Biology and Culture

ROBERT PETER HOBSON

Abstract

How are we to think of the developmental relations between individual and social dimensions of human psychology? On the one hand, an individual's mental development depends on social engagement and socially constructed symbolic systems and institutions. On the other hand, the very existence of a social system depends on the biologically provided constitution of the individuals who make up its members. I shall consider these matters at the interface between the behavioral and social sciences through the perspective of developmental psychopathology, and, in particular, the study of autism.

INTRODUCTION

In this essay, I consider how human infants and toddlers are biologically prepared to achieve specific forms of engagement with other people, both in person-to-person exchanges and in joint relation to a shared world. Early experience of these kinds of social relatedness has a profound influence on the developing structure of human thought and personality. I shall argue that the capacity to *identify with* the bodily expressed attitudes of others is critical for the development of symbolic thinking and for the enrichment and integration of social-emotional functioning. This structuring of early social relatedness and experience requires biological underpinnings. The modes of interpersonal engagement to which it gives rise play a critical role in shaping human cognitive and cultural lives.

The empirical perspective that grounds this approach is that of developmental psychopathology. Developmental psychopathology is the study of typical and atypical developments alongside one another. Through the study of typically developing children, one is able to identify trajectories of mental growth that may be altered among atypically developing individuals. From a complementary perspective, the study of atypically developing children can reveal how what we take for granted (because seemingly universal) in human development is more complex and potentially vulnerable than we had supposed. Not only this, but by tracing the developmental implications

of abnormality, we can discover cause–effect relations among specific facets of psychological functioning, as these evolve over time.

For the present purposes, I focus on the case of early childhood autism as affording fresh insights into the inter relation between social and cognitive developments. When we come to formulate an adequate theory of early interpersonal relations and intellectual growth, then we should also see why the syndrome of autism takes the form that it does.

This constitutes an "emerging trend" of theoretical and empirical investigations in its focus on the contribution of previously neglected forms of early social experience to the development and exercise of flexible symbolic thinking and linguistic communication. The approach promises to integrate and enrich three classical developmental perspectives on the mind and its development, namely those articulated by George Herbert Mead, Lev Vygotsky, and Sigmund Freud.

FOUNDATIONAL RESEARCH

THEORETICAL APPROACHES

In exploring how mind, self, and society are grounded in social relations, G.H. Mead (1934) proposed that symbolic thinking entails "an arousal in the individual himself of the response he is calling out in the other individual, a taking of the role of the other, a tendency to act as the other person acts. One participates in the same process the other person is carrying out and controls his action with reference to that participation" (p. 73). This suggestion had been anticipated in the work of Cooley (1902) and Baldwin (1902), each of whom considered that a child comes to adopt a psychological perspective *vis-à-vis* his or her own self and mental events through adopting appropriate kinds of alternative stance—where the appropriate kinds arise through interaction with other people.

Related themes are central to the work of Vygotsky (1978), who suggested that "Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, *between* people (*interpsychological*), and then *inside* the child (*intrapsychological*) … All the higher functions originate as actual relations between human individuals" (pp. 56–57, Vygotsky's italics). In Mourning and Melancholia (1917), Freud, too, used the notion of "internalization" to characterize how patterns of interpersonal relatedness are not only represented but also repeated within the orbit of an individual's own mental functioning.

What these theories require is an account of the mechanism(s) by which appropriate kinds of role-taking and internalization are achieved. Freud (1921) proposed that the mechanism was the process of identifying with

other people. Freud illustrated one form of identifying-with through the example of a child identifying with his father and adopting his character-istics, but on a more basic level he considered that identification leads to empathy and structures the most basic forms of interpersonal engagement. A working definition of identification offered by Laplanche and Pontalis (1973) is as follows: "Psychological process whereby the subject assimilates an aspect, property or attribute of the other and is transformed, wholly or partially, after the model the other provides." When one identifies with someone else, one *participates in* the other's attitudes and actions, and is moved to encompass and potentially to adopt the orientation of the other alongside or in relation to one's own psychological stance. It is in virtue of this pre-conceptual and often affectively configured propensity to identify with the attitudes and actions of other individuals that interpersonal psychological engagement is not merging, but rather linkage that entails differentiation *and* connectedness.

A particular species of identifying-with has special importance for the present discussion. This occurs in the context of face-to-face communication between people. One person has a propensity to be moved by the bodily anchored expressions of the subjective states of another, in such a way that the "otherness" of the other is not lost. An obvious case in point is empathy—to feel empathy for someone else is not to feel like, but *for*, the other—and as I shall detail shortly, other instances of prototypically emotional communication and pre-reflective role-taking have reference to a shared world.

One reason why these ideas have been only partially adopted and inte-grated into mainstream thinking about thinking and personality seems to be that they have been considered speculative, with little convincing empir-ical support. Yet evidence might emerge from studying how human devel-opment unfolds. If processes of identifying-with and associated role-taking shape development in diverse spheres such as children's social relations, self-consciousness, imitation, symbolic play, narrative and other aspects of language (especially pragmatics), emotional experience and empathy, and then developmental research from each of these domains might yield the kind of evidence that is needed. To put it plainly, we might discover that the phenomena resist explanation *unless* we invoke "identifying-with" as an explanatory concept.

Correspondingly, if there is evidence for a *weakness* or relative dearth of the propensity to identify with others among children with autism, then we should be able to trace the developmental implications of this abnor-mality in these very same domains. This hypothesis about the pathogenesis of autism contrasts with individualistic, cognitively styled theories that situate the developmental source of deficits exclusively within the minds

(or representational processes) of affected children. Such theories show little concern not only with *inter*personal causes of disorder, but also with issues of motivation and affect—each of which is an essential aspect of identifying-with, and each of which seems central to understanding autism.

I now turn to a sample of studies in typical and atypical developments that provide evidence in the light of which alternative theoretical options may be judged.

TYPICAL EARLY DEVELOPMENT

There evidence that around the end of the first year of life, typically develop-ing infants relate to other people as separate centers of psychological orien-tation toward a common world. As they approach 9 months of age, infants come to take a certain stance or set of attitudes not only toward persons *vis-à-vis* things, but more specifically toward the *attitudes* of other persons: they share experiences of the world with a caregiver; they show objects, often looking back and forth between the object and the caregiver's eyes; they seek out and relate to the caregiver's affective relation to the world in social ref-erencing, so that a caregiver's response to an object (e.g., disgust) influences an infant's response to that same object; they make and respond to gestu-ral requests; they come to imitate meaningful actions with objects, and so on (see, e.g., Bretherton, McNew, & Beeghly-Smith, 1981; Carpenter, Nagell, & Tomasello, 1998).

Then, around the age of 18 months, children come to acquire a conceptual form of reflective self/other-awareness (theory of mind). This is manifest as they begin to show new forms of empathy, look up to their parents when proud of achieving something, engage in coordinated role-responsive interactions, and show silly or coy behavior in front of a mirror (e.g., Brownell & Carriger, 1990; Cummings, Zahn-Waxler, & Radke-Yarrow, 1981; Lewis & Brooks-Gunn, 1979). From around this age, toddlers not only make self-descriptive utterances such as "my book" or "Mary eat" (Kagan, 1982), but they may take an active part in talking about people's feeling states such as those of happiness, sadness, or distress (Dunn, Bretherton, & Munn, 1987). Only now do children *know* that other persons are fitting recipients for a kind of analogical reasoning from their own case. Moreover, it is around the same period that we see the first signs of creative symbolic play, for which children need the self-reflective capacity to *know* that they are making one thing stand for another. Social knowledge transforms and augments intellectual as well as social life.

THE CASE OF AUTISM

Against this background, consider young children with autism. In the very first description of the syndrome of autism, Kanner (1943) pinpointed the

pathognomonic disorder as "the children's *inability to relate themselves* in the ordinary way to people and situations from the beginning of life" (p. 242, Kanner's italics). He described how "people, so long as they left the child alone, figured in about the same manner as did the desk, the bookshelf, or the filing cabinet" (p. 246). Kanner recorded a number of instances in which the children treated people like things, or related not to what another *person* had just done, but to the hand that was in the way or the foot that stepped upon the child's blocks. Often the children failed to appreciate how linguistic utterances were anchored to the perspective of the person who uttered them: for example, when one child stumbled and nearly fell, he said of himself: "You did not fall down." Kanner also noted the children's difficulty in using language to convey meaning to others, their often inflexible use of words and abnormal use of the personal pronouns "I" and "you," and the lack of variety in their spontaneous activity including a dearth of creative symbolic play.

Controlled studies of young children with autism have highlighted their atypicalities in one-to-one personal interaction, and their tendency not to engage in sharing or in coordinating their attitudes with those of other people in relation to shared surroundings (e.g., Loveland & Landry, 1986; Mundy, Sigman, Ungerer, & Sherman, 1986). For example, Sigman, Kasari, Kwon, & Yirmiya (1992) videotaped young children with and without autism in the presence of an adult who appeared to hurt herself by hitting her finger with a hammer, simulated fear toward a remote-controlled robot, and pretended to be ill by lying down on a couch for a minute, feigning discomfort. The results were that children with autism were unusual in rarely looking at or relating to the adult. When the adult pretended to be hurt, for example, children with autism often appeared unconcerned. When a small remote-controlled robot moved toward the child and stopped about four feet away, the parent and the experimenter, who were both seated nearby, made fearful facial expressions, gestures and vocalizations for 30 s. Almost all the children without autism looked at an adult at some point, but fewer than half the children with autism did so, and they seemed unaffected as they continued playing with the robot.

Studies involving older children with autism have suggested that they have limited "theory of mind," for example in their appreciation of what it means to "believe" or to see things a certain way (e.g. Baron-Cohen, Tager-Flusberg, & Cohen, 2000). However, it is open to question whether cognitive/*conceptual* limitations, rather than (as Kanner suggested) restricted capacities for relatedness, are fundamental to the children's impaired communication and symbolic functioning—and correspondingly, how much biologically given modes of relatedness may contribute to the origins of thinking and personality in typically developing human beings.

CUTTING-EDGE RESEARCH

In order to grasp the implications of what follows, it is necessary to appreciate that autism is a syndrome, that is, a constellation of clinical features that tend to co-occur. For the present purposes, I take the view that the combination of social-relational and intellectual abnormalities in autism has an intimate developmental relation to one another, an assumption that is controversial (e.g., Brunsdon & Happé, 2014; Hobson, 2014). I shall present just some of the evidence that a weakened propensity to identify with the attitudes of others—a limitation that in the large majority of cases has a biological basis—underlies a broad sweep of affected children's difficulties in the communicative and intellectual as well as social domains. Autism reveals how young children need the mental equipment for specific forms of early interpersonal engagement if they are to participate fully in shared intellectual and cultural life. Since the topic of identifying-with has been almost totally neglected in academic research, I shall need to draw on our own programmatic studies in order to illustrate points of methodological as well as empirical importance.

IDENTIFICATION AND IMITATION

The first study concerns children's propensity to imitate self/other orientated actions (Meyer & Hobson, 2004). Matched groups of school-aged children with and without autism were shown simple actions that afforded the potential for role-reversal. For example, a tester might pick up a small box near herself and rest it on another box near the participant, and then return it to its initial position; or she might pick up the box near the participant and rest it on the box nearest to herself, and then replace it back as before. The child was told simply: "Watch this," and then after the object(s) were returned to their original positions: "Now you."

As predicted, children with autism copied the actions but were significantly less likely to imitate the self-other orientation shown by the tester (for example, by copying the tester's close-to-herself orientation by completing the actions close-to-themselves). This appeared to be a direct reflection of their lesser propensity to identify with the tester.

On the other hand, the group differences were not absolute and enough variability was present in each group to consider patterns of individual difference. We examined whether children's propensity to imitate self-other orientation was related to another aspect of social relations we believe to be shaped by identification—interpersonal engagement involving sharing of experience (Hobson & Hobson, 2007). In sharing experiences with someone else, something of the experience of the other is encompassed alongside

one's own experience in a relational event that has a special phenomenology as well as an essentially interpersonal structure (Campbell, 2002).

We went back to the videotapes of the children and tester during the demonstration and imitation phases of each of the eight trials with three *a priori* predictions, as follows: (i) children with autism would contrast with control participants in spending more time looking at the objects acted-upon and less time looking at the tester; (ii) participants with autism would show fewer "sharing" looks toward the tester; and, critically, (iii) within each group, individual differences in sharing looks (only) would be associated with imitation of self-other orientation. "Sharing looks" (as opposed to "checking looks" and "orienting looks") were defined as those looks directed to the tester that could be seen as a means to share experience through interpersonal contact. Critically, two independent judges showed excellent agreement on these ratings.

Results were that the children with autism looked at the objects for a higher percentage of time, and they looked at the tester for less than half as much time as children in the comparison group. Eleven of the 16 children with autism compared with only five of the comparison children failed to engage in a single sharing look. The percentage of time spent looking at the tester overall, as well as frequency of checking and orienting joint attention looks, were *not* related to the propensity to imitate self-other orientation in either group. By contrast, sharing looks were specifically and significantly associated with the children's propensity to adopt a self-other orientation when imitating, both within and across the two groups.

The results suggest that a certain quality of interpersonal engagement implicated in sharing looks is associated with a certain quality of imitation, namely, that in which identifying with the other leads to the *other person's self/other orientation* being transposed to the imitator's own stance. This particular mode of imitation appears to make explicit the structure of self-other experience implicated in sharing— not a merging, but a structure that entails role-shifting.

IDENTIFICATION AND COMMUNICATION

A second study concerned nonverbal communication between adolescents with and without autism as they had a conversation with an adult who was conducting a semi-structured interview (García-Pérez, Lee, & Hobson, 2007). The results were in keeping with previous studies (Capps, Kehres, & Sigman, 1998), in that there were surprisingly few and seemingly marginal group differences on behavioral ratings such as smiles or gestures. Despite this, clear group differences emerged on reliable "subjective" ratings of affective engagement and smoothness of reciprocal interaction between the conversational partners.

What is striking here is not the bald fact that children with autism have limited affective engagement—after all, this is what Kanner (1943) considered pathognomic of the syndrome—but rather, the fact that this eludes measurement by "behavioral" ratings. Moreover, intersubjective engagement proves to be a critical variable for predicting change in other variables (as in the case of sharing looks, cited above). Here we had raters evaluate the linguistic content of the videotaped conversations for the degree to which participant children were able to establish "cognitive linkage" with what the interviewer was intending to convey (Hobson, Hobson, García-Pérez, & Du Bois, 2012). Among children with autism (only), there was a positive correlation between a child's ability to link in with the interviewer's intended meanings and independent, reliable ratings of emotional connectedness between the interlocutors—but *not* a correlation with verbal mental age. Therefore a rating of *affective* engagement was related to these children's *cognitive/linguistic* adjustments in conversation with someone else.

In a final part of this study, we analyzed the exchanges utterance by utterance. Children with autism could pick up and linguistically modify elements of the interviewer's speech, but frequently they failed to elaborate upon what they had adopted in a coherent manner. Often they provided follow-on discourse that was truncated, unexpanded, or vague. Here it may be recalled that a hallmark of identifying-with is that an individual assimilates the stance of the other in such a way as to have this available as a new-found part of his or her own cognitive or affective repertoire. It was in this respect, the ability to establish fresh cognitive/linguistic foundations on which to build over the course of conversation, that the children with autism were atypical.

IDENTIFICATION AND SYMBOLIC PLAY

According to the view outlined here, there are cognitive, affective and motivational *aspects* to coherent underlying intersubjective processes at the core of communication and social engagement (Hobson, 2008)—and that these processes are disrupted in autism. In particular, identifying-with is prototypically affective in infancy, but it is also cognitive (for instance, people are distinguished from things) and motivational (one is moved). Therefore if identifying-with is weak among children with autism, one would expect there to be affective and motivational consequences.

In a study of symbolic play, Hobson, Lee, & Hobson (2008) reported that groups of children and adolescents with and without autism, matched for age and verbal ability, were similar in demonstrating the mechanics of play. These particular, relatively able children were equally able to "metarepresent" in the sense of manifesting play in which they invented imaginary objects and/or made one thing stand for another and/or attributed pretend

properties, as well as to demonstrate flexibility in using toys. As predicted, however, the play of children with autism was distinctive for a lack of those qualities of playful pretend—awareness of self as creating meanings, investment in symbolic meanings, creativity, and fun—that had been hypothesized to reflect the social-developmental underpinnings of typical creative play. The nature of their symbolizing seemed different in kind from that of the comparison children.

KEY ISSUES FOR FUTURE RESEARCH

Intersubjective engagement is not reducible to elements of any individual's behavior. Correspondingly, Kanner's (1943) formulation of autism as an impairment in affective contact between a child and other people is not metaphorical. Events within the system of child-in-relation-to-other may constitute the appropriate "unit of analysis" of social experience and behavior (Vygotsky, 1962), for typical and atypical early developments.

If this is so, how can one measure intersubjective engagement and the experiential implications of identifying-with? The appropriate measuring instrument is a human being. Or rather, at least two human beings, because a scientific approach requires that independent raters can agree in judging the phenomena being researched. Some reviewers of the papers cited above have balked at the possibility that seemingly nonobjective ratings of videotaped human interactions, for example those of emotional connectedness, sharing looks, or investment and fun in play, can be made reliably—but they can. In addition, as the results indicated, these were among the critical variables accounting for what might otherwise have been taken as unrelated phenomena such as linguistic coordination, imitative role-reversal, and social-communicative functioning.

Of course, there is nothing magical in rating subjective states that have bodily expression. It is a prejudice to suppose that there is an unbridgeable gap between what a person's body expresses and what lies "behind" such behavior. On the contrary, a tenet of the present approach is that human beings read a range of mental states in and through the expressions of others (Wittgenstein, 1958). It is a prejudice to suppose that we should restrict science to the measurement of behavior that is somehow stripped of its subjective dimension.

Moreover, infants' diverse relations with people and things have cognitive, conative (motivational) and affective *aspects*, not components. It is a developmental achievement to emancipate thought from will and feeling (something that is never fully accomplished), or indeed to distinguish thoughts from what is thought about. No wonder that developmental theories restricted

to computer-like representational functioning have difficulty in making representations meaningful to the organism whose representations they are. It is from human beings' relations with the world that we need to begin our account of mental development.

The success of the "emerging trend" I have discussed depends on conceptual as well as methodological innovation. For this reason, there is much to be gained from interdisciplinary collaboration among philosophers, developmentalists and neuroscientists. For instance, it is in part a logical matter whether children acquire the conceptual distinction between thoughts (or more basically, attitudes) and things in interdependence with an understanding of persons and selves. The logic is that to conceive of oneself as a self among other selves is implied in understanding how given objects and events fall under different descriptions-for-persons. These and other matters of philosophy have a direct bearing on developmental theorizing and research.

For their part, neuroscientists may help to identify *various* patterns of neurological dysfunction that either give rise to, or reflect, problems in the social-communicative domain. Two examples are the tentative and controversial evidence of abnormal "mirror neuron" functioning in autism (e.g., Dapretto *et al*., 2006) and reduced neurofunctional correlates of empathic functioning (Minio-Paluello, Baron-Cohen, Avenanti, Walsh, & Aglioti, 2009). However, it is important not to jump to the conclusion that such abnormalities pinpoint the cause of disorder. Instead they may reflect atypicalities in current brain functioning for which the developmental sources are to be found elsewhere.

Finally, it may be worthwhile to signpost a few of the many areas that invite investigation. To begin with, there is scope to study the varieties of identifying-with, and their contributions to personality development as well as social-communicative and intellectual functioning. It is also important to establish what does and does not depend on identifying-with. Although it is probable that autistic children's limited empathy with and concern for others is linked with their abnormalities in identification, for example, other processes seem to be implicated in their relatively spared potential for forming attachments and exhibiting jealousy. In addition, many children with autism develop sophisticated language and thinking, and one needs to investigate the bases for the children's abilities as well as disabilities.

Research with other populations of children promises to enrich the developmental picture. The study of autism and "autism-like" features among congenitally blind children (e.g., Hobson, 2014) has suggested that lack of vision may deprive individuals of just the kind of co-orientation toward the (visually specified) world that is *also* impoverished when young children fail to identify with others. This may explain why the developmental sequelae of

very early-onset blindness can include a picture closely akin to that of sighted children with autism.

Another route to studying the biological foundations of human social relations is to adopt an evolutionary and comparative approach. Already there is evidence that critical contrasts between humans and nonhuman primates lie in propensities/abilities to engage in sharing forms of joint attention, showing empathy, imitating with role-reversals, and symbolizing (e.g., Tomasello & Racokzy, 2003)—and it is at least plausible that in providing mankind with the ability to identify-with, biology prompted the small but momentous step toward the evolution of thinking, talking, and institutionally embedded Homo Sapiens.

ACKNOWLEDGMENTS

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ROBERT PETER HOBSON SHORT BIOGRAPHY

Robert Peter Hobson is Emeritus Professor of Developmental Psychopathology, University College, London, and Honorary Consultant Psychiatrist in Psychotherapy at the Tavistock Clinic, London. He is a psychiatrist and psychoanalyst, and has a PhD in Experimental Psychology from the University of Cambridge. His research interests converge upon the significance of interpersonal relations for understanding the course of human developments, both typical and atypical, and include programmatic studies of autism and mother–infant relations. He has written two books on early development and autism. The first, Autism and the Development of Mind (Erlbaum, 1993), is rather dense, but the second, The Cradle of Thought (MacMillan, 2002, and in the United States, Oxford University Press, 2004) was written for a wider readership. He has also edited and contributed several chapters to a book on Consultations in Psychoanalytic Psychotherapy (Karnac, 2014).

Peter was fortunate to benefit from two wonderful sabbaticals at the Center for Advanced Study in the Behavioral Sciences, Stanford, and is now semi-retired and living in California.

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