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Psychoanalysis and social cognitive neuroscience: a new framework for a dialogue

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Abstract

The fields of psychoanalysis and neuroscience use different methods of description, analysis and comprehension of reality, and because each is based on a different methodology, each approach constructs a different representation of reality. Thus, psychoanalysis could contribute to a general psychology involving neuroscience to the extent that a “psychoanalytical psychology” (the theory of mental functioning that is extrapolated from psychoanalytical practice) defines natural objects of study (mind functions) for a multidisciplinary approach. However, the so-called “naturalisation” of psychoanalytical concepts (metapsychology) does not imply the reduction of these concepts to biology; rather, it suggests a search for compatibility between psychoanalytical concepts and neuroscientific description. Such compatibility would mean the search for common objects that could be described from either a psychoanalytic or a neuroscientific point of view. We suggest that inter-subjectivity, empathy or “co-thinking” processes, from early development to the psychoanalytic relationship or the interaction between the patient and the analyst, could be such a common object for cognitive social neuroscience and psychoanalysis. Together, neuroscience and psychoanalysis could then contribute to a multidisciplinary approach of psychic inter- or co-activity.

Keywords: Psychoanalysis, neuroscience, social cognition, empathy, inter-subjectivity

1. Introduction

For anyone who has knowledge of and experience with psychoanalysis and contemporary neuroscience, bringing the two disciplines together is an approach that seems as natural as it is necessary. This interdisciplinarity is, indeed, a necessity in the field of neuroscience if it is to become exposed to a rich, original and non-simplistic perspective on the complexity of mental life. In addition, it is a necessity in the field of psychoanalysis, which has become weakened today because of its tendency to continue to refer to an obsolete psychology – or “metapsychology”. Psychoanalysis runs the risk of becoming associated with a theory of clinical practice that is cut off from contemporary scientific psychology and, more broadly, from the contemporary scientific context.

Without focusing too intently on the past, let us remember that the Freudian approach actually consisted of linking the theorisation of the new practice of psychoanalysis, which was based on subjectivity, with the scientific concepts emerging from neuropsychology, biology and scientific, objective and experimental psychology that followed the naturalist, materialist and positivist traditions. Since the time of Freud, a “physiology of the mind” has merely been a concept (Freud, 1895). Today, advances in neuroscience and cognitive science have made this concept conceivable and plausible. The era has effectively authorised the construction of a multidisciplinary and pluralist psychology in which psychoanalysis has found its place alongside other approaches. In fact, modern cognitive neuroscience recreates the Freudian concept of an ideal university, linking together philosophy of mind, psychology, linguistics, neuropsychology and biology. Paradoxically, psychoanalysis is no longer the leading discipline, and it is in danger of being forgotten or ignored by cognitive sciences.

Accordingly, we are prompted to wonder why it has been so difficult until now to accept a true multidisciplinary approach that links psychoanalysis and neuroscience.

Psychoanalysis and neuroscience are two major disciplines that historically have attempted to describe and understand the same reality or the same object: the mind (regardless of what one calls it). Only those who defend ontological dualism, an approach that is difficult to support today, continue to oppose the consideration of both a subjective approach, which is appropriate in interpersonal clinical practice, and an objective approach to mental function and treat these two approaches as though they were irreconcilable and contradictory.

According to a subjective approach, there is simply no link or possible compatibility between psychoanalytic theory and neuroscience because the two disciplines do not have a common object of study. However, according to an objective approach, psychoanalytic theory and neuroscience have common objects of study and explanation, which are described, however, at different levels of observation and organisation in the two disciplines. Thus, the two disciplines could be considered to be complementary.

Today, the focus of neuroscience and behavioural science is on the study of the biological and cognitive mechanisms that underlie the complex psychological processes described by both psychoanalysis and other clinical psychological approaches. The complex intra- and inter-subjective processes described in psychoanalysis rely on neurobiological and cognitive mechanisms, while also exerting a reciprocal influence on these mechanisms (Jeannerod and Georgieff, 2000). In our view, the difference between these two disciplines is not simply a difference in the objects of study; two distinct realities of mind or of mental life do not exist. Rather, the difference is a difference between points of view, between methods of observation (hence, levels of organisation) regarding a common object of study, which is the mind (Georgieff, 2005). The subjective approach and the experimental objective approach are two irreducible perspectives; nonetheless, their real object is the same. The

descriptive language used by each approach is different, but translation from one to the other is, in fact, possible.

2. Epistemological problems

What are the sources of the obstacles to the creation of a pluralist psychology (i.e., a multidisciplinary approach to the mind) that would lean simultaneously on the clinical psychoanalytical model and the objective experimental model? Certain obstacles, even if significant, are scientifically contingent: conflicts of influence; scientific, academic and economic competition; ignorance or reciprocal rejection or fear of an unknown yet related discipline. Other obstacles arise from ideological positions (e.g., monist, dualist, spiritualist, or materialist) or personal beliefs that encourage resistance to psychoanalysis or to the objective scientific approach. More often, ignorance of the reality of the psychoanalytical experience is a common obstacle because it cannot be understood from a simple reading of Freud's work.

Further obstacles arise from real epistemological difficulties that should be the subject of research and that are the focus of this brief text. A major obstacle to reconciling the various points of view might be the persistence of confusion over the object and nature of psychoanalytic theory. To enable the translation between the languages of psychoanalysis and neuroscience and to bring the concepts of these two disciplines closer together, it is necessary to define more precisely the objects of each approach in a common general

psychological framework, which remains to be built. These psychological or mental objects could then be described from either a psychoanalytical or a neuroscientific point of view.

However, even if we assume that both approaches describe, *in fine*, the same reality, i.e., the mind, we cannot assume that their concepts are superimposable. In other words, we cannot assume that each concept describes in terms of its own language the same properties or functions of the mind, regardless of the many words and ideas (memory, attention, perception, consciousness) they seemingly have in common. To put it simply, it is necessary to specify, on one hand, what psychoanalysis (specifically metapsychology) addresses, and, on the other hand, what neuroscience addresses before attempting to draw comparisons or make translations. However, the nature of the object of each approach, psychoanalytic and neuroscientific, remains unclear and continues to be subject to debate.

In the field of neuroscience, until now, the focus has clearly been on discovering how to model an individual's mental functioning, which depends on the individual's brain. In the field of psychoanalysis, it is possible to understand metapsychology in the same way: as a description of an individual's "*psychic apparatus*" and its rules and mechanisms. These two concepts of the mind can, therefore, be considered in the search for complementarity, contradictions and convergences within a common framework for an "individual" psychology (i.e., the psychology of an individual subject). This approach is taken, in particular, by Kandell (1999), Solms (2004) and Ansermet and Magistretti (2007), who are enriching the dialogue between "psychoanalytical psychology" and contemporary scientific psychology.

However, this perspective presumes that the psychoanalytical method remains, in spite of its specificity, a method of observation and that the object of description and comprehension of this observation is the individual's psychic functioning, or the "mind".

This approach is similar to psychiatric, experimental, neuropsychological and neurobiological methods of observing the mind. We will discuss this point, while proposing an alternative perspective that is complementary rather than contradictory. To this end, we present some questions. Is the reference to observation relevant to the definition of the clinical psychoanalytical method? What can be observed in the minds of others through psychoanalytical listening: is it an objective observation, even if it is based on inter-subjectivity? Furthermore, if there is observation, what is its object? Is the object really only the “individual mind”? Although these questions are not new, they need to be answered.

Freud does not always help to answer these questions. The discovery of transfer and counter-transfer, with reference to the Lipps theory of empathy (Lipps, 1903), the emphasis placed on the notion of “construction” and the insistent references to telepathy or to suggestion invite us to consider psychoanalysis as an inter-subjective process, i.e., a method that fully engages subjectivity. In other words, *the psychic activity of the analyst is possessed by the subject being studied*. However, Freud’s positivism led him to claim for psychoanalysis the status of an observational science, the method of which provided access (in the same way as other scientific approaches) to the organisation of a psychic apparatus; this psychic apparatus was, objectively, that of the patient. Therefore, one could say that Freud theorises a radical subjective approach to objective observation.

Psychoanalytical “observation” is an experience in which the mental state of the analyst is fully implicated. It is based on psychic interaction with the patient. In any inter-individual relationship, the mind of the other cannot be *observed* ... it is *experienced* or tested (in the sense of the individual experience).

The latest developments in psychoanalysis allow the progressive recognition of the “active” role played by the psychic activity of the analyst in the construction of a subject of study. The subject of study cannot always be reduced purely to the mind of the patient;

rather, it becomes a co-construction that produces a new psychological object or “third psychological reality”. The object of psychoanalysis becomes, from a constructivist perspective, a third object composed of the psychic *co-activity* or of the interaction between the minds of the analyst and the patient.

Thus, the object of psychoanalytical theory might be, in the end, the mind of the patient; above all, however, the object might be the interaction or psychic co-activity between the analyst and the subject. This interaction is a process of construction in the “here and now” of a psychic relationship between the analyst and the patient and the effects of that relationship. Among numerous authors who have contributed to the description of this “third-person” psychoanalytical reality, Widlöcher (1994) proposes the idea of “co-thinking” to define a process that is underscored by the transferential and counter-transferential dynamics. These dynamics are based on empathy, and they are the means by which the thoughts of the analyst are “occupied” by those of the patient. Some authors prefer the classical term “inter-subjectivity” to describe this phenomenon.

One might raise the question of whether one of the most specific subjects of meta-psychological theory is psychic co-activity itself. Psychic co-activity describes the process by which the psychic activity of the patient occupies and animates that of the analyst; in other words, it is a process by which the patient’s psychic activity becomes the subject of another psychic activity (i.e., that of the analyst). This process, of course, evokes the dynamic established early in life between an infant and the parents that has long served as a model for understanding the psychoanalytical process (Winnicott, 1971). The subject here is the meeting of two minds. This is clearly different from the autonomous psychological activity of an individual, which is defined independently of the inter-individual relationship, even if the subject is constantly interacting with another person.

3. Towards a translation: neuroscience and inter-subjectivity

Therefore, we propose the convergence of these theories and languages; the possibility of translation between them should be a priority for research in the field of mutual psychic processes, of shared or interactive thoughts and of mutual psychological influences or reactions, which are the keys to psychoanalytical theory. Does this theory separate psychoanalysis from neuroscience? The opposite is true: this theory perhaps offers a promising means for translation between the two approaches. Indeed, with the recent appearance of theories of social cognition and social neuroscience, the concept of inter-subjectivity has today become commonly adopted in both psychoanalysis and neuroscience (Decety and Hodges, 2005).

Neuroscience has long maintained a sceptical perspective and has allotted the study of inter-subjectivity to clinical science, psychoanalysis, clinical psychology, social psychology and theories of communication. However, the objective approach of neuroscience has recently accepted inter-subjectivity and psychological interaction. These concepts have been developed in fields of research that open the possibility of debate with psychoanalysts, including studies on development and early interactions (Trevorthen, 1993), “theory of mind” or “mind reading” abilities (Baron Cohen, 1995) and, finally, the recent rediscovery of the Lipps theory of empathy through the discovery of “mirror systems” or “resonance systems” (Lamm et al., 2007). Currently, we also have to take into account “social cognition” and “social neuroscience”.

The discovery of mirror neurons played a major role in the development of the concept of “social cognition” (Gallese and Goldman, 1998; Gallese, 2001). Mirror neurons

are at the origin of the general hypothesis of transitive or speculative cognitive and brain processes that allow a person to reproduce the cerebral and mental activity of other people. Thus, when we perceive various clues about the psychic activity of other people, such as language, motor actions, emotional expression, and indications of intentions, these systems allow us to automatically reproduce configurations of cerebral activity, and therefore mental activities, which are similar to those of other people; we call these instances of similar mental activity “shared representations” (Georgieff and Jeannerod, 1998). These systems underpin the capacity to share a mental state, to adopt a point of view or to put oneself in the place of another person by creating a common psychic world between oneself and that person.

A precise neuro-anatomy or neurophysiology of the “social brain” or of intersubjectivity has yet to be described. Nonetheless, certain elements are becoming apparent. An examination of a variety of studies, in particular, those of Jeannerod (1997) and Decety and Hodge (2005), suggests that it is possible to identify one cerebral system and one brain system. The cerebral system, which might be called “the system of the same”, allows one’s brain to reproduce the configurations of the brain activity of another person with whom one is interacting (Georgieff, 2008). According to the “simulationist” theory, this system allows the empathetic identification with and knowledge of another person. It relies on the mirror neuron systems and the frontal cortex, as well as the limbic system for emotion. It generates “shared representations” of motor actions, intentions, and emotions, which presumably underpin the ability to share the mental states of others. The second system, which might be called the “system of the other”, notices (in the inferior parietal cortex) or introduces (in the prefrontal cortex) the differences between the configurations of one’s own activity and that of the other person, which ensures a differentiation between oneself and another (this is called the “who system”, which is a reference to the sense of one’s own agency; Georgieff and Jeannerod, 1998). These systems could be related to the two functional, antagonistic but

complementary components of empathy: the identification with another and the differentiation of oneself from that other.

It is worth noting that the principle of neurocognitive sharing of mental representations through the innate mechanism for reproduction of another person's mental states was promulgated by Lipps more than 100 years ago to explain empathy ("Einfühlung"), which is a concept that was fundamental to aesthetics and that subsequently became adopted in the disciplines of psychology and sociology. This principle was adopted by Freud and, later, Ferenczi (Pigman, 1995). Empathy describes the basic mechanism of consciousness of others, which underpins more recent ideas, such as "theory of mind" or "mind reading" and "simulation theory". Of course, we are far from the complexity of the process of psychological co-activity that is applicable to the psychoanalytical situation. A gap exists between associative co-thinking in the psychoanalytical situation and the "shared representation" neurocognitive systems. Nonetheless, psychoanalysis cannot be insensitive to the fact that neuroscience is beginning to lay the ground for a neurobiological and cognitive theory of inter-subjectivity, co-subjectivity and co-thinking. Social neuroscience focuses on the mechanisms through which a person's psychic activity can be occupied, induced and modified by another psychic activity. Research has examined the brain and the related cognitive processes of psychic responses in the mutual induction and influence between the mental activities of two subjects and in the constitution of a common psychological reality.

From a developmental perspective, this research encompasses the notion of the "virtual other" (Trevarthen, 1993), which refers to the role of an innate representation of the other person in the mental functioning of an individual that is necessary for the regulation of inter-subjectivity and interaction. This developmental research will also identify the sources of the ability, whether inter- or co-subjective, that enables a person's mind to develop a representation of another person and that person's mental activity. From another perspective,

Fonagy et al. (2002) described a similar system: the “interpersonal interpretative mechanism”. The human mind presents specific capacities that lead it to react selectively and early to another person’s mind. This is accomplished as a result of specific properties and cognitive capacities of the brain that make the psychological activity of others the preferential centre of interest and the natural object of a person’s own mental activity. This concept of the mind created by the mind arises from empathy for the other or reflexive thinking about oneself; it also produces an awareness of others and an awareness of oneself in the same moment and on a common neurobiological and cognitive basis.

4. Conclusion

Freud defended himself against Fleiss’ allegations that he was a “mind reader” who projected his own mental constructions onto the mind of the patient (Meehl, 1994; Widlöcher, 1994). However, nowadays it is not shocking, in the scientific context, to consider the psychoanalyst to be a “thought reader” or a “mind reader”. The recognition that subjectivity (both conscious and unconscious) – in other words, the analyst’s own psychic processes – plays a major role in the construction of the knowledge of psychoanalysis does not threaten its relevance or its scientific legitimacy (Grünbaum, 1984). This psychic interaction is, indeed, in the position of being regarded by the objective sciences as a fascinating reality and an essential quality of the human mind. The process of “mind reading” (or theory of mind) has become a central focus in the objective and experimental sciences of the mind and brain. Thus, three research perspectives can be developed. First, in the field of

neuroscience, the psychoanalytical process can be considered to be an exemplary model of psychic co-activity or shared psychic activity (“co-thinking”) and, at the cerebral and cognitive levels, of shared influences and reactions among psychic activities. Second, this study can lead to a therapeutic process in which psychoanalytical theory (the “psychoanalytical psychology”) contributes to an understanding of the inter- or co-subjective process in a scientific and multidisciplinary framework (including clinical theory, neuroscientific theory and, notably, the psychology of development). Finally, the study of the pathologies of empathy or of inter-subjectivity, in particular, autism and schizophrenia, which could rely on failures at different periods in the development of social cognition. From this perspective, inter-subjectivity could unite two main rational approaches to the study of the mind, psychoanalysis and neuroscience, disciplines that have been separate until recently.

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