I

Introduction

Prelinguistic communication: a field for scientific research¹

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1 Introduction

This is primarily a book about a field of research: about how scientists go about finding out how infants and adults communicate with one another. This topic is now exciting the interest of investigators. Until recently most scientifically minded people in our culture considered infants incapable of communication since they don’t talk. Of course most mothers know otherwise but scientists and other ‘experts’ haven’t always taken them seriously.

I have been looking into the development of communication from a ‘scientific’ point of view for nearly two decades. While helping with the preliminaries for the Third International Child Language Symposium in London in 1975 and preparing to chair the section called ‘Prespeech’ it occurred to me that a book about prelinguistic communication would be timely and useful. As others enter this area of investigation, or have an interest in it, they should be able to find in one place an account of how some of us have gone about investigating it. But this isn’t a ‘how to’ book. There is no simple formula for finding answers to the questions which arise as soon as one starts to think seriously about communication between infants and adults. (Studies are already being started on communication between infant and infant.) At this point the best I could do was to assemble examples of ways in which some successful investigators have gone about reducing our ignorance. Therefore I invited a number of colleagues who study the communication of prelinguistic infants to join me in this enterprise. Nearly everyone I consulted or invited to participate responded with enthusiasm. A few had to beg off because of prior commitments, but none said this couldn’t or shouldn’t be done yet.

As editor I’ve urged my colleagues to be terse without sacrificing
Before Speech

ideas. I've asked as many of them as possible to say something about what led them to this field of inquiry, about how they go about it and what they have learned. Each chapter is therefore an exemplar of how a researcher, or in a few instances a team of researchers, has gone about looking into some aspect of prelinguistic communication. We haven’t concealed the difficulties in this kind of research. There isn’t any one right method any more than there is any one right theoretical viewpoint, although there are methods and viewpoints which might be less appropriate or fruitful than others. We are all in agreement that infants communicate, so among us I haven’t found anyone asking whether infants participate in communication, although that question is still being asked or a negative answer to it assumed. On the other hand we don’t all agree on the definition of communication, although meaning and intention are nearly universally included, nor on exactly what counts as communication. I feel that the field at this stage of its development is better served by not imposing a uniform definition but by letting diverse points of view find expression.

A book such as this with related contributions by a number of authors is often the result of a conference and papers are published after being revised in the light of the discussion between participants and by commentators. We have not held a conference nor had the benefit of group discussion. Some of us are personally known to one another and sometimes refer to each other’s work. But I am probably the only one of us who is personally acquainted with everyone else. I have tried to get representation of different kinds of work from members of different academic disciplines and schools of thought and from as many different places as possible, though obviously I couldn’t ask everyone I know or know of who works on anything to do with the topic to contribute. I didn’t intend to confine the representation to Britain and the United States, although these are the relevant research communities I know best. I have found a few people in other countries working in the field. Yet this is for the most part an Anglo-American book. I did inquire of knowledgeable persons in many parts of the world about who was doing research in this or related areas. While I found out about a number of interesting developments by this method, I turned up hardly any completed research which would be appropriate in this collection. But, too late to make use of it, I visited some continental research centers where through personal contact I did find work which would have been appropriate for inclusion.
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1.1 Precursors and influences on our research

I have been curious as to why research on this topic is more advanced at this time in these English-speaking countries than elsewhere. I’m not at all sure that I know the reason, although I have been offered a number of explanations. My hunch — and it is only a hunch — is that the emergence of prelinguistic communication as a field of inquiry represents the intersection of several research trends of the recent past in the United States and Britain. Infancy research has been moving from infant as isolated organism through infant as interactant, mainly in mother–infant dyads, toward infant as communicative partner. Language acquisition research has been reaching back from the study of children producing recognizable sentences at least two words long through holophrase and one-word ‘sentence’ production toward any detectable sound—meaning correspondence. At the same time there has been an extension of research attention by child language investigators from ‘sound-track’ alone to the observed interactional context and the term ‘communicative competence’ has become prominent. There have also been contributions from cognitive psychology as it has looked to younger and younger children for origins of intelligence, and found them. I would guess that trends in these three areas in the United States and Britain have been largely responsible for convergence on infant communication.

It might at first seem that this is simply an extension of the mother–infant interaction field. Therefore it is necessary to explain why it is not, even though there is an area of overlap. Few, if any, would claim that all interaction is communication, although communication is recognized as taking place in interactional contexts. Richards (1974a: 123) states that he regards ‘communication as something beyond interaction’. The mother–infant interaction literature, most of which has appeared in the past five years or so, has a different thrust from the concerns we are dealing with. It has usually focussed on socialization or on personality formation rather than on communication. When we consider communication, we are basically concerned with shared meanings (enculturation). Interaction can occur without having the same meaning for each interactant. Since communication occurs only in the course of interaction with other people, we are in a sense all doing interaction studies. And investigators of mother–infant interaction have pioneered methods (described in detail below) which lend them-
selves to studies of how meanings are shared before language is available for the purpose. Admittedly this does leave us with a grey area between the two concepts, for how can we tell, we who are so dependent on words, that an infant, who cannot say what he means, shares meaning with another person?

The same issue might arise in relation to the other fields (language acquisition and cognitive psychology). Why isn’t this language acquisition pushed still further back? In a sense it is, but the issues which require consideration when we look into the infant’s ‘total communication’ seem to me broader than those which have been taken as their province by students of language acquisition, traditionally linguists and cognitive psychologists. Their question has been: how does a child acquire his mother-tongue? — with adult language as the target. So the development of phonology, syntax and semantics has been studied from the point of view of what the child as an individual knows and how he applies it. Recent interest in how a child uses language extends the field in the direction of communication, but it is still focussed on what the child as an individual knows and does, rather than on the exchange of meanings between child and partner implied by communication. It is possible to use language all by oneself, though not to learn it. It is not possible to communicate, in the basic meaning of the word, alone.

The three fields just discussed are not the only ones which have made significant contributions to these investigations. The impact of the field of ethology, as people trained in animal behavior research brought their concepts and skills to bear on problems of human development (Blurton Jones 1972), shows clearly in the background in biology and medicine of a number of contributors to this volume and to the field. Furthermore, concepts and terminology derived from ethology are quite pervasive throughout this volume. Almost everyone in this book tends to interdisciplinary thought and practice and, if only by some slight allusion, brings biological or ethological ideas into his discourse.

There is an inescapable resemblance between the problem of investigating communication between infra-human animals, especially other primates, and that of investigating communication between human adults and their prelinguistic infants, since language in the linguist’s sense is not available as a guide to meaning in either case. At the level of signalling behaviors the relationship is especially strong. But there
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is probably also resemblance at a deeper level. Social animals share with us states of ‘being in communication’.

Another influence which has become so pervasive in modern thinking that it is often not mentioned explicitly is cybernetics (systems theory, e.g. Bertalanffy 1933, Chappell & Sander this volume). Most of us recognize the mutual regulation which takes place between mothers and infants in communication and we use language which stems from systems thinking while seemingly oblivious of its source. Even when the influence of one or the other of the communicants is seen as predominant, it is never suggested that one partner is unresponsive to the other’s behavior. Thus we acknowledge feedback loops whenever we consider communication or interaction.

The concern with turn-taking is dealt with specifically in chapters by Bateson, Fraiberg, Kaye, Newson, Snow et al., Trevarthen and Tronick et al. The writings of a group of social psychologists known as ‘ethnomethodologists’ (e.g. Garfinkel 1967, Sudnow 1972) may have contributed to this concern, although their literature deals mainly with adults and is not generally referred to by investigators of infant communication.

1.2 About this book: in general

When I undertook this project I expected to find a great deal of diversity of viewpoint among these widely scattered investigators with such differing backgrounds. It came as a surprise to me to discover the extent to which we are in basic agreement on a number of fundamental issues. That meaning and intent are fundamental to the definition of communication is nearly universally acknowledged, even though we might not all define communication in identical terms. Everyone of us who has anything to say about the relation between prelinguistic communication and language sees continuity when meanings and intentions, at first expressed through extralinguistic means, are transferred to language. Relations between context and content, while variously conceived in detail, are universally recognized as important in understanding the developing system of interpersonal communication, which is itself seen as constructed through the joint effort of mother and infant. Timing and sequencing are acknowledged significant aspects to investigate.

These ideas must be ‘in the air’. It is true that there are traceable intellectual relations between some of the contributors, especially
among those who at one time worked at the Harvard Center for Cognitive Studies. But there are also contributors who have come by different routes with minimal if any contact with that seminal source. My own contact with it, even though it was only two miles from where I was working most of the time, was quite peripheral. At the time I was unaware of possible influence from the occasional colloquia I attended ‘up the river’, in what seemed to me the alien area of cognitive psychology, on ideas I was developing in virtual isolation. Others were even more isolated both by geography and by intellectual provenance and affiliation. Our relative unanimity suggests that we are in step with the Zeitgeist of this field.

This book will of necessity raise more questions than it can answer. It can, however, be useful at this stage of our inquiry for us to face up to the kind of problems, both theoretical and practical, inherent in the research consideration of infants as partners in communication.

The topic of infant communication is an emotionally, and I suspect even politically, loaded one. This implies that it will fall to the low end on a scale of objectivity. Since Heisenberg, we as scientists no longer claim total objectivity even in the ‘hard’ sciences. We have invented all sorts of ways to try to circumvent our tendency to project our personal ways of perceiving onto human objects (so-called ‘subjects’) of scientific investigation, as though what two or more people agree they perceive is in some sense more valid than what each alone perceives, and we throw out as ‘data’ observations which are considered too deviant from those we can agree on in common. It is as though we believe that two heads are always better than one, forgetting that the two heads have usually developed a common perspective and that, even if they don’t communicate directly about their perceptions until after they have recorded them, their work in a common frame of reference inevitably leads to mutual calibration. I’m not saying that this is ‘a bad thing’ but rather that we should recognize it as inherent in the perception of people, whether the people are infants, school children, psychiatric patients or any other class of humans under scrutiny.

How such knowledge may be applied is, as with all knowledge, a problem in wisdom and responsibility. I want and hope that whatever we learn will benefit people, but I am disposed to be very cautious about giving advice. I feel that we are looking into a Pandora’s box, the contents of which are exceedingly complex and all interrelated. I want to
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know. I feel very far from being ready to do. And yet some of what we are learning about the ‘normal’ process may suggest ways to help those individuals who are communicatively most handicapped, children who have or acquire sensory, motor or central nervous system defects. This concern is prominent in the chapters by Brazelton, Condon, Fraiberg, Newson, Plooij, Ricks and Stensland Junker. To me this seems a different sort of application from tampering with social institutions, such as educational systems, on the basis of fragmentary knowledge.

1.3 About this book: some technicalities

These chapters and the work they are based on are interrelated in so many ways that it is impossible to classify them in any straightforward sequential arrangement; therefore the chapters are presented alphabetically by first author.

The extent to which some of these accounts of research are personalized is my responsibility. I have encouraged my co-authors to use the first person where appropriate, since research is always thought out and executed by a particular living person and is the product of his personal life-history and experience interacting with the situations in which he lives and has lived. I have tried to find out what led the authors to do the kind of work they report here and describe this in section 6; some of the authors have included personal accounts in their chapters. For at least five of them (Bateson, Halliday, Ricks, Stensland Junker and Trevarthen) the direction of their research was shaped by experience with children of their own.

In order to aid readability I have asked everyone to conform to a few simple conventions in the use of personal pronouns. Babies, unless a girl-baby is specifically referred to, are by convention 'he' to acknowledge personhood but avoid the cumbersome he/she. This does not seem to me to be a 'sexist' way of dealing with the issue but simply an acknowledgement that English uses a masculine form for the general case. Caregivers are conventionally 'she', without implying that men can't function well as caregivers, so as to leave sentences with both infant and adult unambiguous when pronominalized. Authors in generic usage are 'he' for the same reason as the infants. Conventions of spelling, however, have been made uniform only within chapters, not throughout the book.

The notes for each chapter are numbered sequentially and are placed at the chapter ends. The references for the entire book are
combined in one alphabetical list, which also serves as a citation index, at the end of the book.

This introductory essay encompasses both my personal view of the field of research we are presenting and what I hope will prove a useful guide to the chapters which follow. Rather than introduce them one by one, I will refer to them repeatedly in context as I review some of the themes and methods of investigation I have found in them. When authors are named without a date in this introductory essay, the reference is to a chapter in this book.

I suggested to the other authors that it might save them space for presentation of their own work if they left the review of the literature to me, since I felt sure there would be a good deal of overlap between chapters. In fact most chapter authors did take up the work of others, as it customary. Therefore, instead of grouping the literature review in one section in this introduction, I will take up writings which I have found relevant as I discuss the themes I have identified in the chapters along with clues to where more references are to be found. My purpose throughout the introduction is to supply additional leads rather than to be exhaustive.

2 Prelinguistic communication

The explicit concept of communication between infants and adults is of fairly recent appearance in the pertinent Anglo-American literature: child development, pediatrics, advice on child-rearing and language acquisition, to name the most obvious. Although there have been studies of the signalling behavior of infants during the past century (dating auspiciously from Darwin’s *Expression of the emotions* (1872)), I feel that communication, with emphasis on interpersonal process, is a more modern concept.

In book indexes, tables of contents of journals and lists of abstracts covering these fields one searches in vain for the term ‘communication’. Even a 1300-page compendium of research, *The competent infant* (Stone et al.) published in 1973 does not have the term ‘communication’ in its index nor even ‘interaction’, and yet it is not hard to find relevant material there in a large section called ‘The social infant’.

One can make a case for the thesis that the concept of communication with infants has newly emerged in Anglo-American child development studies. There is evidence, too extensive to present here, that disregard for infant communication by professionals has not been uni-
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form throughout the world (e.g. Luria 1957; Lezine 1972; Lisina 1974).

But if one searches in the literature with one’s mind tuned to nuances, there is some evidence that at least some people recognized all along that it is possible to communicate with infants. In early psychoanalytic writings about infants, the term ‘empathy’ seems to have overtones of communication. Burlingham (1972), in a paper published originally in 1935, writes: ‘... empathy between infant and mother, mysterious and almost uncanny as it used to appear formerly, is here shown lodged to a large degree in the acuteness of the child’s perception’ (69). Freud & Burlingham in Infants without families (1944: 14) attributed the slower development of the five- to twelve-month-old infants in their wartime nursery to ‘reduction in emotional interplay and the intellectual stimulation which results from it’ when many infants had to share the available adults in contrast to the one-to-one relationships of home-reared babies.

A child starts to learn mother-culture even before he starts to learn his mother-tongue. Infancy is the great opportunity to learn about people without distractions. At first an infant’s world is almost exclusively a world of people and what they do with and to and for him. The people he is learning from and about are the members of his own household. These are the people who give an infant his start toward enculturation.

The anthropologist Edward T. Hall (1976) equates communication and culture:

What is characteristically man – in fact what gives man his identity no matter where he is born – is his culture, the total communication framework: words, actions, postures, gestures, tones of voice, facial expression, the way he handles time, space and materials, and the way he works, plays, makes love, and defends himself. All these things and more are complete communication systems with meanings that can be read correctly only if one is familiar with the behavior in its historical, social and cultural context. (37)

This is a very broad definition of communication indeed, but one which makes sense to me. For each culture, in its specific way of dealing with all dimensions of the lives of its adherents, supplies the contexts needed to comprehend the meaning of all interpersonal communication.

I believe that one of the things which has delayed the study of the earliest human communication is our habit of thinking of communication as consisting mainly of language. Students of language acqui-
situation are just now coming to recognize that to understand child language requires a great deal of attention to pragmatics — to the contexts in which it is used. This includes not only the situation but also all extra-verbal communication. What is content at one time becomes context later. I suspect that this has a developmental sequence.

This may be illustrated with data from a study on the development of pointing (Murphy forthcoming). Infants and toddlers at nine, fourteen, twenty and twenty-four months were video-taped while on their mother’s laps sharing picture books. Looking, pointing and vocalizing of both mothers and infants were among the behaviors located and timed precisely. At nine and fourteen months infant pointing and vocalizing were not well integrated with each other. Frequency of vocalizing at the same time as pointing reached a peak at twenty months and then consisted mostly of naming, whereas the twenty-four-month-olds and their mothers were looking ‘more earnestly’ at individual pictures and defining more detail: not just ‘kitty’ but tail and whiskers. What interests me in this developmental sequence is the way in which manual pointing developed within the context of shared visual attention and then was overtaken by vocalization which became naming of the objects looked at, and, when language came in, whole objects became contexts for their parts in turn. What had been content had moved from central focus to periphery, from figure to ground.

One can find such developmental sequences almost anywhere one looks among longitudinal studies which involve shared meaning. The illustration just cited is based on indication. I am offering another based on demand, the other major category of early performative utterances (Gruber 1973). Starting with younger infants I noted such a sequence in reviewing two series of monthly sequential films of two babies and their mothers from around three to fifteen months in ‘naturalistic’ observations searching for ‘demand’ behavior (Bullowa 1977). At first visual fixation on an object communicated the baby’s attention to it, then visual attention became the context for manual reaching and still later the babies could point to out-of-reach objects to ‘request’ them (the issue here is not whether the pointing gesture is a modified reach—grasp gesture but that it serves to specify an object in the environment in a communicative situation, a different issue); and finally vocalization, which at first tended to accompany the hand gestures, would displace them in the form of language as a way of communicating the topic of discourse. I conceptualize such a