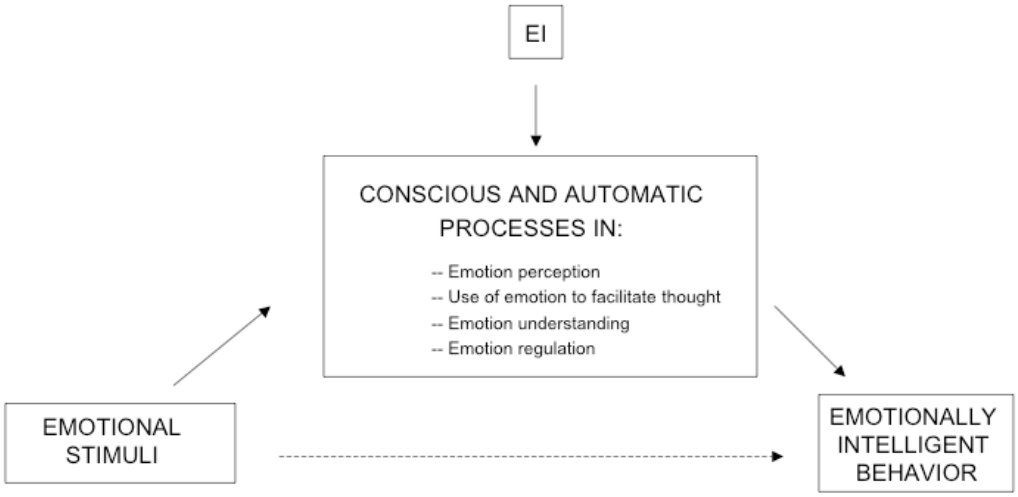
EI
CONSCIOUS AND AUTOMATIC PROCESSES IN:
-- Emotion perception
-- Use of emotion to facilitate thought
-- Emotion understanding
-- Emotion regulation
EMOTIONAL STIMULI
EMOTIONALLY INTELLIGENT BEHAVIOR

Figure 1.

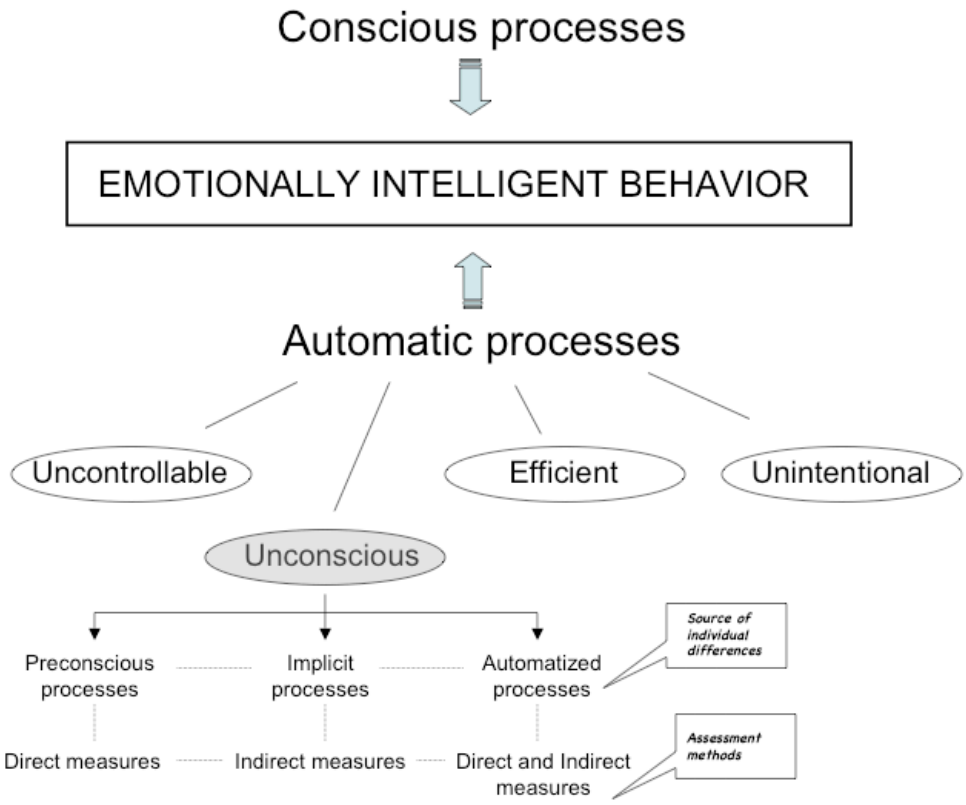
Conscious processes
EMOTIONALLY INTELLIGENT BEHAVIOR
Automatic processes
Uncontrollable
Efficient
Unintentional
Unconscious
Preconscious processes
Implicit processes
Automatized processes
Source of individual differences
Direct measures
Indirect measures
Direct and Indirect measures
Assessment methods

Figure 2.

Figure Captions

Figure 1. Representation of how an individual differences approach may be combined with the analysis of conscious and automatic processing underlying emotional intelligence.

*Figure 2.*The different components of automatic processing and their influence on emotionally intelligent behavior.

Footnotes

1. The latter possibility is less likely than the former, because automatized performance may become available to consciousness by means of introspection or deliberative thinking. Still, a gap between the description of the steps needed to execute a task and the actual performance would be likely to occur.
2. I thank an anonymous reviewer for suggesting this possibility.
3. I am using a subjective criterion to define awareness for which there is awareness of a stimulus/process when the individual is able to verbally report its occurrence.
4. The term direct (or explicit) and indirect (or implicit) measure is used according to Robinson and Neighbors (2006) for which implicit methods are based on performance, such as reaction times, whereas explicit methods are based on introspection or self-report.