Emotional contagion within an integrated framework of priming and dual process theory

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Abstract

Emotional contagion has long deviated from its original conceptualisation as a simple, automatic transfer of emotion and has come to encompass the influences of social cues and environments as well. Investigations have provided evidence for processes of social appraisal that occur after 'catching' a sender's emotion and conscious decision-making to imitate that same emotion to the receiver's social advantage. A very recent line of research has built on two top-down social processing models of emotional mimicry and by extension, emotional contagion, to view emotional contagion in a new light by consolidating modern research in priming with the long-standing theories of dual processing. Their proposal is unique in the way that they propound the working of a compensatory automaticity mechanism that shapes the occurrence of emotional contagion. It is rooted in the flexible correction model from social priming studies, where social affiliation goals can modulate emotional mimicry by directing the facilitation or inhibition of mirror neuron activity in the brain, which in turn is what gives rise to emotional mimicry. The dual processing perspective is attached to support this claim of an automatic correction process by classifying it as an automatic outcome of the interaction between conscious reflective processing and unconscious impulsive processing. This unification of data from the three aforementioned fields of study offers a very optimistic platform for future exploration and enquiry in research themes devoted to analysing the role of social context in the underlying mechanisms of affective linkage or emotional contagion.

Keywords: emotional contagion, emotional mimicry, social appraisal, flexible correction model, dual processing, reflective impulsive model

I. Introduction

A notion pioneered by Hatfield et al. (1994), emotional contagion was initially portrayed in terms of patterns similar to germ and disease contagion, and its feature of automaticity was explained by way of unintentional emotional mimicry by a receiver and consequent afferent feedback that elicits that same affective state in the receiver. Contradicting research emerged from this paradigm of primitive emotional contagion, which argued that a change in the receiver's emotions need not necessarily be prompted by the automatic simulation of a specific emotional expression but by some auxiliary simultaneous mechanism such as social appraisal, which permits the recipient to combine social cues gleaned from the sender's exhibit into their own analysis of circumstances and consequently, how they feel regarding same (Gump & Kulik, 1997; Bruder, Fischer, & Manstead, 2014). As demonstrated by such research, emotional contagion has been observed to be governed by social appraisal at a less automatic level of processing which differs from the primitive emotional contagion model in terms of engagement of conscious control.

The trajectory of the research publication highlighted in this chapter aimed to: exhibit the arbitrating function of social context in emotional convergence/contagion as a mechanism of emotional mimicry; explain the top-down social command of recipient responses to sender emotional expressions using the correction hypothesis in priming data; analyse whether a similar interpretation may be applied to more controlled processes such as social appraisal-driven-emotional contagion; and explore how the social factors influencing emotional contagion may be construed within a foundation of dual processing.

The literature review of this chosen article by Wróbel & Imbir (2019) summarised the research conclusions for the automaticity of emotional mimicry and afferent feedback by the Hatfield model (1994) of primitive emotional contagion which is associated with the perception-action model of empathy (Preston & de Waal, 2002), where emotional mimicry, one of the bases of empathy, is facilitated by the mirror neuron system of the brain that extends a straight automated bond connecting perception (sender's affective expression) to action (recipient's emulation of the same). Plenty of data supports the claim that the mirror neuron system (MNS) sparks independent of the receiver's intentions since its ability to match observed and executed actions is contingent on automatically triggered learned associations. A far more calculated and controlled dimension of processing that occurs in emotional contagion activated by social appraisal is supported by studies affirming that in certain uncommon or unfamiliar circumstances, the recipient may very well deliberately pursue affective intimations from others to gauge emotional gravity or significance in such conditions (Bruder, Fischer, & Manstead, 2014); but in the absence of any such requirement for comprehensive investigation, this social assessment can be executed with much less mental energy (Parkinson, 2011). This is supported by findings that indicate subjects are frequently oblivious to the fact that their evaluations of stimuli and events are influenced by another individual's emotional expressions (Bayliss, Frischen, Fenske, & Tipper, 2007). New proof is now gathering for the highly selective nature of the processes underlying emotional contagion, i.e., the propensity of the receiver to react to a sender's emotional display with a congruent emotional assertion that may be regulated by several contextual elements like similarity or dissimilarity of the sender; familiarity or unfamiliarity; intent of competition or cooperation; or membership in an in-group or out-group (Wróbel & Królewiak, 2017;Van der Schalk et al., 2011). In such an instance, the pleasant, smiling facial expression of a likeable sender may conjure a harmonious affective demonstration while the frowning face of a disliked sender may set off an incongruent emotional reaction. The likelihood of congruous affective responses climbs in affiliative social surroundings whereas the same can diminish or be obstructed in non-affiliative social settings, or result in incongruent emotional reactions—implying that individuals are not motivated to mimic emotions if they do not have the slightest reason to associate with the sender (Fischer & Hess, 2013, 2017). A limitation of the literature referred to and reviewed is that it mostly centres around emotional mimicry more specifically than emotional contagion, but the authors accept emotional contagion as a mechanism of emotional mimicry, and there is also evidence that emotional contagion may be modulated by the same social factors as in emotional mimicry (Epstude & Mussweiler, 2009; Wróbel & Królewiak, 2017).

The focus of the featured paper was how the processes of automatic emotional mimicry/contagion operating beyond conscious awareness may be commanded by the recipient's aspirations or opinions regarding the sender. The authors applied the contextual model of emotional mimicry (Fischer & Hess, 2017; Hess & Fischer, 2013, 2014) and the social top-down response-

modulation (STORM) theory (Wang & Hamilton, 2012) to demonstrate that following the activation of emotional mimicry processes, social cues can influence controlled top-down processes to either permit emotional mimicry/contagion or trigger the social modulation of the same by correcting its automatic action depending on whether the emotional impersonation is desirable for the receiver's social benefit or not. This correction process is affiliated with social priming literature that could conceptualise emotional mimicry/ contagion as a distinct genre of priming wherein the recipient's emotional exhibition either assimilate and adopt or contrast away from the sender's. This is in line with the flexible correction model (Wegener & Petty, 1997; Chien, Wegener, Petty, & Hsiao, 2014) that claims this similarity and dissimilarity to transpire by default, uncorrected effects, or when the individual tries evading the bias of the prime (corrected effects) where the former takes little conscious focus and the latter requires a more controlled approach. Studies have clearly corroborated the existence of a compensatory automaticity mechanism that comes into play in settings where controlled processes are hampered (Glaser & Banaji, 1999; Maddux et al., 2005) which the authors postulate may be supervised by social affiliation goals mentioned in the two social top-down processing models considered here. The dual process theory is connected to this explanatory framework so as to emphasise the role of impulsive and reflective processing in emotional convergence/contagion. On one hand, top-down social processes require reflective processing, and hence, the correction process should be controlled and conscious. However, the authors maintain intentional charge of behavioural processes not consciously available to be questionable and instead proffer automatic correction as the go-to mechanism which may be viewed as a spontaneous outcome of the dynamic interaction between impulsive and reflective mental operations in the context of social interpretations. The reflective-impulsive model (Strack & Deutsch, 2004) accounts for a process called propositional categorisation that exerts an automatic top-down influence on impulsive processing which is responsible for the inadvertent correction that takes place in emotional mimicry/contagion. These variables are linked together to introduce a holistic configuration for emotional contagion and a novel set of future implications for the social environment in the transfer of affective states between individuals.

II. Ease of Use

The model considered in this chapter is rooted in empirical research-backed concepts from various spheres of psychology and, thus, may be proven to be reliable and valid across time, but not necessarily amongst all individuals in the general population. It has multiple implications for future scientific exploration in varying fields, ranging from social cognition to anthropology to artificial intelligence. The structural framework of this model is quite extensive and comprehensive with long links between paradigms, making it slightly inconvenient for a quick and efficient grasp of the surmise while simultaneously providing abundant scope for further extensibility of the model by prospective new research. All the theoretical systems brought in to formulate this holistic model of emotional contagion have been clearly elaborated to demonstrate how they can be successfully interconnected.

III. Methodology

Studies were scouted through the use of electronic research databases, namely Scopus, Pubmed, Sage Journals, and SpringerLink. Inclusion criteria for systematic review listed requirements where the elements of emotional contagion were studied in new frameworks by research conducted after 2018 to gain insight into the latest findings and explorations in the field. Eligibility assessment was commenced by first-level screening of research abstracts to identify articles for review. The study highlighted in this chapter was selected due to its noteworthy and novel contribution of unifying three separate domains of study in emotional contagion, priming, and dual processing.

IV. Result

The spotlighted research article laid out a new coherent foundation for how social supervisory operations can be implicated in emotional imitation and by extension, emotional convergence, although the outcomes noted in the recipient's affective displays (facial expression) and sentiments (self-reported affect) need not consistently mimic each other (McIntosh, 2006). Such disparate samples of findings may be clarified by the contextual model of emotional mimicry (Fischer & Hess, 2017) which states that emotional mimicry is not always triggered by the discerned display of emotion itself but by a thorough, general decoding of the same in a particular social setting which indicates the presence of controlled top-down processes and not just automatic bottom-up mechanisms. These processes are rooted in the activation of affiliation goals (positive or neutral social advantage) and the sender's emotional expression is mimicked only if they are met, otherwise it is not (negative social advantage). The STORM account (Wang & Hamilton, 2012) supports this claim by arguing the presence of a mentalising system in the medial pre-frontal cortex that constantly monitors the mirror neuron system which facilitates emotional mimicry and inhibits it if it is socially inappropriate or non-affiliative. This still accepts the significance of the perception-action link as it is not influenced by social cues per se but more by perceptual input. However, after emotional mimicry mechanisms are triggered, social cues can influence top-down processes to either allow or inhibit emotional mimicry/contagion.

Consistent with these two models, it is proposed that the social modulation of emotional mimicry/contagion may be conceptualised as the rectifying of an automatic action. "The receiver has an automatic tendency to imitate the sender's emotional display activated by perceptual input, but when the social context suggests that imitation is inappropriate or undesirable (i.e., does not serve the receiver's affiliative goals), he or she attempts to counteract the influence of this display on his or her emotional expression or feelings. In this respect, social modulation of emotional mimicry resembles correction processes observed in priming research" (Wróbel and Imbir, 2019). Additionally, affective linkage under the direction of social evaluation is theorised to be moderated by social facets at two rungs, one allowing social signals to determine a primary evaluation rather than emotional contagion being automatic as in emotional mimicry, and another that notes social signals stimulating corrective processes that could

switch around the route of the preliminary automatic response (that is, when the recipient registers that the initial predisposition to emotional convergence is incongruent with their accuracy goals).

Keeping essentials of priming research in mind, and since psychological proximity is indicative of affiliative intent, the paper links together priming outcomes and congruous or incongruous emotional responses to the sender's affective exhibits as an analogy for the findings that they have mentioned above. The variables that promote self-evaluative assimilation (e.g., similarity, in-group membership, or cooperation) have also been found to foster congruent reactions to the sender's expressions, whereas the variables that promote self-evaluative contrast (e.g., dissimilarity, out-group membership, or competition) have been found to hinder congruent reactions or foster incongruent ones (Weisbuch & Ambady, 2008; Weyers et al., 2009; Wróbel & Królewiak, 2017). This suggests that emotional mimicry or contagion might be treated as a distinctive type of priming in which the receiver's expression or feeling is either assimilated with or contrasted away from the sender's emotional expression.

Coming to the correction hypothesis, the flexible correction model (FCM; Chien et al., 2014; Wegener & Petty, 1995, 1997) proposes that assimilation and contrast can occur either by default (uncorrected effects) or when one attempts to avoid the biasing influence of prime (corrected effects) and also assumes default effects to occur automatically and require little conscious attention while corrected effects are rooted in controlled processing and occur when one becomes cognisant of the possible prejudicing impact of the prime. When taken in the context of emotional mimicry, one would reason that deliberate correction would not be probable since the individual is not just unknowing that they are imitating the sender's display but also because they consciously cannot realise he/she is under the sway of a biasing influence. However, research exploring automatic evaluations argues that even in circumstances where deliberate processing is made impossible (such as subliminal presentations), people may initiate automatic correction without any engagement of conscious control (Glaser & Banaji, 1999; Maddux et al., 2005). This goes to establish that despite being in conditions where a prejudicing mechanism cannot be purposefully discerned, one may be intrinsically driven to gauge the target stimulus meticulously and hence, intentionally yet unconsciously amend preliminary influenced judgments, thereby substantiating the mechanism of compensatory automaticity which is expounded as "strategic yet non-conscious compensations for unwanted thoughts, feelings, or behaviours" (Glaser & Kihlstrom, 2005).

Here is where the authors employ the two previously mentioned social top-down models to propose that affiliation goals can regulate emotional mimicry and the affective linkage involved in the former. Once automatically triggered by integrative evaluations of social cues, these goals can wield a top-down control on the recipient's responses to the sender's affective presentations by modifying mirror neuron functioning. From the perspective of the compensatory automaticity process discussed within the FCM framework, "the initial reaction to the sender's emotional display is always assimilative" (because the mere perception of this display, if not inhibited, always leads to congruent reactions); consequently, we think that corrective mechanisms involved in emotional mimicry may result in the transition from assimilation to contrast but not vice versa" (Wrobel & Imbir, 2019).

The dual process perspective is brought into the framework to support the conviction that emotional mimicry/convergence are corrected in either a spontaneous or deliberate manner, particularly highlighting the contribution of impulsive and reflective processing in the social induction of affect that is emotional contagion and its mechanisms. Dual process theory essentially lays claim to how thought processes can emerge as a result of two different cognitive mechanisms, one that is implicit and unconscious and another that is explicit and conscious. The first is impulsive processing rooted in associations assembled via past experience and organised according to similarity and contiguity, the results of which are subject to conscious awareness, except for the processing part which occurs rapidly, automatically, and pre-consciously. The second is reflective processing which is operated in a controlled manner based on rules constructed in propositional knowledge and hence is slow, requires more attention, and occurs only with a sufficient degree of cognitive power and incentive. By and large, scholars argue in favour of interaction between these two modes at varying points of operation since most situations in the real world environment necessitate the involvement of both kinds of thinking (Imbir, 2016; Kahneman, 2011). Many studies of dual processing have suggested that reflective mechanisms may deploy a top-down influence on impulsive mechanisms to correct impulsively triggered actions (Smith & DeCoster, 2000).

Addressing the question of whether automatic correction is plausible from this dual processing outlook, there is a majority claim that rule-based reflective functions require cognizance and for that reason, their top-down control must be correlated with "controlled effort and subjectively conscious decision making" which in turn implies that corrective processes should be of the same nature (Smith & DeCoster, 2000). The notion popularising purposeful amendment of emotional impersonation is located in many publications, such as the neurocognitive model of emotional contagion (Prochazkova & Kret, 2017) which declares the imitation can be "consciously inhibited and controlled" (p. 104). The authors are of a contrast opinion that the "conscious control of actions that are not consciously accessible is unlikely" (Wrobel & Imbir, 2019), building on the priming conclusions discussed to argue that people would instead engage in automatic correction in such situations. Factoring in the findings on the social interpretation of the sender's intent in their emotional expression (Fischer & Hess, 2017, 2013), automatic correction is viewed as the spontaneous product of exchange between reflective and impulsive operations. This is specifically portrayed in the reflective-impulsive model (Strack & Deutsch, 2004) which demonstrates the reflective system's hold over the impulsive function not just by way of intentional resolutions (controlled correction) but also through propositional categorisation, which is when perceived stimuli are allotted to a semantic categorisation, and in case any data gets triggered in the reflective structures, it proceeds to mobilise related material from the associative matrix of the impulsive mode, thus shaping automatic activity in the absence of one's conscious awareness of it.' This yields explicit proof for the automated top-down dominance of propositional categorisation results on impulsive processing, and since mirror neuron activity is rooted in associations (Heyes, 2011), authors believe propositional categorisation affairs to be accountable for the automated corrective processes seen in emotional mimicry/contagion. Within the confines of this RIM system, they propound exposure to the sender's emotional display to elicit a spontaneous inclination to mimic the same by triggering the perception-action link in the associative nexus consonant with a specific affiliation goal, but it can be hindered by social data that is incompatible with this goal (e.g., propositional knowledge about the sender's non-affiliative intent, like they are angry with the receiver, or the receiver is immoral or in an out-group), which in turn triggers the reflective mode, leading to activation of correlated nodes (for example, rivalry, dislike, depravity) in the associative matrix of the impulsive mode by way of propositional categorisation, which impedes the

automatic perception-action link. An observation that can be made here is that the social background only plays its regulatory role in emotional mimicry/contagion when reflective processing is initiated, which is only possible when the receiver has clear social cues (implicit or explicit) and a reasonable degree of cognitive capacity and incentive to recognise the sender's intent.

V. Conclusion

The merged framework for emotional contagion discussed in this chapter laid out a supporting background for empirical enquiry into the possibility of crossing priming and emotional contagion concepts which has only been previously explored by Epstude & Mussweiler (2009) who attempted to decipher harmonious and unharmonious affective reactions in an emotional contagion context using social comparison models. There has been a lack of consensus on the mechanisms underlying emotional contagion which has been addressed by the interconnected system of research that has been outlined in the featured article. The sway of social variables that foster self-evaluative assimilation or contrast in potential circumstances of emotional mimicry advances progress in the field of social cognition by regarding emotional contagion as a remarkably unique variety of priming procedures. Since the dual processing perspective is used by the authors to argue its legitimacy, this can have future ramifications for propaganda broadcasting and infiltration in industries that thrive off the principles of social psychology such as media, marketing, and politics. Allied research on emotional contagion via computer-mediated communication where one is still able to infer emotional cues about from textual and behavioural indicators in a virtual setting can be correlated with the theoretical framework discussed here to encourage further analysis of the scope of artificial intelligence tools such as chat bots and voice assistants in the topic of emotional contagion within human-robot interactions. In educational and child-upbringing settings, parents and teachers may be capable of turning displays of specific emotional expression into pedagogical and developmental social cues so as to convey necessary knowledge and implicit awareness to children and students via emotional contagion mechanisms which is attested to by social neuroscience research that portrays the observing of another individual's affective state to automatically activate a neural representation of the same in the observer along with related autonomic and somatic responses. The scope of this research may also be considered in organisational settings where the deliberate practical application of emotional contagion may serve to enrich the self-management capacities of employees as well as enhance job productivity by selectively utilising positive and negative emotional contagion processes to standardise and inculcate desirable and undesirable workplace behaviours and expression. Additionally, this model may be used to dispute a common evolutionary point of view that generally regards negative or threat-affiliated emotions as transferring more automatically than positive emotions since the aforementioned mechanism of compensatory automaticity underpinned by the propositional categorisation process allows individuals to make an inherent choice of emotional mimicry with respect to the potential social benefit gained from the context, thus broadening the horizons for the study of adaptive survival advantages. The premise of reflective processing influencing the impulsive processing using purposeful decisions in the case of controlled correction and propositional categorisation for automatic correction implies that even automatic correction requires a certain minimal degree of effort which can have controversial implications for the highly popular theme of research on the unconscious mind. Limitations of this structure can be seen in the absence of sufficient attention focused on sender attributes and social data because then, the guiding command of propositional knowledge on affective mimicry/convergence can dissipate. More scientific scrutiny of the external validity of this integrative paradigm is required for future study.

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