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ABSTRACT

Two topics related to teaching reading are presented. The first reports findings of research on the initial teaching alphabet (i.t.a.). Between September, 1961, and April, 1963, four- and five-year-old children were introduced to the new medium in six termly intakes. Data on the first three groups to enter are reported. After 1 year of being taught by i.t.a., the Schonell Graded Reading Tests were administered to these groups and similar control traditional orthography (T.O.) classes. The total number of subjects reported on for i.t.a. was 594 and for T.O., 1,073. The results consistently showed overall superiority for the i.t.a. children. Findings of how i.t.a. children are superior to the T.O. children are listed, and possibilities are suggested for its use in remedial teaching. The second topic concerns correlates in the teaching of reading. Various handicaps in learning to read and effective communication are discussed, but special emphasis is given to the linguistically deprived child. Teaching of language is viewed as a primary objective, with the teaching of reading being secondary. It is recommended that this be considered when utilizing graphic arts as teaching aids, selecting the reading vocabulary, and planning future research. Tables and graphs are included. (DH)



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The Future of the Teaching of Reading

by Sir James Pitman KBE

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THE FUTURE OF THE TEACHING OF READING

by SIR JAMES PITMAN, K.B.E.*

*Presented at the 28th Educational Conference by the
Educational Records Bureau in the City of New York:
October 30th, 31st, and November 1st, 1963.*

(This paper is in two sections: In the first section Sir James reports certain findings and experiences of the current researches and suggests ways in which they have a bearing on the assumptions postulated in the second section. In the second section he deals with the future teaching of reading while postulating, for the purposes of argument, that teachers of the initial stages of reading will, in the course of the next few years, generally make use of the new medium known as Pitman's Initial Teaching Alphabet (i.t.a.) instead of Traditional Orthography (t.o.) — to which, however, a transition will be made by the children when fluency has been achieved and when learning success has been assured.)

* Sir James Pitman is a member of the committee supervising the research being conducted by the University of London's Institute of Education and the National Foundation for Educational Research in England and Wales. He is the designer of the Initial Teaching Alphabet and its spellings. The Initial Teaching Alphabet and its spellings provide a medium combining absolute consistency in word and sentence patterns with absolute reliability in character-to-sound relationships to furnish effective clues for relating the printed word to the spoken word. Its major goal is to teach children to read more effectively in our traditional alphabet. Sir James was the Member of Parliament for Bath.

I

So far there have been two interim reports of the research into the use of i.t.a. in Britain: the first¹ was made in this very room at your Convention last year; the second² was presented at Miami Beach to the Convention of the International Reading Association. The author of both reports was Mr. John Downing, the research director, and both have been published and widely read.

The research was planned to cover some 2,500 child beginners. In the event 2,808 i.t.a. children have been recruited and as will be disclosed later a further 1,000 are being recruited.

Thus by the end of July, 1963, the research had recruited 2,808 children between 4 and 5 years old; they were introduced to the new medium in six termly intakes, the first intake having now completed their second year at school;

September, 1961	432*
January, 1962	165
April, 1962	164
September, 1962	1,313
January, 1963	424
April, 1963	310
	<hr/>
	2,808

Fig. 1. The number of children included in the schools, arranged according to dates of intake into the schools.

* At the September, 1961, intake sixteen experimental schools and thirty-three control schools were effectively participating in the experiment.

An estimated further 1,000 were recruited to the experiment at the September, 1963, intake, in order to improve the matching between individual children in the i.t.a. group and the t.o. group.

Since the second (Miami Beach) interim report³, the relevant children have undergone by October of this year, further tests as shown in Figure 2 on page 31.

Perhaps the most significant indications from those further tests arise from the comparison of the results from the 165 and 164 children in the January and April, 1962, intakes with

¹ J. A. Downing.—*Experiments with an Augmented Alphabet for Beginning Readers in British Schools*. Presented at the 27th Educational Conference sponsored by the Educational Records Bureau in the City of New York, November 1 and 2, 1962.

² J. A. Downing.—*Experiments with Pitman's Initial Teaching Alphabet in British Schools*. Presented at the 8th Annual Conference of the International Reading Association, May 1-4, 1963.

³ *Ibid.*

one another and with the results from the 432 children of the September, 1961, intake, all three groups having been tested after completing the first year of being taught with i.t.a. The criterion was provided by the Schonell Graded Word Reading Test, the words being, of course, printed in i.t.a. for the i.t.a. children.

It needs to be pointed out that as yet no wholly satisfactory test has been devised for comparing success with i.t.a. and success with t.o.; though so far as the lowest levels of success are concerned (from the failure to read more than 4 words out of 100 up to being able to read 49 or less), it is probable that the Schonell Graded Word Reading Test furnishes, at any rate in part, a sufficiently reliable measure of reading attainment.

Moreover, children of 5 and 6 are very young for such testing and it needs to be pointed out that just as it is possible that the fact that a man knows only 4 men out of a roomful of 100 men is not a measure of how many men he knows in total, and will be an entirely unreliable foundation upon which to infer the degree of his acquaintanceship, so a child's knowledge of 4 words out of 100 on the Schonell will not be an accurate measure of his total reading vocabulary. Caution must be exercised over interpreting the graduations of the Schonell results. They are statements of standards of reading ability, not of the number of words in the child's reading vocabulary. As such a statement, they are probably very reliable, particularly at the lower levels of achievement.

While in course of time the results of all these series of tests will accumulate to complete the ascertainable facts concerning the child and his progress, the interim results which may most conveniently be ascertained and published, and which are of most value, are those from these Schonell Graded Word Reading Tests.

After eliminating those children in the intake who were found to have a prior ability in reading, and needing to accept a number of drop-outs, the September, 1961, intake of 432 became 345, the June, 1962, intake of 165 became 106 and the April, 1962, intake of 164 became 143. The total of 761 children thus became 594 who were so tested, all of them after completing the first year of being taught with i.t.a. The similar total of children in the control t.o. classes was 1,073, all similarly tested after the completion of the first year.

If then the results of these three intakes by this Schonell test are merged (total 594) and compared with the 1,073 children tested after the first year of being taught with t.o., the comparison is as shown in Fig. 6 on page 35 (the t.o. children being tested in t.o.).

The results of the intakes of September, 1961, and January and April, 1962, are given in Figs. 3, 4, and 5 on pages 32, 33, and 34. These results thus, both when merged and when separate, confirm one another

The consistency of the results for both the t.o. and the i.t.a. children of all three intakes, as shown in Figs. 3, 4, 5, and particularly 6, is worthy of note. Consideration of Fig. 6 is especially worthwhile in indicating both this consistency and the overall superiority of the i.t.a. results over the t.o. results, and their high degree of superiority at every stage from that of less than 5 to more than 85 but less than 90. It will be seen moreover that the improvement has been at the lefthand side of the scale, where it most matters. Greater earlier success and greater satisfaction at the levels nearest to failure are much more important than the small loss among those who have tasted success and satisfaction—and will read anyhow. (Fig. 7 is, as explained in its caption, a reissue of the results for the September, 1961, intake, but after a further half-year of school. This, and the consistency of the three groups, provides trustworthy support for both of the propositions advanced by Mr. Downing last May (see the first quotations (a) and (b) on page 7), and thus for my own assumptions.

I am no scientist. The responsibility of the research is not mine but that of Mr. John Downing, and I would have preferred to contract out of what is his proper territory. However, your most admirable and commanding Dr. Ben Wood has insisted that you should be given some up-to-date facts as a basis for evaluating the most up-to-date results from the British research, and Mr. Downing has very kindly supplied me with the data given above—and helped me with the wording. It is his prerogative to draw, from any presentation of the results of his work, the prestige and honour which he so richly deserves, and so I make no apology for restricting the objective data to that which he has available and has kindly given me.

Yet further data from the more recent tests is not ready and I feel it is reasonable that I should now pass from the

objective to the subjective evidence (albeit objectively regarded). But before doing so, you may be interested to have this information about Mr. Downing's plan of testing during the next year or so (*see* Fig. 8 on page 37).

The results of all these tests will be released by Mr. Downing in due course.

Subjective evidence, objectively regarded

During the school year which has just begun, a very considerable number of further i.t.a. classes are being formed by local education authorities on a completely voluntary basis, including classes in areas controlled by authorities which have not hitherto participated or even been invited to do so. These new classes are distinct from the 1,000 children mentioned above, who joined in as final intake in the main research, and will be outside it. So, too, outside the research, will be the new classes in schools which originally participated. They will be conducted as ordinary classes, but using i.t.a. instead of t.o. and adopting the procedures normal for the adoption of a new discovery as part of the day-to-day routine practice.

Some education authorities have even had to be discouraged from yet trying out i.t.a., and in others the number of schools has had to be restricted. This is partly because of organizational difficulties in providing sufficient facilities for instructing practising teachers in the new approach to teaching, and (more limiting still) because of the past-summer shortage of suitable books. Printing numbers of the books designed for the main research were only barely adequate and allowed no margin for the general use of i.t.a. which has now followed. There has also been a delay in the preparation and supply of new apparatus designed specifically to exploit the new teaching situations created by i.t.a.—in which the methods of look-say may be, and indeed ought to be—deliberately combined with those of phonic and syllabic teaching.

It is estimated that 5,000 children will participate in these non-research classes in this school year, of which over 1,000 children actually started in September in England, Wales and Scotland. (This will make a total of 8,800 children since the research began who will have learned through i.t.a.) This estimate of 5,000 children during the current school year has been based upon the thirty-three authorities (and their

schools) which have actually applied for books, have nominated teachers and arranged to have those teachers trained in the use of i.t.a., as shown below—

Bedfordshire	Leicestershire
Belfast	Lincolnshire
Birmingham	London
Blackburn	Newcastle-under-Lyme
Bolton	Oldham
Brighton	Oxford
Bristol	Rochdale
Burton-on-Trent	Southend
Caernarvonshire	Staffordshire
Cheshire	Stoke-on-Trent
Dewsbury	Stockport
Dundee	Surrey
Exeter	Walsall
Harrow	Wigan
Hertfordshire	Willesden
Keighley	Wolverhampton
Lancashire	

Most of these authorities have conducted, or will shortly be conducting, lectures and courses for the training of their teachers.

Meanwhile in America, the earlier small beginnings in several private schools have been supplemented by considerable accessions this school year. Six hundred first-grade children in the Lehigh project, under the direction of Dr. Albert J. Mazurkiewicz and supported by a \$48,000 grant from the Fund for the Advancement of Education, started this September. So did the ablest 125 children under the Greater Cleveland Educational Research Council. A small remedial class in New York is typical of a number. Some 300 children between the ages of three and six are expected to start shortly under Dr. John Rosenbloom of the University of Minnesota. In addition, small units in Chicago; Akron, Ohio; Media, Pa.; Lompoc, Calif.; and Syracuse, N. Y. and others have started, or will shortly be starting.

In Canada, one major city has already started and at least four of the Provinces, including six other major cities, are considering starting with i.t.a. in some of their schools. In Northern Ireland 50 children are learning to read using i.t.a. In the Republic of Ireland two State E.S.N. (Educationally

Sub-Normal) schools and one high-class private school, all near Dublin, have begun to teach with the help of i.t.a.

The spread of the use of i.t.a. and the fact that teachers involved in the research decide freely to go on using it instead of reverting to t.o. is very encouraging. Now that no more children are needed for research purposes, one might imagine that some teachers and authorities would return to the old medium. But they do not. As practical educators they are already convinced. Not only has not a single reversion to t.o. taken place, but many teachers and administrators are making enthusiastic use of their experience gained in the research classes to give lectures and help run courses for those in charge of new i.t.a. classes.

Some comparisons

Last May at Miami Beach¹ Mr. John Downing reported that, *subject to confirmation by later results*, it would be:

"clear that (a) children can learn to read much more rapidly when their beginning books are printed in Pitman's i.t.a., and hence that (b) the use of the traditional alphabet and spelling for beginning reading does seriously retard children's progress into the world of books."

Mr. Downing also listed the following five findings of how the i.t.a. children are superior in achievement to the t.o. children:

"1. Young children get through their beginning reading program faster when their books are printed in i.t.a.

"2. They can recognize more words in print when they are in i.t.a.

"3. They can accurately read continuous English prose more readily when it is printed in i.t.a.

"4. They can comprehend more continuous English in print if i.t.a. is used.

"5. They can read faster when the medium is i.t.a."

He reported too that in the control (t.o.) classes the findings have shown that the conventional alphabet and spellings of English cause reading difficulty and:

"1. delay progress in the reading program;

"2. frustrate the recognition of words in print;

"3. impede the development of skill in reading continuous English prose;

¹ Ibid.

"4. cut children off from words within their range of comprehension;

"5. reduce their speed of reading."

He further suggested the following:

"The impediment caused by the conventional alphabet and spelling appears to go beyond erecting barriers to success in these various aspects of reading. Headteachers of the experimental schools have reported that i.t.a. 'not only accelerates progress and raises reading standards but it also brings with it certain other advantages:

'1. it raises the young beginner's level of self-confidence;

'2. it increases enthusiasm for reading and interest in books;

'3. it allows children to be more independent in their work;

'4. it results in a marked improvement in creative writing;

'5. it permits children's thoughts to flow more naturally in writing.'"

I have Mr. Downing's permission to assure you to-day that all the evidence that has since become available has confirmed what he then wrote, and that not a single piece of evidence has conflicted with it.

The transition state

Two large questions remain to be discussed: (1) Has the transition to t.o. continued to be made as effortlessly by the "laggards" in the September, 1961, intake—i.e., those who by February, 1963, had not reached the transition stage—as it was made by the quicker learners? (2) When those who still must be considered as laggards eventually do achieve fluency in i.t.a., will the transition be as invariably successful as it has been with the rest of the i.t.a. group?

No further tests of the transition stage have been organized for the September, 1961, intake subsequent to those in February, 1963, which were reported on by Mr. Downing last May¹. Testing at more frequent intervals has been shown to be superfluous, because doubts about the transition stage have largely disappeared. Whereas at the outset all teachers feared that the transition would present a forbidding hurdle, they are now so confident that fluency in i.t.a. is synonymous with fluency in t.o. (whether upper case, lower case, or cursive handwriting) that additional or intermediate testing of success in the transi-

tion no longer seems to be necessary; in any case the progress of the children across the transition stage is indicated by the teachers' records to t.o. books issued to children who have completed the i.t.a. teaching course (see Mr. Downing's report at Miami Beach).¹

All the subjective evidence confirms (1) the previous objective findings that the transition appears to be automatic and effortless; and (2) that it is equally true for the laggards when they eventually attain fluency in i.t.a. No evidence at all has appeared to indicate the possibility of the contrary.

i.t.a. and remedial teaching

When it was originally conceived, the research was concerned with initial teaching only, but the enterprise—and possibly the desperation — of remedial teachers led many to originate their own small experiments or field trials. Indeed, the extent to which this has happened amounts to another unsolicited testimony to the success of i.t.a.

During the School Year 1962-63 i.t.a. was used in 57 schools and centers for remedial teaching, and there is no doubt that this number will increase to 200-300 during 1963-64 as adequate teaching material becomes available.

The objective data is limited to scattered reports on small groups of children; the information has been passed to the University of London Institute of Education but has not yet been collated. A report, however, by John Downing and Keith Gardner, was published in *Educational Research*² in the November, 1962, issue, and was followed up by a further report by John Downing in *The Reading Teacher* of March 1963. If only there had been the money and staff to enable London University's Institute of Education to extend its research to this special field, there would be a great deal more published evidence of i.t.a.'s success in rescuing the apparently

¹ Ibid. These results showed that not only those better i.t.a. children, who had "done the transition," could read in traditional orthography at a higher rate, with greater accuracy, and with greater comprehension than could the better children who had been taught in the traditional medium, but also that the less good i.t.a. children, who has not yet attempted the transition, at any rate in class, were no less excelling their t.o. control opposite numbers in *all* these respects. A further such comparative test, as indicated in Fig. 8 has been planned for November-December.

² *New Experimental Evidence on the Role of the Unsystematic Spelling of English in Reading Failure.*

hopeless slow-starters and in developing the reading and linguistics of backward readers. Plentiful evidence could also be supplied of the great improvement in attitude to life and to society which follows the mastery of reading—not to mention the change in society's own attitude to its newly literate members.

The reasons which led the committee to limit the research to initial teaching should, no doubt, also apply to my report to this meeting, and therefore the value of i.t.a. must stand or fall on its merits as a medium for initial teaching rather than remedial teaching. But on this score I have no fears either, that it will, I am confident, prove to offer at least as spectacular and beneficial an improvement for remedial as for initial teaching.

Future progress reports

It is understandable that teachers and educators generally are impatient to have the results of the research, stage by stage, almost before the statisticians have been able to calculate the percentages! John Downing has met this demand and disclosed his interim findings with commendable promptitude, even though this kind of piecemeal dissemination is clearly not what a research worker normally desires. He has very kindly furnished me with the above important, if limited, third instalment of information. Although your Convention provides a very appropriate occasion for this kind of report, I am sure you will agree that such occasion should not determine a report's precise timing. Moreover, it is only right and fair that the next and most comprehensive release of information should be in Britain, and that our own Minister of Education, with whose sympathetic interest this adventurous research was planned, should be accorded the opportunity to participate in the occasion. He might well decide that this might be the moment for a review of future policy on teaching reading in which might also participate all those in authority over the schools for which he, together with the Secretary of State for Scotland and our 181 educational authorities, are responsible.

Defence in depth

Throughout my life-time struggle in this field I have become

used to opposition which might fairly be described as "defence in depth." The teaching of children's reading is a subject that stirs passion and emotion. Little children and their welfare rightly touch the deepest chords of genuine solicitude. Thus the traditional, both in teaching reading and in the medium in which it is to be taught, is defended to the last ditch—which is reached only after a "phased withdrawal" from previous defensive ditches. Let us examine some of the standard objections to i.t.a.:

DITCH 1. i.t.a. is unnecessary and harmful, because children will find it equally difficult to learn to read in such a novel and obviously imperfect and provisional medium as they do in t.o. If, however, the findings of earlier research are mentioned and if one claims that only by further scientific enquiry will these alleged demerits, or the merits of i.t.a., be disproved or proved, it may or may not produce a concession, but too often it amounts merely to a falling-back, in an orderly withdrawal, to the next ditch.

DITCH 2. That even if it should be admitted that it could be easier for a child to learn in the new medium, it is next argued that the child will then need to *unlearn* the new skill and to learn afresh to read in t.o.; that the process of unlearning will be harmful and that in any case he will lose more time in the lengthy transitional processes than he could possibly have gained earlier in the initial stages. Here again, it may eventually be conceded that *a priori* reasoning, existing evidence, and future research may together be capable of supplying the necessary proof, but should this proof (impossible as it may seem) turn out to be to i.t.a.'s advantage, even then a series of four further defensive ditches are taken up.

DITCH 3. That even if i.t.a.'s success in the transition should be admitted then the damage to the child's spelling would be devastating and permanent.

DITCH 4. That even if good spelling, as well as reading, could be achieved with i.t.a., the child would anyhow have become literate in time and therefore will gain nothing from an easier way of learning, nor by learning to read and write earlier and more effectively by a given age.

DITCH 5. That children who fail to learn to read are anyhow so unintelligent (for how otherwise have they failed?) that reading ability for them would make no real contribution sufficient to justify the great disturbance to the more in-

telligent majority.

DITCH 6. That the reading ability acquired through i.t.a. may recede at a later stage, or that such children will at least fail to make the further progress which they would have made had they learned with t.o. from the beginning.

Those who have observed children learning with the new medium are convinced that the *a priori* reasoning and the findings of earlier researches have been more than confirmed by their own experiences during the current research; this is certainly true of the first two of these six defences in depth. Their own experience has also convinced them, even though objective documentation is not yet to hand, that the third line of defence (spelling) has already crumbled.

At what point then does the onus of probability and proof change? At what point should an open-minded neutrality on the remaining points take the place of emotional opposition? Is even one of the three remaining lines of defense tenable? Is it really conceivable that any of the 33 per cent of the i.t.a. children who can read 50 words or more in the Schonell Graded Reading Test will ever fall behind the mere 1 per cent of the corresponding t.o. children who reach the same standard—much less behind the 99 per cent who have not reached it? Is it likely that with their skilled reading in t.o. they will be less, rather than more, amenable to improved comprehension, or faster reading, or both?

according to the calculations from UNESCO sources on information, it is reckoned that with some 7 million children joining school every year in the English-speaking world,¹ and spending some ten years in school, and with at least 20 per cent of them troubled, as it is assumed, by reading disabilities which could most speedily be overcome, there must therefore be some 15 million children now at school who are in dire need of help which could be speedily and cheaply given.

The time has now surely come for all infant schools to accept and apply in the classroom what has been discovered in the back-(class)room or research. The need is equally clear and much more

¹ Source: *Current School Enrollment Statistics*, UNESCO 1962. The figure does not include any English-speaking children in Africa, India, etc.

pressing for remedial reading in junior and secondary schools. Teachers of the younger children may pardonably take their time, noting that remedial teachers will later have opportunities to rescue the failuers. But what about those young people who are now in their final year at school and who still cannot read properly—their alone must amount to some 1.5 million out of the 15 million? Wuns they have left school they are not likely to come back, even to night school, and there remains only a short and precious time in which to rescue them. It is not their fault behind generations of backward readers, but theirs children are your and my responsibility. Can we afford such waste of human capacity when we have reason to believe that the rescue need take only a few weeks or months, certainly not as much as a whole school year? Can we be comfortable in contemplating unnecessary human suffering on so grand a scale—remembering that from these millions will come (or already have come) many recruits for the criminal classes, and that many others will lead inadequate lives and, to a greater or smaller extent, become a liability to the rest of us?

II

With the past exciting results, their reiteration and verification now in tests with three successive groups of children, and the growing army of educators who are responding enthusiastically to i.t.a., the happy prognostications for the future may be misread. We would be wrong to regard i.t.a. as a wonder drug and cure-all. It is a medium which rationalizes the code-breaking of reading and exploits alphabeticism precisely during that period when alphabeticism is only valuable—the period of learning to read. In so doing, it reinforces the average child's belief in his own rationality, a belief that is sorely buffeted when an arbitrary disorder, such as he finds in our traditional alphabet, is his first window on the literate world.

There are many children, however, for whom even i.t.a. cannot open the magic doors to the real world existing beyond the gates of their own limited experience. These are children with whom you are all doubtless familiar—a portion of that unhappy group said to be suffering from a "reading block." Although, thanks to i.t.a., the proportion of these sufferers is substantially smaller than the percentage usually discovered in a reading program using a traditional orthography, this small stubborn residue exists, and it is to this group that I wish to turn my attention now.

How does it happen that regardless of the better performance in i.t.a. classes, a certain percentage of all children may not become competent linguists in the *visible* versions of *the words we assume they know*? It is possible that they were not competent linguists when admitted to class and still are not competent linguists when spoken to or when speaking. They may, therefore, be misleading those who address them by giving correct responses to spoken messages. They thereby create the false impressions that it is the words, and the words alone, which provide the clues through which their understanding is demonstrated.

How is it possible for these children so to mislead those who address them—to create the impression they are linguistically competent in speech, when, in fact, they are not? To answer this question, we must digress and examine for a moment the process of communication itself.

Reading is a process of being communicated with; writing is communicating; both occur through the medium of visible

words. They are skills in the field of sight. Listening and speaking are the corresponding skills in the field of hearing. It is important to differentiate these four separate functions: the receptive and the emissive; the visual, and the audible. We ought never to forget, also, that all four are but secondary aspects of the primary—the God-given gift of language, something unique to man, and the reason for his dominance over the animal kingdom.

The importance of "situations"

Communication may and often does take place without words, but it is not language. In all communication, "situation" is the essential precondition.



Fig. 9. A response to a spoken verbal communication does not necessarily imply that the words, *as words*, have been either heard (in the case of the woman) or understood. (The woman may be non-English speaking and may not understand a word of English even if she did hear them.) Thus, comprehension of a spoken word cannot be safely inferred from a satisfactory response.

The situation here, while pictorial and thus now imaginary, was at the time real. It helped both the woman and the dog to understand the message.

Let us begin with the woman. She may or may not have been too deaf to hear at all: moreover she may not have been English-speaking. She may, thus, not have understood the words as words. But, by seeing the man move his lips and by understanding the man's gesture, she was able to apprehend the situation and thus receive the message, "Sit Down."

As for the dog, it is the repetition of situations accompanied by what comes to be the relateable noise which he understands. The words of the man are but a noise, as non-verbal as the differing notes and intervals of the huntsman's horn.

In neither instance—the behavior of the woman nor the action of the dog—was communication achieved by truly linguistic means. But both clearly received the message.

It is important to recognize this potentiality for effective communication and response by means of a symbolism existing apart from language, because it would seem that one of the most serious errors in the teaching of receptive language, whether read or listened to, is the assumption by the communicator that the words have been understood as words, and that it has been the words alone which have carried the message. Moreover, it is in the audible language (speech heard) rather than in the visible (print read) that this error is most likely to lie undetected—and most to be feared. The audible language carries so many more clues than does printed language, over and above the meaning of the words, that it invites opportunities for the hearer to mislead the speaker by seeming to understand his words.

We are all familiar with the weight of communication carried by a speaker's gestures, facial expressions, and tone of voice—aspects of his communication which the speaker himself may neither intend nor recognize. How often is the listener's response made to these extralingual elements rather than to the words themselves.

In the situation in our next picture there are many more such clues to the intention of the spoken message which support its comprehension.



Fig. 10. An otherwise incomprehensible verbal communication may become meaningful by reason alone of the urgency of the gesturing and the tone of what appears to be no more than a noise made by another human. If the pedestrian is unfamiliar with the language that creates the noise. This further illustrates that the evidence of linguistic comprehension in any response to speech is much less reliable than a response to print.

The situation is a real one and was apparent to the eye, without help from the spoken words. Moreover, the noise of the horn, the screeching of the wheels and brakes, the dog's howl, give audible support to the visible message and non-verbal support both to what the eye is seeing and to what the ear is receiving in the verbal message, *Jump for it!* From this we may appreciate that the dangers of crediting a child with a linguistic competence which he does not possess are great indeed in the spoken word—far greater than in the printed word, even though similar dangers exist for the printed word also.

By contrast, cold print is emotionless in its “silent” unhelpfulness (Shown in Figure 11). No assistance at all is given to the learner of reading, for even the special form in upper case letters — JUMP FOR IT! — is no more than a conventional device for indicating urgency to those already literate. The overtones that can enrich spoken messages are absent and so too, unless there is an illustration, is the situation. In sound, even should the pedestrian be a foreigner and have no inkling

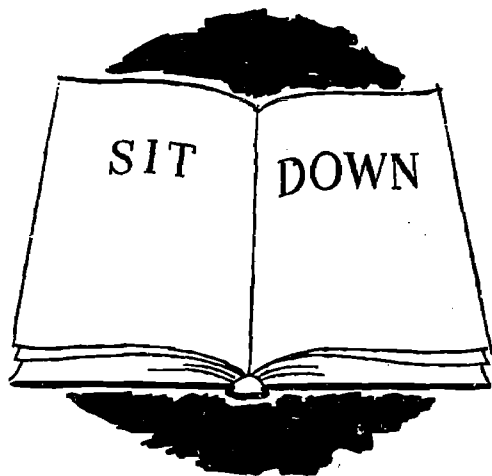


Fig. 11. A response to a printed verbal communication cannot be anything but linguistic. It may, however, be guessed in a very few cases, e.g. if accompanied by an illustration or other assistance giving sufficient situational clues. For instance an instruction on the blackboard may lead to a perfect response by a child—who is no more than copying the action of a neighbour who did comprehend the instruction. A WAY OUT sign with a hand pointing in a direction may be understood in any language.

of the meaning of the bystander's message, the tone of urgency in the words will carry a clear supporting message. In print there is no help at all. In a real situation the visual message of the situation is so very strong and clear that the verbal message *Jump for it!* is probably superfluous because, unless such a (possibly foreign) pedestrian were blind as well as deaf, he will already have received the non-verbal message. In the unreal situation of print there is no situation at all save for those who are linguistic, linguistic *in print*, and have the relevant experience to imagine it.

In the case of print, the situation can be only imaginary. It cannot be observed by any of the senses and is created necessarily as merely a synthetic situation, for which the printed words are the stimulus to the imagination through the sense of sight. Anyone lacking sight, or lacking a knowledge of the language, or lacking the knowledge of that particular visual form of language (the ability to read), will be unable to receive the printed verbal message and will be thus barred from understanding. He will be barred, too, from passing by his own efforts through the portals into that magic world of

myriad situations, of the special kind of unlimited experience which print affords. Such capacity to conjure up situations is, moreover, verbal, and in an "ideal" life is not restricted by time, distance or expense.

Barred from this special world, barred from passing through the gates of print into a new world are those unfortunates, to be found within both conventional and i.t.a. groups, who cannot be taught to read save with special effort and skill.

We can understand failure in the traditional orthography classes. The very magnitude of the superiority demonstrated by the i.t.a. children in the English experiment indicates that the conventionally taught children, even if linguistically competent on admission, have been seriously frustrated by the unnecessary difficulties present in our conventional alphabet.¹ We can understand, too, that there may have been *some* in both classes who suffer from deficient eyesight or other optical malfunction, but the number will be an insignificant part of the school population. There may be a few, too, were partially deaf. We may also suppose that there will be others who, because of brain damage at birth or other causes, have been unable to detect, and so discriminate between concepts and between differences in sound upon which communication by speech is based, and are thus not receptive listeners. But the number will again surely be small. There may be some suffering from dyslexia, but they will be relatively few — and may perhaps be found not to exist as a group separate from the others, once the difficulties of learning by a traditional orthography no longer cause failure. There will be yet others, who, because of psychological problems — a need to rebel against authority, parental pressure to read, rivalry with a sibling, emotional immaturity, or some other emotional problem — cannot or will not learn to read.

What then of the others who have thus not begun to read and yet suffer from *no* detectable physical or emotional defect? Could they suffer from another defect — a linguistic one? There are strong grounds for this presumption — for supposing that many of these children come to school with no physical or psychological defect, with no defect other than

¹ It would appear that the "slow starters" of the past become identifiable by the use of i.t.a., as two separate groups—those who were adequately linguistically but have been slow, solely because of the mechanical difficulties imposed by t.o., and those who are not adequately linguistic and have been "slow starters" for this reason.

a linguistic one, and that they are unable, to a far larger extent than has been supposed, to be communicated with, or to communicate themselves, through words. We should, I believe, regard these children as suffering from a misfortune as disabling as deafness. Their home environments have not provided the necessary variety of situations nor has it then exposed them to the appropriate associations of words with such varying conditions and experiences, which have been enjoyed by children who are verbally proficient.

There is undoubtedly scope for the oculist to help the small minority who are linguistically competent (in speech) but cannot see the parallel visual forms. The aurist, too, can help the few with poor hearing discrimination. The psychologist can help the emotionally disturbed child. But there is a far greater, far more difficult field for the skilled language teacher called upon to help children who have come to school without effective competence in language — for whom the task is not one of relating the visible forms to the audible forms of a language they already know — for they do not yet know it! — but one of first learning *language*.

There is every indication that these non-linguistic children form a considerable proportion of reading failures in my country, and we may assume that they constitute a very real problem in teaching reading in classes in other countries of the English-speaking world. In your country, they are frequently described as “culturally deprived”; we shall see, however, that cultural deprivation and linguistic deprivation may very well be the same thing.

These children deserve our best efforts. They come from homes that are truly under-privileged (though not necessarily economically so), in which the parents have neglected to exploit the opportunities presented to teach language or, as language develops, to talk with them about the family and happenings in the neighborhood, to read them stories and, above all, to listen patiently to the children's tentative and improving efforts to convey their own news and the lively imaginings of childhood.¹

We know very little about how language is learnt by the very young even those who live in linguistically privileged

¹ The paper “Some Sociological Determinants of Perception” by B. Bernstein (*British Journal of Sociology*, 1958, 9, 159), is particularly relevant.

homes.¹ We know still less about those who arrive at school with virtually no linguistic background. It is possible that this second class have, by reason of past failures, not the same aptitudes for learning as they would have had earlier; on the other hand, it may be that with intensive, that is to say skilfully selected and repeated, experiences in language, they will gain the ground they have never won.

Conscious teaching of language

Such a linguistically deprived child will surely profit greatly from a linguistic exercise which confirms meaning and teaches reading simultaneously. Indeed, he may (as the deaf child frequently will) reverse the usual order, and by means of repetition of relateable situations and their visible symbols, become verbal in print first and then extend his visual language to its "secondary" counterpart in speech. Indeed, this is precisely what all literates experience to some extent, particularly in the higher ranges of their vocabulary. Their reading experience introduces them to new situations and other appropriate words which only then become part of their speech system.

Moreover, a child who has been brought up, for example, to understand and to say *I must of been* (instead of *I must have been*) is made aware of his mis-hearing or mis-learning. The teaching of reading in a medium which closely relates what he reads to what he ought to hear has clearly a linguistic benefit, over and above its benefit thereby, in teaching reading more effectively.

Teaching language as a primary objective, with the teaching of reading being secondary, may thus possibly be the best teaching of reading even for children who are already fully verbal. It will surely be the best, and the *only* effective, approach to the teaching of language (and of reading) to those who have come to school ineffectively verbal.

Formation of word associations

Is it possible that verballity in print could thus antedate verballity in speech? What are the advantages in acquiring the

¹ See Appendix A on page 38

one before the other? Is learning to speak really easier than learning to read? If so, why? Is it that the ear is a more delicately discriminating sensory organ than the eye? Is there any reason to prefer this supposition to the opposite and more generally held other one? What then are the reasons for the fact, which may be observed that among hearing children listening or talking precede reading and writing and that the ear should thus be made to excel the eye?

May I suggest that the supreme advantage of speech over print in the teaching of language has, heretofore, lain only in the very much greater convenience in uttering speech symbols and the much greater inconvenience of organizing sight symbols and in the reality and immediacy of the situations against which speech can be applied, and in the immediacy with which the effective words can be associated with those situations?



Fig. 12. A situation in which the learning of the words spoken by the mother is helped by:

- (a) Noise that compels attention and of itself establishes the communicative situation.
- (b) The tone of voice as well as facial expression and gesture which carry a supporting message.
- (c) The immediacy of the association of word to concept helps the child to establish the desired relationships.
- (d) The ability to speak words instantaneously is conveniently always at call.
- (e) The need for effort is minimal and constitutes no deterrent.

This situation in the illustration is for us imaginary, but for child and mother it was reality. It was one of hundreds of varying situations in which these particular words recurred appropriately. The words were heard by the child *immediately* in relation to the situation. Situation and message in this and all similar situations were immediately associated, and the meaning of the words was thus learned by inference.

The teacher of the deaf child has no such dramatic occasions on which to furnish the opportunities for such inferences.



Fig. 13. A situation in which the mother's necessity to communicate only visually (because the child is deaf) imposes great handicaps on her and on the child:

- (a) The child's attention will be directed to action on the table and floor and away from *all* other visual interests.
- (b) The mother will thus need both to divert visual attention and to maintain it.
- (c) Facial expression and gesture must be artificially repeated by the mother in order to support the message.
- (d) The "colour" of sound in conveying distress and other situational supporting clues will be absent.
- (e) The relevance of the verbal (visual) message to the situation is necessarily stale—immediacy of relationship has been lost.
- (f) The material for a wide choice of visual messages needs to be prepared long in advance and, moreover, to be held conveniently accessible.
- (g) The task of assembling the words is slow and laborious and will deter even a stout-hearted mother, or teacher.

Apart from the inconvenience, the need for foresight, preparation, special equipment, the necessity to create a suitable statement out of the restricted vocabulary of the card index, and the time taken to display the print-form, the reality has departed with the immediacy. The whole drama and color have departed because of the delay *and the silence*. Silence, with its inability to convey emotion, urgency, and feeling, is, as we have seen in our earlier illustration, the great defect from which cold print suffers. The very evident distress of the intonation in *Oh Peter, you naughty boy!* . . . conveyed its own support meaning, much as did the urgency of the words *Jump for it!* The emphasis on the word *naughty* in itself fortified the desired association with the meaning of the word which expressed it. By contrast, the mother of the deaf child, limited as she is to the visual, was able, despite her expression and gestures, to inject only part of the emotion and color, while she conveyed meaning through the visual display of words. Slow, colorless, undramatic, as well as cold, is the product of the printing press. Any warmth comes only later, when words have become clothed in imagery from past associations.

Perhaps when some electronic device uses i.t.a. to show verbal equivalents to a situation instantaneously on a screen this lack of immediacy would be overcome.

An important corollary to this possibility is the implications such electronic developments hold for the teaching of very young, normal children. Such children, if exposed simultaneously to both audible and visible linguistic forms, might learn to read and to speak at the same time.¹ They might even learn to write and to listen at the same time to sounds coming from a specially designed typewriter. Such an approach might be, moreover, a logical extension of the work of Professor Omar Khyam Moore of Yale. The typewriter would certainly facili-

¹ It may be significant that two among the most successful i.t.a. children have been two who came to school knowing not a word of English —only Italian and Polish. It is interesting to reflect that the important difference between their situation and that of any non-linguistic children coming from allegedly English-speaking homes was that they were fully linguistic in a language when they came to school and were thus skilled in those analyses of factors common to varying situations and were furnished with a linguistic "ticket" with which each concept could be and was habitually isolated — which combination is the basis of linguistic perception. These two children would thus seem to have benefited from the contemporary presentation of the visual and new audible "ticket" for the concepts which had already been analyzed and ordered in the linguistic compartment of their little brains. It will be suggested later that such contemporary presentation might carry a particular advantage in teaching language as such.

tate learning of speaking and writing as well as listening and reading. Thus all four could be conjointly presented, just as the two, listening and speaking, alone are today.

I appreciate that Piaget and others have established, apparently to general satisfaction, that young children under the age of five find perception and analysis of the visual (particularly print) more difficult than perception and analysis of sound. It is no doubt rash on my part, but it may possibly be constructive to question whether such concurrent factors as opportunity, reward, satisfaction, motivation, and reinforcement may have been taken insufficiently into account. When considered in the context of suggested lines of further research, it is not, I hope, irresponsible to suggest that motivation, reward, and satisfaction are most relevant; and that if motivation and satisfaction were made as strong when learning *visual* language as they are made when learning *audible* language, and if opportunities to associate the visual word with the situation were as frequent and as conveniently practical, then quite young children might be found to make surprising progress in the visual language and even better progress in the aural.

If this were possible, and it were also practicable to confront the child with both audible and visible forms of the word simultaneously, there might be an advantage in reducing the delay — three or four years — before the child is confronted with the pairing of the visual and the audible.

Please do not misunderstand me. I make no suggestion as to the age at which language should be taught through reading. That must await the investigation which I have deliberately put first on my list of suggested future researches (see Item I in footnote on page 29). Moreover, the practical decision in particular cases now rests, as it always will rest, with the parent, the teachers and the authorities responsible. It is not my job to influence any particular decision, only to help insure that unnecessary causes of failure are removed and that lubricants to the wheels of success are available when teaching does begin — at whatever age.

How the graphic arts can aid the teacher of reading

The comparison between teaching language to the deaf and to those who can hear, calls attention to the one great advantage which the teacher of reading enjoys in contrast to

the parent who supplies a running, audible commentary upon life's varying realities. The graphic arts, by the very painstaking and time-consuming limitations which we have noted above, afford their own advantages in language teaching.

The synthetic situation presented by the graphic arts is in no way limited and ought never to be accidental. Graphic situations are infinitely variable and the presentation of the desired words is capable of very close control so that the maximum help may be given to the child in creating appropriate situations and in helping the child to isolate and classify the desired common factors. Moreover, the associated word can unfailingly be presented; the delay between reinforcements can be kept to the minimum; and confusion over synonyms can be avoided — e.g. when "uncle" refers to a watch as a *tick-tick* he can be both missing an opportunity to reinforce and undoing previous reinforcements by creating unnecessary confusion. Situations depicted graphically may involve "water" on a scale from Niagara Falls and the oceans to that of the drip feeder for giving water to an ailing chick whether or not the child is near these great falls, or any sea or a farm. No real-life situation can hope to match the limitless and controllable potentialities of the synthetic situations which graphic representation makes possible. No real-life situation can thus unfailingly point *le mot juste*, or invariably avoid the confusion of synonyms.

Wherever it is worth talking to a child about an ideal situation in a picture or confronting him with the appropriate printed words, it is sounder and more effective teaching to present the words in a way which, thanks to painstaking design and the provision of the desired key-words in print, shall be conspicuously directed to helping the child to observe, memorize, analyze and classify the situations and, in learning the appropriate conventional "tickets," to become communicable and communicative. It is only through the graphic arts that this may be guaranteed to happen.

Moreover, it is not in learning by inference the words for the picturable, the demonstrable, the positional and directional, the clearly inferable, that the teaching and learning of language presents its greatest difficulty. The need for help arises when learning the abstractions, the unpicturable, the undemonstrable — those concepts and words which may be learned *only* by a more remote inference and thus only from a series of a great many situations and from their verbal asso-

ciations (*e.g.* concepts such as time-contrasts — *not YET ready, tomorrow*; or values — *e.g. worth twice as much*).

It may be found, now that we have in i.t.a. a medium which enables a relationship to be apparently effortlessly apprehended between words heard and words seen, that for a considerable proportion of young children, the early as well as the more advanced stages of their language will be more easily learned from print and hearing together rather than from hearing alone.

I do not wish to imply that the graphic arts are inherently superior or ought to supersede reality in the development of language or reading skills. Of course, it is most desirable for the child to experience and touch one or more *real* flowers, and desirable, too, that he should have the real experience if possible before the graphic one. But this does not mean that graphic situations do not present very valuable teaching opportunities to the child to enable him to analyze the general concept and learn the general word *flower*. Naturally, whenever possible the child should be exposed to a direct experience in real life rather than to a paler, more abstract version of this experience graphically presented. However, as I have indicated, exposure to real situations is inevitably limited and haphazard. It is only through the use of graphics that a teacher is able to provide the widest range of simulated experience designed to meet the needs of particular children at a particular time, and may also insure that the associated word is provided, and in the invarying form being taught.

Selecting the reading vocabulary

I suspect that we shall need to review our existing ideas about reading vocabularies. We may even find that research concerning which words are used by children *who are already competent linguistically* is not of primary relevance for the teaching of language and reading to children who are not.

Of course in our selection of reading vocabularies, it is essential to let the child's interests and needs serve as our guides. No child, however competent linguistically, will care to read about situations which neither interest nor concern him. But the words are subsidiary to the situations, for it is situations which arouse and hold interest. The linguistically deprived child is very hard to reach and must, therefore, require to an even greater degree situations of direct interest to him. I have read that in one school in Chicago, a group of culturally

deprived children who could not be interested in the supposedly interesting situations of "pony," "cow," and "farm," (evidently because these words had no relevance to their needs or interests) were quickly alerted by the words "rocket," "space," and "weightlessness." Such words captured their imaginations and delighted their fancy.¹

After selecting situations directly related to the child's needs and interests, it may be better, wherever possible, to use *general* words in the initial stages of language instruction rather than specialized ones. For instance, specialist words such as *chased* are full of color and exciting emotion, *but only to those who already possess some linguistic ability*, and are words which ought to be avoided in the earliest reading material if there is any chance that the child is linguistically deprived. Moreover, general words (*go, run, after* etc.) can be made to recur frequently, and will inevitably tend to recur at short intervals, whereas specialized words like *chase* will not. We may indeed need to return to the study of C. K. Ogden.

The only test for a passage *in these earliest stages of teaching reading* to the linguistically deprived ought to be whether its meaning will be clear and its situations interesting, and whether such words may be expected to provide the best foundation for future repetitive learning and for linguistic reinforcement and progress. The consideration that those who are already linguistic (and literate) would, preferably, express themselves differently, is at this stage irrelevant.

i.t.a. and the future

It now seems to me that we who are interested in the teaching of reading are now like the citizens of a beleaguered city whose siege has been raised. The gates stand wide open, and we are free to discover and select from a great many directions where we may each wish to travel.

So far, the researchers have been studying virtually only how well and how quickly children learn to read with *i.t.a.* I look forward to the long-term, comprehensive, multi-track, adequately-financed research programs (brilliantly outlined

¹ The benefit of television in developing language has been observed. Perhaps the T.V. screen has played a part in creating this new situational interest. The work of Dr. Marion Jenkinson of the University of Alberta, in preceding the T.V. in opening up new areas of Canada's sparsely populated North by linguistic testing and by following it up in due course with post-T.V. testing, will yield interesting and further confirmation.

a year or so ago by Dr. Eurich, in an analysis which may be obtained from The Ford Foundation Fund of Education) that will be concerned with reading in all of its aspects and in all of its relations with the whole of education. What such research projects are appropriate in such a program? How may early reading be coordinated with other learning, how may early reading provide a base for curriculum reform, and so on. How may we help parents and children to insure that children do not come to school non-linguistic at an age when they may have lost what may be only transient, the optimal aptitudes for language learning? How may we make the learning of reading contribute to the child's all-round verbalism — listening, speaking, writing, as well as reading? In particular, to what extent is non-verbalism in speech likely to be a major factor in causing difficulty in reading, even when the mechanical difficulties of reading and the frustrations of traditional orthography have been removed?

There are many more lines of research. I have some dozen other possible researches listed.¹ Meanwhile, may I suggest one overriding necessity: That our future teaching be *consciously* directed to teaching language through reading. If so, may we not find that the learning of reading will inevitably occur as but one facet of all-round verbalism, rather than as a

¹ The potentialities and the effect of using the new medium upon:

1. The optimum age for learning to read.
2. The rate of development and the final level of intelligence.
3. Emotion and personality — including proneness to juvenile delinquency.
4. The better development of the physically handicapped (dyslexia, the deaf, speech defectives, E.S.N., etc.)
5. The adjustment of the syllabus to fill the vacuum of time saved in learning to read.
6. Teaching English as a second language.
7. The preservation of common norms in the communicability of English throughout the differing pronunciation groups of the English-speaking world.
8. The place of the typewriter in the early teaching of writing.
9. The application of programmed learning to the teaching of English as a second language — and to the teaching of reading.
10. Social integration of middle-class and working-class sub-cultures.
11. The attitude to, and the means of teaching, comprehension as a formal part of the school curriculum.
12. In delaying — or accelerating — the transition.

The need to prevent overlapping in research and to plan it across the wide English-speaking world is apparent. Educational foundations with the money, — universities and others able to carry out the research work, might well create a central source of information, if not also of directional advice, as is being done in the field of programmed learning.

desirable skill in itself — with improved verbalism a mere by-product.

Parents and teachers must not only establish “the word” in the mind of the child but also teach the relationship between the spoken language on the one hand and the visual language on the other.

These two manifestations of “the word” are linked by meaning and also — thanks to the alphabet — by form. This second relationship must also be made simple and direct and cease to be concealed and disguised by confusion.

Let us then recognize that verbalism is our aim in teaching, and let us plan our future researches around this unique faculty that can justly be termed the quintessence of our humanity.

Fig. 2.

TESTS GIVEN BETWEEN MAY 4TH AND OCTOBER 31ST, 1963, TO CHILDREN
IN EACH INTAKE IN BOTH EXPERIMENTAL AND CONTROL SCHOOLS

<i>Intake</i>	<i>Group tested</i>	<i>Date of testing</i>	<i>Test</i>
September 1961	All children going up into Junior School	July 1963	Reading Comprehension Test (NS 45) in t.o. (318 i.t.a. children tested)
		July 1963	Raven Intelligence Test (358 i.t.a. children tested)
January 1962	Children remaining in Infant School		No test given
	All children (less absentees) (i.e. 396 t.o. children and 165 i.t.a. children less absentees)	May 1963	Word Recognition Test repeated (Schonell)
April 1962	All children (less absentees) (i.e. 228 t.o. children and 164 i.t.a. children less absentees)	September 1963	Word Recognition Test repeated (Schonell)
		Selected Schools	October 1963
September 1962	All children (less absentees) (i.e. 1313 i.t.a. children and t.o. children less absentees)	June 1963	Word Recognition Test (Schonell) first time administered
January 1963 April 1963	No test given to this intake in the period May 4—October 31, 1963 Selected Schools	July 1963	Intelligence Test (Raven)
		July 1963	Social Adjustment Assessment

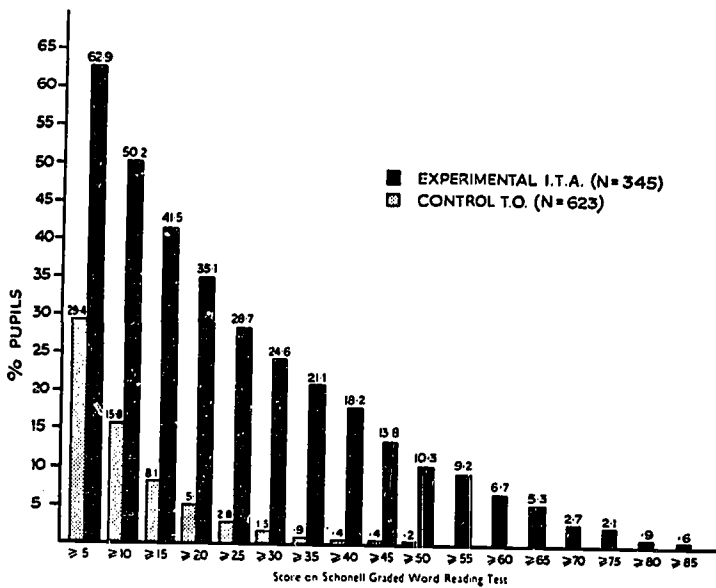


Fig. 3. Reading Attainment in i.t.a. schools of children tested in June, 1962, on the Schonell Graded Word Reading Test transliterated into i.t.a. (All pupils commenced school in September, 1961, at ages 4 and 5 years.) Each column represents the percentage of children with a score equal to or greater than the one indicated.

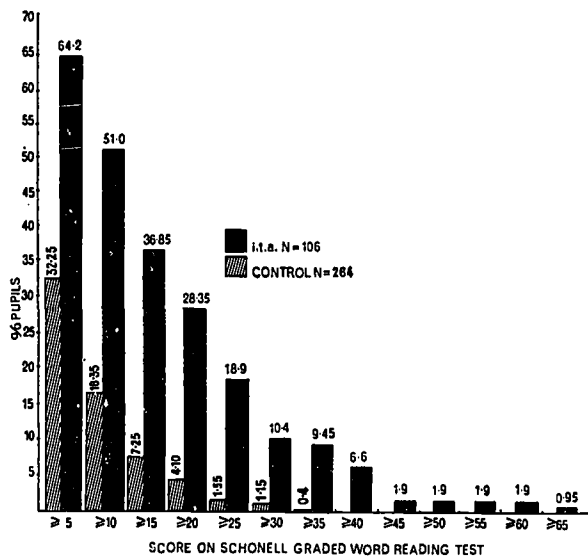


Fig. 4. Reading attainment in i.t.a. schools of children tested in December, 1962, on the Schonell Graded Word Reading Test transliterated into i.t.a. (All pupils commenced school in January, 1962, at ages 4 and 5 years.)

Each column represents the percentage of children with a score equal to or greater than the one indicated.

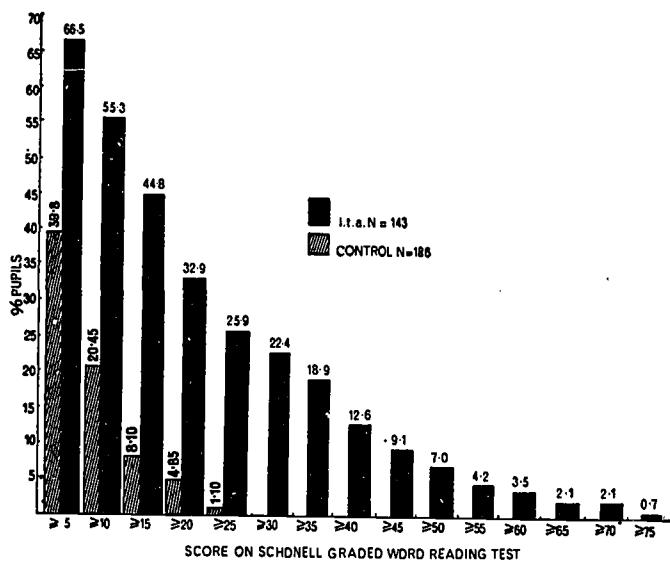


Fig. 5. Reading attainment in i.t.a. schools of children tested in March, 1963, on the Schonell Graded Word Reading Test transliterated into i.t.a. (All pupils commenced school in April, 1962, at ages 4 and 5 years.) Each column represents the percentage of children with a score equal to or greater than the one indicated.

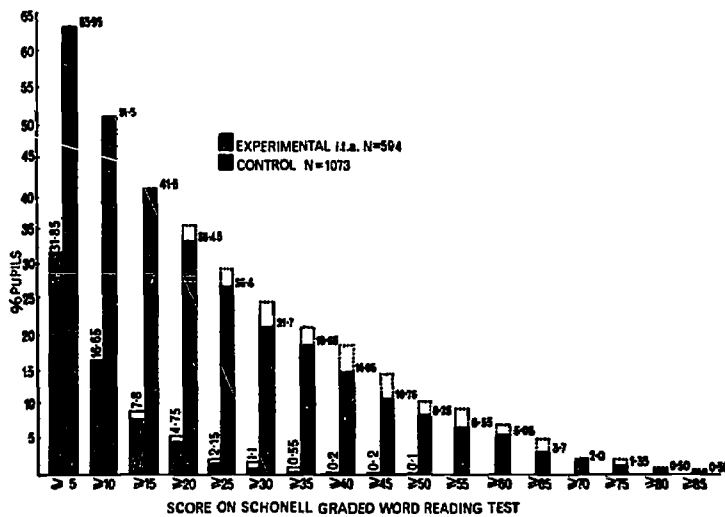


Fig. 6. Reading Attainment in control and i.t.a. schools of children of all three intakes tested respectively in June, 1962, December, 1962, and April, 1962, on the Schonell Graded Word Reading Test. (The standard version of this test was administered in the traditional alphabet and spelling to the control and in i.t.a. to the experimental group.) The results have been merged in a single total covering all three intakes. The graph shows also the changes as between the previously published results for the September, 1961, intake (see Fig. 3) and those for the three intakes (Figs. 3, 4, and 5) thus merged.

The degree by which the percentage of the merged total is higher than the percentage for the September, 1961, intake is indicated, so far as is practicable, by the hatched section: the degree by which it is lower, by the white section. The degree, and the distribution, of the change among the t.o. control children is very similar but cannot be here shown because the proportion is a small one on an already small proportion.

Each column represents the percentage of children with a score equal to or greater than the one indicated.

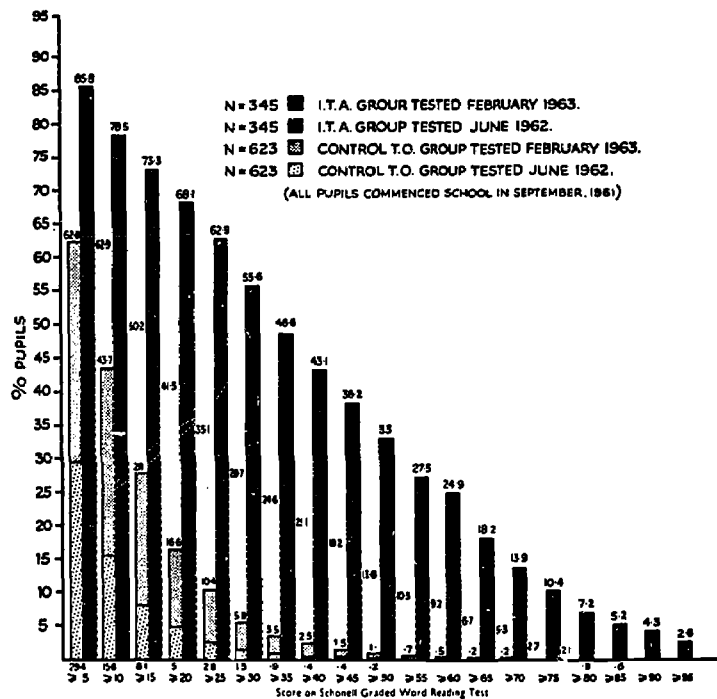


Fig. 7. A re-issue of the corresponding results for the September, 1961, i.t.a. children when tested after a further term-and-a-half—i.e. after four-and-a-half terms. This (Fig. 8 in the Revised Miami Beach report) is reprinted here as a convenient indication of the accelerated progress made by the i.t.a. children of the September, 1961, intake and which the children of the two later intakes may now be expected to have made.

TESTS TO BE GIVEN BETWEEN NOVEMBER 1ST, 1963, AND JULY 31ST, 1964, TO CHILDREN IN EACH INTAKE IN BOTH EXPERIMENTAL AND CONTROL SCHOOLS

<i>Intake</i>	<i>Group to be tested</i>	<i>Date of testing</i>	<i>Test</i>
September 1961 January 1962	All children going up into Junior School Children remaining in Infant School	Immediately prior to leaving Infant School	Reading Comprehension Test (NS 45) in t.o. Test yet to be decided
April 1962	All children	Nov./Dec. 1963	Intensive Reading Test (Neale Analysis of Reading Ability, Form A)
September 1962	All children	Jan./Mar. 1964 Jan./Mar. 1964	Intensive Reading Test (Neale) Word Recognition Test—repeated (Schonell)
January 1963	All children	Nov./Dec. 1963	Word Recognition Test (Schonell)
April 1963	All children	April/July 1964 April/July 1964 Jan./Mar. 1964	Repeat above test Intensive Reading Test (Neale) Word Recognition Test (Schonell)
September 1963	Selected Schools All children	Nov./Dec. 1963 April/July 1964	Intelligence Test (Raven) Social Adjustment Assessment Word Recognition Test (Schonell)
January 1964 April 1964 All Intakes	All children All children All children moving from Infant to Junior School	Jan./Mar. 1964 April/July 1964 Nov. 1963/July 1964	Intelligence Test (Raven) Social Adjustment Assessment T.O. Reading Comprehension Test (Neale)
All Intakes	All children	Nov. 1963/July 1964 Termly Tests	Intelligence Test (Raven) Social Adjustment Assessment Maintain record cards of reading primer reached

Note: Testing programme from September, 1964, onwards now in course of preparation. This has deliberately been kept fluid as late as possible so that the planners can take advantage of the results of early tests.

Fig. 8. This list of the intended future tests, in relation to the respective termly intakes, forecasts the amount of information which will be coming forward from time to time. The delay between testing time and time of publication of the results is of the order of four to six months.

Appendix A

Evolution of language and passing it on (Referring to the footnote on page 21.)

We do indeed know very little about how language is created or even passed on. Perhaps it may never the less be helpful to consider for a moment an imaginary situation of an artificially non-linguistic group to whom language would not be taught and could only be evolved.

Were a number of dumb children to spend all their lives in a dark room, never exposed to sound or sight but only to touch, scent and taste, we may suppose that their needing-to-be-originally created verbalism would be nil—and moreover that any beginnings of embryonic communicative symbols would necessarily be either tactile or by some system of percussion. One of them might, though it is improbable, belong to that body of creative persons who have been in their time the originators of the words of language—a discriminating observer and analyzer of concepts—and may thus have created one of two percussive or directly tactile “words” for his own purposes and thus for the use also of others. With alert observation, with retentive and accessible memory, with a selective input, and with a computer-like analysis of factors all peculiar to common elements in varying situations, he—or shall we not make her she— could evolve a small, no doubt *very* small, but in their time revolutionary, vocabulary of tactile tickets. By passing on these few touch words, she might bring forth from the memories of the other children a realization of some classifiable, peculiar factors which, having existed all along, required only to be so ticketed to become in their world of silent darkness viable as “the word.”

I need not point the inference of the duty which falls upon us who are responsible for teaching. Our children are not thus in this unnatural condition, nor are they denied a lively variety of situations, nor are they isolated from sound, nor from sight, nor from sound and sight in the form of spoken or printed words related to situational concepts. Words, spoken and printed, are their inheritance. We who have learned “the word” from our preceding generation have a sacred duty to pass it on.

"In the beginning was the Word . . ." God's gift to mankind was to enable each concept to be discovered and attain conceptualization and to be given its peculiar ticket. Each new generation is heir to a truly great treasure—the accumulation of the observation, memory, analyses, classifications, and ticketing of our truly brilliant ancestors. To few of mankind is it given to discover, and so to pull from its Platonic heaven, even one such apparently new concept and to name it. To all of us, however, is the opportunity given to "feed My lambs" by ensuring that they shall indeed inherit this vast treasure, this God-given gift of verbalism.

My expectation, my faith, my prayer is that the effect of this exciting work with i.t.a., in which I have been so fortunate in the accident of timing and in my collaborators, may develop over the years, enabling us increasingly to ensure for our little ones that they shall indeed, more and more of them, inherit this their verbal treasure and divine legacy.

After all, reading print is only one of the receptive verbalities. Just as the ear can be verbal in receiving the skill of speech, so too it can be verbal in receiving the skill of morse, or of binary entries on magnetic tape. Just as the eye can be verbal in the skill of reading print and lip movements, so too it can be verbal in the skill of reading static punched cards or moving flag signals—or holes in paper tape and even, so I understand, the groove of a gramophone (phonograph) and the optical sound track of a film. Additionally the eye may become also skilled in reading shorthand and, if they are in circulation long enough, Secret Service codes. Again, just as the fingers may decipher braille, so too, Helen Keller-wise, they may "listen" by touch to the speech organs of a communicator. It is possible to conceive that those who are both deaf and blind could "read" through the sense of touch a new kind of morse, designed to be conveyed by gentle electric shocks of shorter and longer duration. If so, they will be enabled to enjoy the same kind of "talking library" which the blind enjoy from tape recorders and the deaf from the printed page.

Writing is similarly only one of the emissive verbalities. Just as the hand may be skilful with pen and pencil in writing longhand or shorthand, so it may become differently skilful on the keys of the typewriter and may meaningfully tap the key of a morse telegraph, or punch cards, or play its part in

flag-wagging. A blind man's hand becomes skilful in embossing braille.¹

In all of these many varieties, it is *verbalism* which is the single common factor. Verbalism is the essence—while the accompanying muscular and nervous skills are no more than its vehicles.

¹ It is a fact that all these, which are alphabetic e.g. Reading, Morse, Braille, Typing, are cross related on the same 26 unit artificial basis: that all which are real, e.g. lip-reading, Helen Keller touching, are also cross related on the same basis but on a real 40 or so unit real basis. Just as it is axiomatic that all which are alphabetic ought to be cross related on the same unit system, so it ought to be no less axiomatic that *all*, both those which are traditionally alphabetic on the basis of the artificial 26 characters and those which are truly alphabetic on the basis of the real 40 or so units of communication, should be related on only one and the same basis, and that the base which is thus to be the same ought to be the 40 real unit one and not the 26 unit artificial one.

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