Attention, Communication, and Schizophrenia

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The paper starts by drawing the historical lines for and giving an account of the main methods and results from an empirical investigation of cognitive disorders in schizophrenics and communication deviances in their parents. The focus of the report is on the significant correlations that were found between some aspects of parents’ style of communication andoffsprings’ cognitive functioning.

On the basis of the empirical study, the relationship between attention and communication is discussed, and the issue of whether attentional processes “change identity” by being embedded in a social context is considered. Furthermore, the influence of deviant communication in parents on attentional processes in offspring is discussed in relation to a main postulate in Vygotsky’s theory; namely, that higher mental functions are internalized social relations.

Since Bleuler, thought disorder has been looked upon as a pathognomonic symptom in schizophrenia. McConaghy meant to have observed some of the same formal characteristics in the thinking of schizophrenics’ parents as in patients in remission. He assumed these cognitive disturbances were related to schizoid personality traits and thus predisposing factors of schizophrenia. On this basis, he carried out a study where overgeneralized and irrelevant responses were measured in parents of ten schizophrenic patients, by means of an object-sorting test [1]. In the early 1960s Lidz and his collaborators pursued McConaghy’s idea and did several studies where most of the methodological weaknesses that had marred the first examination were eliminated. Generally speaking, a hypothesis of a greater frequency of pathological scores in the patient-parent group was supported in all of these studies [2,3,4].

At the same time as Lidz and his associates examined formal thought disorder in parents of schizophrenics, Wynne and Singer redefined thought disorder as a transactional phenomenon [5,6,7,8]. A main assumption in their work was that certain properties of verbal behavior are manifestations of attentional processes, an idea first of all that Rochester [9], Maher [10], Oltmanns [11], and Schwartz [12] have pursued in their studies of speech disorder in schizophrenics. Thus, the extensive research Singer and Wynne did of communication in families with a psychiatrically disturbed offspring during the 1960s and early 1970s, was, by means of several methods, to explore how parents and their offspring share or fail to share foci of attention and meaning in conversations [13,14]. Wynne and Singer’s research stimulated a good many studies on communication deviances in families of schizophrenics. Research groups in Los Angeles [15–17], Rochester [13,18,19], London [20], and Oslo [21–25] have all made promising contributions to this field of inquiry. Several recent reviews of research in familial pathology [26–30] all conclude that different aspects of communication have shown the most consistent results in distinguishing parents of schizophrenics from comparison groups. This fact does not mean, however, that communication

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deviance is a unique and specific phenomenon in families of schizophrenics. Rather, most families with any sort of psychiatric problems have some sort of communication difficulty. What is important is that some stylistic aspects of communication have proved to be more prominent in a majority of schizophrenics' families than in other groups. Although researchers within this area have been aware from the very beginning of the fact that not all parents of schizophrenics are characterized by deviant communication, few attempts have been made to distinguish which subgroups of parents are, and which are not. In a research project I worked on from 1979 to 1983, precisely this distinction was a central research objective. Other principal questions that were asked in this study were: "Which subgroups of schizophrenic patients, if any, are characterized by cognitive disorders and, if observed, what do the disorders consist of?" "Is it possible to specify any link between parents' style of communication and their offspring's cognitive functioning?" In this paper the focus will be on the last of these three questions. Results related to the first two questions are reported elsewhere [25,31,32].

SUBJECTS

Fifty families participated in the project, each family consisting of mother, father, and offspring. The subjects in the experimental group were 21 non-chronic schizophrenic patients and their parents. Nine of the patients were paranoid, 12 non-paranoid. All of them were in psychiatric treatment, but only nine were hospitalized at the time of testing. Most of the schizophrenic patients were receiving neuroleptic medication. No significant differences between the group of paranoid and non-paranoid patients were revealed with regard to severity of symptoms, hospitalization time, age, education, and social class, neither for patients nor for their parents. The group of control subjects was divided into two subgroups, one consisting of 20 normal subjects and their parents, the other of nine non-psychotic psychiatric patients and their parents. The patients in the latter group represented a great variety with regard to psychopathology. They had two important characteristics in common, however: all of them were in psychiatric treatment, and none of them had ever been psychotic.

All patients were selected on the basis of Research Diagnostic Criteria (RDC) [33]. Experimental and comparison groups were matched groupwise with regard to parents' social class, education, and age; a significant difference at the 0.05 level appeared between fathers' ages. All subjects were screened for alcoholism, drug abuse, organic involvement, and mental retardation.

TASKS

Three methods were used to assess cognitive disorders in patients and three methods to obtain information on communication deviances and cognition in their parents. The three methods that were used for the first-mentioned purpose were a semi-structured interview (see [32]), Goldstein's object-sorting test [34], and a digit-span test with distractor; i.e., some digit strings with distractor and some without (see [31]).

Communication deviances in parents were studied by two of the most frequently used tasks in this research area; namely, the TAT (see [25]) and the standardized communication conflict situation (CCS) developed by Blakar at the University of Oslo. In addition to these two communication tasks, Goldstein's object-sorting test was also made use of to measure cognitive disturbances in parents.
The CCS is a task that consists of two apparently similar maps, one given to each of the two participants. In the present study one of them, the mother, is required to direct the other (the father) via a special route to a predetermined location. On mother's map two routes are marked in, a simple one and a rather complicated one. Father's map is unmarked. The experimental manipulation is that the two maps are not identical: there is one extra street on the complicated route on father's map. Consequently, the two participants will inevitably encounter communication conflicts. The scoring manual that was used in the present study consists of two quantitative measures (how effectively the participants solve the task), and 11 qualitative measures. The latter involve "individual" measures, such as peculiar language, egocentrism, decentration, contract proposals, and attribution of communication failure, as well as "interational" measures, which include the others' reactions to the individual utterances mentioned above. (For a more detailed description of the CCS, see [21–25].)

The TAT protocols were scored in accordance with a manual for communication deviance (CD) developed by Singer and Wynne [35] and later elaborated by Jones and Doane [36]. This scoring manual consists of 29 categories including lack of commitment to ideas or percepts, unclear or unintelligible communication of themes or ideas, language anomalies, disruptive speech, and closure problems.

RESULTS

Concerning cognitive disorders in schizophrenics, five main variables emerged where relatively reliable conclusions can be drawn; namely, focusing of attention, idiosyncratic thinking, overinclusion, speech disturbances, and concretistic thinking. What is conspicuous in this part of the results is that non-paranoid schizophrenics, compared to normals, manifested significant deficiencies on the four first-mentioned of these main variables, while paranoid schizophrenics did not. (For a more detailed presentation and discussion of these results, see [31,32].)

Three general conclusions can be drawn about parents' communication from the present study:

1. Communication deviances, revealed by a multimethod design, proved to be a salient characteristic in some parents of schizophrenics.

2. Parents of non-paranoid schizophrenics manifested significantly more CD than parents in the normal group. On a majority of the communication variables, parents of non-paranoid schizophrenics made up one extreme point on a continuum of CD and parents of normals and paranoid schizophrenics the other extreme point.

3. CCS, generally speaking, proved to be the best method for discriminating different parental groups on the basis of communication style. Egocentrism proved to be the single variable with best discriminating power across all groups. (This part of the study is presented in detail elsewhere, see [25].)

Concerning a link between parents' style of communication and their offsprings' cognitive functioning, this was undoubtedly the most exploratory part of the study. A general confirmation of the existence of such a link was obtained by the finding that the same group distinction proved to be the most important for both parents and their offspring; namely, paranoid/non-paranoid schizophrenia. This means that the parents manifesting most communication deviances had offspring showing most cognitive disturbances (i.e., the group of non-paranoid schizophrenics).
As mentioned in the introduction, one of Wynne and Singer’s assumptions has been that certain properties of verbal behavior are manifestations of attentional processes. An important question in relation to this assumption, I think, is whether those attentional processes that are manifested through communication are made up of the same psychological phenomena as those that are measured by individual tests, such as distractability tests (e.g., digit-span test with distractor), masking methods, span-of-apprehension tests, recognition procedures, recall tasks, reaction-time tests, search tasks, detection of stimuli tasks, and so on. Or do attentional processes by being embedded in a social context change their identity, so to speak? This is an important question because attentional or attention-related disturbances measured by such methods as those mentioned are significant symptoms in a high percentage of schizophrenic patients. At the same time communication deviance is a salient characteristic in a majority of schizophrenics’ parents. If the individually measured
and socially embedded attentional processes are identical or closely related psychological phenomena, a developmental model based on genetic inheritance—or possibly learning effects of a modelling character, such as imitation—may be applied. If not, a model of the sort Singer and Wynne call complementary, where some parental patterns elicit behavior in offspring that is not identical to, but fits with parents’ behavior, seems to be more relevant.

Let me now try to analyze the attentional processes that are involved in successful communication. Singer [14] has pointed out that the speaker must turn his attention inward so he can recall, select, and reason about past memories and at the same time handle outer stimuli and keep his listener in mind. In addition, the speaker must also register the listener’s reactions while he is verbalizing his message. “Heavy burdens” are also laid on the listener’s capacity for selective and focused attention if communication is to be successful. He must attend continually to outer stimuli—namely, the speaker’s message—and simultaneously search for information stored in his memory that may be of relevance in formulating an answer. He must also, in the same way as the speaker, be watchful of other stimuli in the situation that may be of importance.

We may in this case, perhaps, talk about meta-levels of attention. Let me illustrate with a concrete example. Imagine that you are speaking to me about the double-bind hypothesis and I, while you are doing so, suddenly say: “It doesn’t work.” You then need to be aware of the fact that I have noticed that you have grasped my lighter while speaking, if misunderstandings are to be avoided. The pronoun “It—” in my utterance is a deictic (“pointing”) device. It does not refer (anaphorically) to the double-bind hypothesis you just have mentioned, but to the specific object you are grasping at that very moment. Your immediate concern with my lighter makes for a potential transformation of our shared social reality. Actual convergence of gaze onto the lighter is not sufficient for mutual understanding, however. In addition, you have to be aware of the fact that I have been attentive of your novel focus of attention. To me it seems obvious that some of the attentional processes I have now described can easily be fitted into an individually based model of attention—for instance, an information-processing model. Others (like the meta-levels of attention) cannot be fitted that easily.

In egocentric communication some basic preconditions for successful communication are usually not satisfied. This may be due to individual attentional deficits; the speaker may, for instance, be too bound to some stimuli, outer or inner, to be capable of paying attention to the listener’s need for information. What Singer and Wynne have referred to as the aim of communication—a shared focusing of attention—is thereby made impossible. Wynne in a recent article [37] claims that the formulation about shared focusing of attention is similar to what Blakar calls the most basic precondition for successful communication; namely, establishing of a common “here and now.” Actual shared focusing of attention, however, is only one component in the establishing of a common “here and now.” What is required in addition is reciprocal knowledge, or presuppositions, about joint focus and commitment to a shared world, a point that has been emphasized by Rommetveit [38]. To be committed to a shared social reality entails more than establishing a shared focusing of attention. Egocentric communication thus may not only be due to individual attention disturbances but also to a lack of

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1Ragnar Rommetveit has made me aware of the fact that egocentric communication may, in some cases, be attentional-structuring. The speaker is talking to himself and thereby organizing his inner thoughts and outer impressions.
dyadic coordination of attention constrained by the partners' commitment to a shared social reality.

How, then, do we assume egocentric communication in parents to influence individual cognitive processes in offspring? At present, the empirical evidence of such an influence is very meager. A basic assumption in Wynne's and Singer's research has, nevertheless, been that

... how persons learn to share foci of attention and derive meaning from external stimuli, is related to basic, repeated components of parent-child exchanges during the formative years. As growth and development proceed, this learning experience could, ... contribute to disturbed thinking and communication of children who were trying to relate to parents with highly deviant styles or patterns of communication [39:83].

Lidz [40] observed that in many respects the egocentricities of the parent and child are reciprocal. He thus claimed that parents' egocentricities may contribute to the emergence of schizophrenic thought disorders. Apart from these theoretical speculations made by Singer and Wynne and Lidz, however, the empirical evidence of a link between communication deviances in parents and attentional disturbances in offspring is restricted to the significant correlations that were found between these two sets of variables in my study.2

Although the empirical basis for a link between communication deviances and attentional disturbances is meager, and the direction of such an influence is even less explored, let us for a moment assume that Wynne and Singer are right in claiming that the direction of the influence is mainly from parents to offspring. Do we in that case have an adequate model of development in which the link can be explained?

A main postulate in Vygotsky's so-called "general law of cultural development" is that higher mental functions are internalized social relations [41]. Vygotsky is not simply arguing that the cognitive activities carried out by individuals somehow result from social interaction. Rather, he is arguing that many of the processes involved in the individual's cognitive activity are direct reflections of processes and patterns which characterize interpsychological activity. The development of attention is included in this model; i.e., it holds for what Vygotsky calls "the cultural development of attention," which means "... the evolution and change in the means for directing and carrying out attentional processes, the mastery of these processes, and their subordination to human control" [41:69]. (The other basic line of attentional development is, according to Vygotsky, "the natural line," which is predominant in the very young infant and is, generally speaking, a function of the structural and functional development of the central nervous system.) This voluntary form of attention emerges owing to the fact that people who surround the child begin to use various stimuli and means to direct the child's attention and subordinate it to their control. The development of attentional processes, in other words, takes place in a dyadic constellation [42]. The development of voluntary attention begins with the index finger, Vygotsky says. Relatively early, however, the adults start to lead and direct the attention of the child through language, and because of the language the child gradually begins to direct his

2In the late 1960s David Reiss carried out a series of experiments in which the subjects' cognitive style was related to family interaction variables. Formal aspects of communication were, however, not a topic of exploration in this research project.
or her own attention. Ach formulates the same idea by saying that for us words are a means of directing attention (see [41]).

What can we, on the basis of the model outlined above, assume happens with a child that is growing up in a social context where egocentricity and disruptive speech is dominant in parents' communication? First of all, it must be very difficult for the child to learn which messages the parents try to communicate. The child will thereby get no opportunity to establish a firm way of focusing attention on the relevant stimuli in a given situation—because it will never know which are the relevant stimuli. Instead, the attentional styles that are internalized will be characterized by a steady wandering from one stimulus to another, in a search for the most relevant one. Such a roaming style of attention, I think, is what is reflected in the distractability found in non-paranoid schizophrenics in my study.

It must also be emphasized, in this connection, that it may reasonably be assumed that psychological factors other than the parents' style of communication influence the development of attentional processes in offspring as well. One of them is "the emotional climate" in the family. We know, for instance, that a high degree of anxiety exacerbates diffuse and unintelligible communication [43]. Anxiety may also lead to a pathological binding between a parent and child. We know that anxiety, insecurity, and instability are often prominent components in the growing-up milieu of schizophrenics.

Let me conclude this discussion by reminding the reader that there are also some attentional disturbances found in schizophrenics that seem to be more directly linked to parents' cognitive functioning. Some of these disturbances, like reaction-time crossover (RTX) and span-of-apprehension deficits, may be genetically transmitted, a hypothesis supported by the fact that milder forms of the deficits are often found in close relatives of patients (cf. [44]). However, we can not yet exclude the possibility that some of these disturbances are transmitted by a modelling form of learning. This is an important question that has to be examined in future research.

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