

The Foundations of Literacy

Don Holdaway

Holdaway, Don.
Foundations of Literacy.

Index

Bibliography

ISBN 0 86896 014 4

1. Reading [Elementary]. I. Title.
372.414

Copyright © 1979 Don Holdaway.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, storage in any information retrieval system, or otherwise, without the prior written permission of the publisher.

First published in 1979 by Ashton Scholastic P.O. Box 579, Gosford, N.S.W.

The text of this book was set in Trump Medieval, designed by Georg Trump (Schriftgießerei Weber, Stuttgart), with Antique Olive (Fonderie Olive, Marseille) for the headings.

Filmsetting by The Typographers, Sydney.

98

11

Printed in the U.S.A.

COI

Prefa

1. 1

2. 1

3. 1

4. 1

5. 1

6. 1

7. 1

8. 1

9. 1

10.

1

An Open Approach to Literacy

Learning to read and to write ought to be one of the most joyful and successful of human undertakings. Notoriously, it is not so. By contrast, most developmental tasks such as learning to walk or to talk are learned almost universally with deep personal satisfaction. What explanation can we give for the continuing difficulties experienced by so many children in learning the tasks of literacy? Are reading and writing intrinsically more difficult even than learning to talk? Are they artificial and unnatural in relationship to other developmental tasks? Are the methods of teaching inefficient even after so many generations of experience and research? Is the school environment unsuited in identifiable ways to the literacy undertaking?

Why another book about literacy?

This book is an enquiry into such questions as these. It is also an attempt to explore solutions both at the level of theory and in honest engagement with the realities of practice. It sets out to be an exploration of what is really possible, rather than just another academic exercise in an endless debate without issue. It is a challenge thrown out in a serious and responsible way—a reaction against the sterile debate of false issues and an invitation to focus on central questions that are too often evaded. Others have made the same plea before or are making it from a variety of standpoints today. In this sense this book supports a tradition of sanity and deep concern for the children who need not fail. The book makes its ultimate appeal to good sense and experience in the world, and is arranged neither as an academic critique nor as a set of prescriptions for the classroom. Rather, it is hoped that it will suit the needs of those who are determined to try out ideas for themselves, to think deeply and to be convinced slowly; those who are prepared to read more widely when in doubt; and those who wish to influence outcomes from an informed conviction which they have tested in their own experience. The exploration takes us from simple and fundamental issues through more complex and debatable ones. Each section moves from hypothesis, through theory and testing, to classroom implications and suggestions for teaching. Ideally, the adventure should be undertaken in a slow, open-minded, questioning, manner allowing the opportunity for working with the ideas in real situations, or at least for personalizing the ideas by rigorous comparison and reflection.

Why is there a problem?

Even in the most advanced societies schools have failed to achieve the 19th Century dream of a universally literate society. The dream may have been unrealistic or the goal even undesirable, but nothing in the educational world can match the resources of every kind that have been poured into this effort and, more recently, into the remediation of its countless failures. Should we not have sufficient clues from the broad span of research in learning, in human development, in linguistics, and in sociology to draw sound conclusions about this failure and its proper resolution? The most complex of human skills are learned in natural environments without the support of highly trained professionals. Have we been overlooking some vital issue because of the sanctity of conventional schooling or because of the fallacies of academic analysis?

What is called for is an extremely open-minded enquiry which takes nothing for granted from the vast accumulation of habits, assumptions, experience and research which surround the subject like an impenetrable jungle. If we continue to make literacy a criterion for basic human dignity in our society, we cannot tolerate the failure with its poignantly modern forms of misery and maladjustment. Instead of setting up expensive and wasteful remedial programmes with a whole new establishment to support them in their inescapable effects of grinding the indignity deeper, we should either find a preventive solution or excuse a large proportion of children from school attendance. The present status of the problem, as already endlessly researched and largely unsolved, suggests that no assumption should be sacrosanct in our attempt to understand the matter.

Some important features of the enquiry

In the broadest terms, what sort of process or processes are we concerned with in reading and writing? If we are to be responsible in the enquiry, to what areas of knowledge must we turn? What map should we lay down if we are to explore the terrain thoroughly? What criteria should we set up as touchstones to progressive evaluation of our progress?

A basic set of considerations would include at least the following:

1. Literacy is a matter of language

A traditional error of thinking about reading and writing was to see them as discrete subjects isolated from the world of language and spoken culture and then to teach them as if they had no relationship to listening and speaking. Although lip-service has been given to remedying this mistake in recent years, the habit of regarding reading, writing, spelling and written expression as separate subjects is so deeply entrenched that they continue to be taught in little relationship to each other or to oral language. It is inconceivable that children could learn to talk quite separately from learning to listen, yet in school we continue to contrive barriers between related aspects of language.

The last thirty years has seen a revolution of knowledge in linguistics and in language acquisition. Some attempts have been made to apply those new linguistic insights to literacy, but except in the case of a few able psycholinguists and sociolinguists whose work we will consider later, such attempts have in the main only served to increase the general confusion and provide further fuel for the factional and perennial debate about opposing methods. Modern knowledge about the nature of language and language acquisition has much to offer in clarifying the reasons for instructional failure, but this

contribution must be seen as something quite separate from the specifically educational prejudices of individual linguists.

Modern linguistics is concerned with the scientific study of language. There are three major branches of linguistic study:

- Semantics: The study of meaning in language.
- Grammar: The study of syntax and morphology.
- Phonology: The study of sound systems of language.

There has been a tendency for modern linguistic study to avoid semantic questions because of their complexity and to concentrate research on the more amenable problems of syntax and phonology (Bruner 1975, pp. 61-2). Although we have neglected syntactic questions in the teaching of reading and writing, it would seem that we have neglected semantic questions even more. Semantic theory is a lively and growing area of linguistic study, and it would be a pity if the application of insights from linguistic science generally to the concerns of mastering literacy continued to reflect the timidity of many modern linguists over questions of meaning. However, it is in the continuing study of the acquisition of spoken language that the most pertinent contributions are likely to be found (Britton 1970, pp. 33-96). Such studies are concerned with the *learning of all* aspects of spoken language, and as observed in *real* settings rather than in the distorting experimental frameworks that we have become used to in educational research.¹

By concentrating in the past on the exclusiveness of literacy tasks even from each other we have undervalued the fundamental processes of all language and even created activities such as 'word calling' which are basically non-linguistic in nature and are practised only in schooling. During our enquiry we need to remember that anything that can be said of human language and language learning has some vital bearing upon the processes of literacy.

2. Literacy has many human dimensions

Language is the most complex of human activities, engaging the organism simultaneously at every level of experience. Muscular and sensory processes operate automatically at speeds well beyond conscious control yet remain sensitive to deliberate intervention for problem-solving or for correction and confirmation. In perception, sensory information is processed sub-consciously from its raw form into meaningful units. In expression, thoughts are translated into articulation or into written symbols by encoding processes too complex for complete analysis. Language fails in its intention if cognitive processes are not active and dominant, while these same processes activate predictive alertness. Cognitive activities also govern feedback, and so guide, control and correct in the total orchestrated performance. Some part of the intention or effect of language is always emotional in nature no matter what the primary function—which may in itself be concerned with feeling. Finally, the whole concert of activity proceeds at such a startling pace that only a fraction is under conscious control: the greatest burden of work is carried out in a delicately structured automatic performance by little understood processes in the nervous system.

In carrying out any language activity, then, the human organism is engaged globally, and malfunction in any area may seriously impair learning. The extent to which language is dependent on deeply automated systems and on delicate control systems has been largely overlooked in the teaching of reading and writing. We tend to teach as if the child should have conscious control of every response—which is impossible—rather than teach in such a way as to facilitate the rapid development of smoothly operating automatic systems

(Smith 1971, pp.23-26). Furthermore, by constantly intervening in corrective ways we tend to inhibit the development of those vital feedback systems which sustain healthy functioning. These are topics to which we must return again and again throughout our enquiry.

Language has other human dimensions of equal importance to those we have considered. The way a person functions linguistically is such an integral part of self that it cannot be separated from the health and well-being of the person. Full human status in our society cannot be attained in the absence of functional literacy. Unlike special talents, literacy is required not to be better than others but simply to be *like* them—to be fully human. Experience of failure or inadequacy in language, even for short periods during learning, may undermine personal confidence and well-being in frightening ways. Remedial intervention poses such risks to self-esteem that it is difficult to implement a programme without predominantly negative effects—even on learning. Thus any theory or practice of literacy teaching which fails to take into account the deep and powerful implications of language in the whole personality fails at a most fundamental level.

Communication is only one aspect of the multi-functional nature of language.² Language is such an integral part of experience that every human purpose or function has a linguistic correlative—as soon as a new human need or preoccupation arises, an appropriate language form is created to represent it. One of the reasons for ease in oral language acquisition is clearly the wide range of powerful functions to which language is put by young children—its versatility is immensely rewarding, bringing powers that must seem almost magical to the infant learner. Literacy skills, on the other hand, tend to be taught using language for a narrow range of purposes instead of exploiting its functional richness. (Halliday 1973, pp.7-20). An effective learning environment for the acquisition of literacy should be alive with activity which is felt to be deeply purposeful in all the ways of human meaning. For these reasons it will be necessary to explore the *functions* of language in detail.

3. Literacy is developmental

Developmental learning is the type of learning engaged in by infants before they enter school and by school children outside the instructional environment. It occurs with a minimum of instruction as a 'natural' part of ordinary development but may include the learning of such culturally conditioned tasks as doing up buttons, lacing shoes, or riding a bicycle. It is perhaps 'natural' in a different sense that schools should set up very different conditions for learning the tasks that they are commissioned to teach, including reading and writing. There are many reasons for this. Teaching literacy skills is the peculiar function of schools but, because of their distance from the real activities of living, because of their institutional framework, and so on, schools find it difficult to provide the conditions for developmental learning. Literacy has always rated of prime educational importance, and all the techniques of formal, institutional instruction have been focussed on it. Paradoxically, when the school meticulously leaves no stone unturned to *teach* literacy skills thoroughly, it leaves no room for children to *learn* those skills with the same efficient use of their faculties as they bring to bear on comparable tasks outside the school.

Developmental learning is highly individual and non-competitive; it is short on teaching and long on learning; it is self-regulated rather than adult-regulated; it goes hand in hand with the fulfilment of real life purposes; it emulates the behaviour of people who model the skill in natural use.³ Could

reading and writing be learned in similar ways? The very idea gives us as teachers a sense of insecurity—it is almost as if this type of learning, so manifestly efficient, threatens our professional functions. It also raises some uncomfortable questions, such as, 'How do we go about "modelling reading and writing in natural use" in the classroom?'

4. Literacy is learned

The history of ideas in the acquisition of literacy is a history of competing methodologies focussing on teaching or instruction rather than on learning. In the past fifty years we have seen a revolution in knowledge about the nature of learning, yet in the vast literature on the teaching of reading, so voluminous that the dedicated student is threatened with verbal suffocation, there is seldom a mention of this knowledge. For instance, in the massive and influential study by Jeanne Chall, *Learning to Read: The Great Debate* (1967) or even in the 600 pages of the Bullock Report, *A Language for Life* (1975), only passing mention is made of how reading is actually learned.

We must not allow our pre-occupation with the humanities to prejudice us against this new knowledge. The modern behavioural scientist is concerned with observable behaviour, and how behaviour can be shaped. It may be true that this non-mentalistic bias has obscured many important issues in language learning.⁴ Such a point of view has been expressed cogently by such different people as Frank Smith (1975), Carl Rogers (1969), and Susanne Langer (1967). But this must never be taken as a justification for dismissing as irrelevant the most universal insights arising from behavioural research in learning. Some of these important insights are that punishment and fear are impediments to the sorts of learnings with which literacy is concerned; that reward and significance and meaning—whether or not we use the term 'reinforcement'—are in fact essential in learning; and that to be ignored or bored—neither rewarded nor punished, extrinsically or intrinsically—destroys motivation and limits the extent to which new skill can be put to use. Common sense stands squarely behind most of these insights, and there is no room for factionalism here.

It is often the most fundamental and universal insights that are *not* applied, and no amount of precision or refinement in syllabus design or in instructional technique can compensate for such a failure. Understanding the importance of these basic universals of learning could be compared with making sure that the baby's mouth is open before attempting to get food into it. The nature of the food and the ability of the baby's complex digestive system to handle it are refined matters, which we may not understand well and hence should research and argue. But if the mouth is *not* open, or will not be opened, or even if the food is spat out, the baby's metabolism will suffer regardless of how scientifically accurate is our choice of diet to suit baby's digestive idiosyncrasies. Carrying the analogy a little further, it would seem that much argument about educational matters calmly accepts the tightly closed mouth of the baby or the regurgitated food on the floor, and opts for pre-digestion of the food and administration intravenously. The technology is complex, modern, and almost miraculous, but in its application it is abysmally stupid and wasteful. It will be our contention that the most powerful rewards in learning reading and writing are intrinsic and meaning-centred, and that self-regulation in actual reading and writing is more important than extrinsically applied contingencies—or even than instruction of any kind. But this does not remove the need to ensure that both the instructional environment and instructional intervention should embody these basic principles. The majority of schools fail to achieve this for a majority of children the majority of the time.

When we do in fact apply the most basic things we know about learning to the actual performance of our schools, we see that the results we are getting are precisely those we should expect. From the point of view of reinforcement contingencies alone, learning theory would predict that if literacy is taught in an environment in which competition decides the nature and levels of individual rewards for learning, an over-reinforced elite will excel (slanting use away from understanding towards performance); a large minority subjected to intensive punitive feedback will fail (with appalling effects on mental health); and a majority, treated to years of indifference and low levels of reinforcement, will use literacy as little as possible outside the instructional setting. And this would be the likely outcome even when a comparatively efficient 'method' of teaching had been applied. Why then do we complain and engage in wasteful public debate when the system is functioning in precisely the way we should expect?

There is a great deal of agreement among learning theorists about fundamental questions, but for a variety of strange reasons both society and the schools have failed to be convinced. Some fear determinism, the vicious mind-teaching of behaviour modification, as if efficient teaching could be anything else. The paradox of this objection is that the more efficient teaching becomes the more offensive it becomes. So thinkers of this kind opt deliberately for the gross inefficiency of our present system at the same time as they complain about it. Nobody thinks to question the right of children to have a choice not to learn to walk or talk—the most determined learning that there is in the world. We all expect our children to walk and talk and would be deeply distressed if they failed—in that sense we are all determined to have determinism.

The objectors would insist at this point that children learn these skills 'naturally'—no manipulation, no jelly beans. They should really observe the behaviour of parents with their massive handouts of parental affection when baby tries to walk or talk—the cuddle and the 'Clever girl!' are worth 100 jelly beans each. Learning 'naturally' is learning with ideal reinforcement contingencies when there is usually immediate reward for approximation in the right direction.

One of the most fundamental and irrefutable principles of learning concerns the negative relationship that exists between productive learning and punishment. (By 'productive learning' we mean 'learning that is to issue in confident use of what is learned'.) Punishment issues in aversion—narrowly towards the behaviour being punished but broadly towards the 'subject' or activity generally, towards the teacher, and towards the context or environment in which the punishment occurs. Thus, if a child is embarrassed by making a 'mistake' in oral reading, he will avoid that type of mistake narrowly to the extent that he can distinguish what type of mistake it was. But since he was trying to do the right thing anyway, the punishment is likely to make him avoid oral reading because *any* response may be unsafe. But of even greater importance, the learned aversion is likely to spread to reading generally, to whoever may have ridiculed him, and to the environment of the reading lesson. Furthermore, the aversion is likely to influence him *deeply* in the protective functioning of his autonomic nervous system, especially if the experience is repeated often. He may then respond to reading compulsively by creating defense mechanisms, by developing a tendency to shift into emotional blockage when facing difficulties, or even by becoming neurotic in a variety of ways. For all these reasons punishment does not produce 'learning that is to issue in confident use of what is learned'.

Despite these clarities, and notwithstanding significant reforms, instruction in literacy becomes a most punitive and aversive experience for a large proportion of school children. It does so largely because of failure to apply the most basic things known about the conditions of learning. It must be admitted that this failure is largely forced on teachers and our enquiry must attempt to discover in what ways and for what reasons. We need to take greater account of indirect forms of punishment in relationship to literacy learning and of those conditions under which guilt and despair become associated with the undertaking.⁵

It is time, as many of our most active researchers would agree, that we concerned ourselves more seriously with the processes by which literacy is actually learned rather than with arid argument and research about competing methods of teaching. Our first responsibility is to observe with proper humility and open-mindedness how children making healthy development in literacy actually operate, and to what extent basic insights about learning apply to the acquisition of language and of literacy. The challenge then would be to replicate healthy learning conditions for all children—to modify our teaching and the nature of the school environment in support of such conditions rather than to allow the institutional convenience of schools and preconceived notions of teaching to impose their own conditions.

5. Literacy is a cultural matter

A disproportionate share of the failure to transmit the skills of literacy falls on children from cultural backgrounds at variance with the culture of those who have traditionally influenced the language of schooling.⁶ And it would be true to say that our schools now represent a special sub-culture, embodying attitudes and values—and even a special type of language—to be found nowhere in the open society beyond. The alienation felt by many children in confrontation with the sub-culture of the school presents many problems for which there are no easy answers, and it presents a special problem for literacy learning. Of all *spoken* dialects, that favoured by the school approximates most closely to the dialect of books. Becoming literate is greatly facilitated by a natural familiarity with and love of book language—ideally the learner *identifies* himself with the dialect of books and lays personal claim to it. The alien, formal dialect favoured by the school and the associated system of values and attitudes which some children fear, constitute a barrier between them and the special dialect of book language which they need to accept if they are to be gladly literate. The dialect of books frightens them unnecessarily because they have learned to fear the dialect of the school.

Culture is a sticky word but one for which we have no adequate alternative. The patterns of acquired belief, assumption, attitude, prejudice, dialect and behaviour through which we meet our common human needs throw up such striking differences between groups of people that fundamental identities of need and value are obscured. Literature at its best, and children's literature in particular, transcends the surface distinctions of cultural difference and embodies universal human concerns. A fine literature can form the bridge across cultural difference to literate language. Teaching methods and materials in the last generation have tended increasingly to exclude true literature from the literacy undertaking in the interests of controlled vocabulary or phonetic sequences. If the human richness and joy of a fine literature could be moved across into the centre of literacy teaching, many of the problems of cultural dissonance might be minimized.

6. Literacy is a complex matter

The five points considered above make it abundantly clear that we are dealing with one of the most complex phenomena in experience: the processes of literacy are complex; the acquisition of literacy skills entails the most complex forms of learning; the institution of schooling presents complex impediments to learning; and the cultural determinants of literacy in school and community are complex. We should therefore not expect simple answers nor complete answers to the questions we pose, and we should prepare ourselves for the complexities that lie ahead. Certainly our endeavours cannot be guided by a single golden rule framed and hung on the classroom wall.

What are the special traps in studying or talking about something as complex as reading and writing behaviour? When we deal with simple matters familiar to the senses, we can be literal and be understood without ambiguity. We can learn to label a foot with the verbal marker 'foot' and agree about the shape and function of different feet, and even use the term in special ways such as in the sense of a measure, indicating this clearly by the context. When we come to talk about more complex matters not available in sensory perception, literal forms of discourse become limited. Even such an apparently simple concept as 'love' cannot be described with the same type of clarity as 'foot'. How do we communicate with each other about our inner feelings, about what we believe or value, about why a particular work of art pleases? How do we communicate about abstract or complex matters such as the quality of mercy, the nature of the atom, or the language learning of young children?

Talking about complex matters

To understand something is to account for it in terms of a lower order of complexity than the unintelligible something itself—we must move from the known to the unknown, the homely and familiar to the abstruse, the concrete to the abstract. It is a matter of reorganizing what we know to account for what we don't. This entails operating metaphorically in one way or another—taking something familiar in experience and using it analogically as a picture or model to order the chaos into intelligible patterns. Even our common vocabulary about thinking is full of metaphors—under-standing, in-sight, re-present, describe, speculate, imagine. This display of images from seeing and picturing is in itself an interesting comment on the way we comprehend.

When we use a metaphor we point to important likenesses, openly admitting that the comparison is not one of identity—we imply unlikenesses as well. When we compare the structure of the atom to the solar system, we imply a number of appropriate associations—such as the fact that most of the system is made up of empty space and there is a relationship of force between the nucleus and the orbital electrons which accounts for their motion. We also imply certain inappropriate comparisons, such as that the electrons are of unequal mass, and their orbits are moving in the same direction. Despite the weaknesses of the analogy, it proves a powerful intellectual aid, and we are not really confused by the ambiguities. The control of how the metaphor is to be interpreted, what are the appropriate and inappropriate associations, requires a special type of judgement made on the basis of the wider context. Analogies, models and theories are complex metaphors and their proper use entails awareness of the appropriate and inappropriate senses of the comparison.

We may think that it is better to escape the inbuilt ambiguity of metaphorical modes by sticking to the facts and speaking literally, but this can get us into even worse difficulties. Firstly, in literal discourse only one thing can be

dealt with at a time, which means that complex wholes must be divided into component parts. In this process we can dissect the whole inappropriately; undervalue, overlook or overvalue parts; and most importantly lose sight of how the parts fit together into a functioning whole. The first thing that is lost in the process of division is the notion of function or the way something operates. The idea of reading as a set of separate skills, for instance, has been open to all of these fallacies. A whole is more than the sum of its parts, and often that 'more than' includes the really important things. We need a metaphor or a model to deal with this problem.⁷

When we appear to be dealing literally with the parts of a complex whole an *unstated* model is implied, and this can be much more dangerous than an open acknowledgement of the nature of the model in the first place. If our discussion of reading is dominated by the idea of vocabulary and various types of word recognition, or our notion of language is dominated by the idea of words, we imply unfortunate models of functioning and impose them on teaching without realizing clearly that we are doing so. We may even carry out immaculate research on the assumption that recognizing vocabulary is the crucial problem of reading or that understanding the meanings of words is the crucial problem of language, but if the implied model of functioning is erroneous, the application of the research is likely to be misguided. In both of these cases important parts of the whole have been overlooked, and the implied model, that language is simply the manipulation of words, overlooks syntax, sentence meaning, and other processes. We may emerge in serious dispute about conflicting research without realizing that the unstated models, if exposed, would indicate that the question at issue was trivial or even plainly mischievous. A question we must learn to ask more often is, 'What is the underlying model here?'

Throughout our enquiry we will be dealing with models of many kinds—models for learning, models for teaching, and models for language processes. If we are always explicit about the models involved, we at least avoid the pitfalls of believing that they are not there.

Models can be tested, provided that they are explicit. The value of a model may be readily measured by its predictive power—its ability to forecast that certain observable facts will arise as outcomes of its application. This is the way in which the firm structures of physical science were built up. Our enquiry will be successful to the extent that the models we construct to understand the learning of reading and writing not only *appear* to account for the observed facts but also have this predictive power which invites and facilitates ratification. In particular, they should work in the real world of the classroom.

Learning spoken language: towards a first model

There is no more successful example of language learning than that provided by mastery of native language during infancy. Since time before history, regardless of race, class, or educational background, families have succeeded in transmitting their native language to their infants—or their infants have succeeded in learning the language within a natural environment of language use. The efficiency with which spoken language is learned is beyond question: it presents a body of evidence which dwarfs that of modern research into insignificance. What possible evidence could research present which would have the effect of questioning the effectiveness of those processes by which infants learn language? We would be arrogant in the extreme if we were to disregard such processes in our search for models for language learning.

Many experts would protest, however, that acquiring spoken language during childhood is a special case—it arises from some inbred, human capacity predisposing the human infant to acquire language from simple exposure, and it is hardly to be called 'learning' in any usual sense. They would say that it is a fallacy to apply principles we see operating in early language acquisition to the learning of literacy skills which, by comparison, are artificial and unnatural—and must therefore be *taught*.⁸

Our answers to this objection should be clear and forthright. First, the onus of proof that acquiring spoken language is *not* like other forms of learning lies with the protestors, and nowhere have they achieved this. If we find that all the conditions necessary for efficient learning in other fields are in fact present in early language acquisition, we would require very special evidence to exclude language acquisition from that general process. Secondly, we cannot be justified in dismissing the relevance of early language acquisition for literacy learning unless we have assured ourselves by extensive and rigid trials that literacy cannot be acquired in the same manner. Such trials have never been conducted, but there is a wealth of evidence which we will study later indicating that literacy skills develop in the same 'natural' way as spoken language when the conditions for learning are comparable.

It is not difficult to understand why many linguists consider that mastery of the spoken language comes about without learning in the normal sense. Any form of language learning in the school setting—including learning a second language—presents difficulties to some children, despite careful instruction. But most children learn to speak with such ease and rapidity at such a tender age, and with so little direct 'teaching', that a special explanation beyond the ordinary seems called for. How, it may be asked, can any infant learn to talk without instruction unless some special mechanism is at work? Perhaps Wordsworth was right and, hidden in those 'clouds of glory' that the infant trails behind him at birth, lies the secret of speech.

From the point of view of classroom instruction, let's look briefly at some features of infant language learning. Mothers make use of the close proximity they enjoy with their infants by talking to them as if they could understand—and in a fundamental sense they do in fact understand. It is true that good teachers would model appropriate behaviour like this, but if they received only the crude responses that the baby gives to the mother, would they be looking for a hypotheses to explain the disappointing achievement—intellectual handicap, deafness, minimal brain injury?

Mother, and sometimes father and others in the family, persist as if nothing were wrong. They reinforce the baby's babbling and even mimic it. Furthermore, they seem to *enjoy* doing so. This would be going too far for most teachers—it would be difficult to find instances of this kind of behaviour within the school environment. All the family now start modelling a small range of central words with a special, slow and affectionate intonation—'Mum-my', 'Dad-dy', (or even Dad-da', and in some strange families, even 'din-dins'). The response for some months, unless we have an extremely sensitive ear for intonation, is disappointing. But the family is not disappointed.

Mother is likely to hear and recognize the first real approximations to the modelled words that the infant utters, and she may keep this to herself—or rather, between her and the infant—as a private joy that nobody else could yet understand or accept, or she may report it to the family and induce baby to show off the new competence. But it may happen in another way. Dad may have become used to the babbling infant as a sort of pet that you talk to like your

dog—not quite human because there is no 'real' communication. Then one day he hears baby utter something like 'Jar-jar'. The effect is electric. He lifts up the infant in an extravagant display of pride and affection and yells, 'She's saying "Dadd"/"!"

Now, one thing is certain: the infant is *not* saying 'Daddy', she is saying 'Jar-jar'. It is hard to imagine a teacher rewarding a child for such a gross error—and certainly not so extravagantly. One of the things we have been cautioned against as teachers is implanting errors by accepting incorrect responses. Surely we can expect nothing but disaster from the behaviour of this typical family. Yet the process continues along the same lines, only at a sensorially accelerating pace. With rewards such as these so readily at her disposal, baby soon begins playing this language game avidly and by some mysterious means gets better at it every day. Perhaps there *is* some hidden mechanism at work.

Language acquisition and learning theory

We have just recalled the way in which adults behave towards an infant learning to speak. How does this behaviour relate to what the learning theorists tell us about the principles of learning? In the most general terms, they say that, if you want a response to be learned, you should reinforce or reward almost every approximation towards the desired response made by the learner, and you should do so immediately after the response.⁹ Now this is precisely what parents do—they reward their infants with adult attention, approval, and affection (among the most powerful of reinforcers) immediately they make a linguistic attempt remotely recognizable as an approximation to the word being patterned. A yell of 'Jala' from the cot will bring mother or father miraculously with the bottle, or an imperious 'bloo' will have father light another match to be blown out. Things happen for baby within a split second of making any sort of language noise.

If we wished to identify clear examples of learning theory in action, we could find no better instances than are thrown up universally in the homes of language learning infants. Far from being an exception to normal learning, early language acquisition provides almost perfect exemplification of effective reinforcement contingencies operating in a manifestly successful learning system. There is a great deal more to the matter which we must consider as we proceed, such as the ability of infants to intuit the grammatical rules of their language without tuition, but at the most basic level, the case against normal learning in early language acquisition looks very thin.

Suppose we turn the tables and consider for a moment what might happen if some mother decided to teach her infant to talk in what she chose to call a 'scientific and rationally structured manner' modelled on the way she was taught to read. First she analyses the language (making all the mistakes of abstraction which we studied earlier) into its forty or so phonemes, and grades them in difficulty of enunciation. Her theory is that by teaching each of these phonemes in a clear and systematic way she will make it possible for the baby to blend them into words, first of two, then of three phonemes. Imagine the sounds that would issue from that household—including the protests of the baby. There is no need to work the example through in detail: the matter is so obviously ridiculous that it is difficult to take it seriously.

The developmental model

There seems a strong case for looking at initial language learning as a suggestive model—perhaps the basic model—for literacy learning.¹⁰ What are the major characteristics of such a model? Firstly, it is a special case of

developmental learning—the conditions are similar to those prevailing when an infant learns to distinguish the three-dimensional world in visual perception, learns to crawl and walk, and much later, learns to relate to peers, to ride a bicycle, or to think in 'concrete operational' terms. We are not really dealing with a distinctively different type of learning even though the language task is distinctively different from other developmental tasks—as most of them are distinctively different from each other. (Some of the perceptual and cognitive tasks, however, have much in common with language processes, and we will need to study this relationship later in the enquiry.) The model we are looking at, then, is the model of developmental learning.

The mastery of developmental tasks takes place with such apparent ease and with so little consciously planned teaching, that we are inclined to call such learning 'natural' in distinction from the learning of skills which require—or appear to require—intensive instruction. But there is evidence that this distinction is not as absolute as may at first appear. Developmental learning is highly motivated, consistently purposeful, globally activating, powerfully reinforced both intrinsically and extrinsically, and meaningfully related to other aspects of development. If the learning of spelling or mathematics were supported by such conditions, it too would begin to look more 'natural'.

Furthermore, the way in which supportive adults are induced by affection and common sense to intervene in the development of their children proves upon close examination to embody the most sound principles of teaching. Rather than providing verbal instructions about how a skill should be carried out, the parent sets up an emulative model of the skill in operation and induces activity in the child which approximates towards use of the skill. The first attempts of the child are to do something that is like the skill he wishes to emulate. This activity is then 'shaped' or refined by immediate rewards, both intrinsic and extrinsic, for targeting approximations. The shaping is supported by ready assistance provided on demand, and by good-natured tolerance and almost inexhaustible patience for inappropriate responses. From this point of view, so-called 'natural' learning is in fact supported by higher quality teaching intervention than is normally the case in the school setting.

Developmental learning has other characteristics which we will study later in greater depth. Briefly, it tends to be regulated and paced by the learner in response to inner controls of a highly sensitive nature that could neither be understood, nor replicated, by the guiding adult on the outside. This regulation system may decree, for instance, a period of regression to a lower stage—something which would seldom be predicted or required by the progress-oriented adult.

Developmental learning is supported by intrinsic reinforcement cycles even more powerfully than by the extrinsic patterns of reward that we noticed in association with learning speech.¹¹ Just as the infant learning to grasp and manipulate a rattle is rewarded immediately by auditory sensations and is thereby induced to persist with the activity through a series of modifications, the child experimenting with oral language is rewarded in an immediate and cyclic fashion by auditory sensations which he can compare with models implanted earlier, and so continue targeting approximations even in the absence of the extrinsically reinforcing adult. 'Mistakes' or bad approximations seldom bring painful experience—rather, they bring that absence of pleasurable concomitant experience (the sound of the rattle) which induces modification. The next try, then, attempts a return to successful control. Such reward structures support massive repetition which rapidly passes control of the skill to complex, automatic systems below the level of consciousness. To put the

matter very simply, the child's own system acts as an amazingly sensitive teaching machine.

In summary, then, developmental learning, of which the acquisition of spoken language is a special case, would seem to have the following major characteristics:

The learning begins with immersion in an environment in which the skill is being used in purposeful ways. Readiness is timed by the internal 'clock' of the learner.

The environment is an emulative rather than an instructional one, providing lively examples of the skill in action, and inducing targeting activity which is persistently shaped by modelling and by reinforcement.

Reinforcement contingencies, both intrinsic and extrinsic, approach the ideal of immediate rewards for almost every approximation regardless of the distance of the initial response from the perfect 'correct' response.

Bad approximations—those moving away from the desired response—are not reinforced.

What aspect of the task will be practised, at what pace, and for how long is determined largely by the learner. Practice occurs whether or not the adult is attending, and tends to continue until essential aspects of the task are under comfortable, automatic control.

The environment is secure and supportive, providing help on call and being absolutely free from any threat associated with the learning of the task.

Development tends to proceed continuously in an orderly sequence marked by considerable differences from individual to individual.

The final sanction for taking this model seriously for reading and writing would be an honest and rigorous trial of the model in this application. In the school environment this is likely to prove more difficult than may at first appear. As we proceed with our investigation we will consider the implications of the model applied to literacy skills both outside and within the school. Before doing so, it may be helpful to view the teaching of literacy from a historical viewpoint and to see how our past and current practices measure up to the developmental model represented in the acquisition of spoken language.