At a conference devoted to beginning reading, I would like to devote some time to beginning writing. There are accounts of children who begin to write before they know how to read, spelling words in their own invented spellings. Using their knowledge of letter names, and in some cases letter sounds, these children were able to represent the sounds of words quite accurately and consistently (Read, 1971; Bissex, 1976; Chomsky, in press). The ability is an interesting one, and worth exploring in some detail. Such work is now underway. In this paper, I will suggest that the ability to write in this way, representing words according to the way they sound, precedes the ability to read among children more generally. I will argue that from a developmental standpoint, children are ready to write before they are ready to read, and that their introduction to the printed word should therefore be through writing rather than reading. For maximum effectiveness, school instruction should begin with writing and progress to reading later on, as an outgrowth of abilities developed through experience with inventing one's own spellings.

The evidence about children who write first has come largely from children who did so on their own, without specific instruction. Children between four and six who do not yet read, but who know the letters of the alphabet and perhaps some of their sounds, have begun to compose words and messages on their own, inventing their own spellings as they go along. They may use letter sets or alphabet blocks, or they may print if they can form letters. They represent words as they hear them, carrying out an impressive phonetic analysis as they work their way through the words. These invented spellings differ from standard spelling in many ways, of course. What is interesting is that they are highly systematic and moreover fairly uniform from child to child.

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Approaching Reading Through Invented Spelling

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Running head: Approaching Reading

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The nature of the spellings has been described in some detail by Read (1975 b). I will mention just a few of the more striking features here. For example, long vowels are represented by the letter name which matches the

sound: BOT boat, JMEZ jimmies, FEL feel, KAM came, TIGR tiger. Short vowels are represented by the letter name which contains the closest sound: A [ey] for BAD bed, FALL fell; E [iy] for FES fish, FLEPR Flipper; I [ay] for GIT got, CLIK clock; O [ow] for OL all, WOTR water; U [yuw] for TUK took, LUKS looks. Typically L and R function syllabically with no vowel at all: GRL girl, FRN fern, KLR color. Nasals before consonants are standardly omitted: WOT won't, PLAT plant, BOPY Lumpy, AGRE angry. Letters are sometimes used according to their full name: YL while, R are, THAQ thank you, NHR nature, PPL people.

What is most interesting is that different children invent very much the same system of spelling. Features that may appear to be idiosyncratic in one child's spelling turn out on inspection to be common to all the children. English contains some forty sounds but the alphabet provides only twenty-six symbols. The children all cope with this dilemma in much the same way, combining sounds into groups represented by a single letter. E.g., the sounds [ey], [e] and [æ] are all written with the letter A, so that bait, bet and bat are all spelled BAT. Other similar vowel combinations are made. Furthermore the children fail to represent certain phonetic distinctions that they do have the alphabetic means to represent, such as certain forms of nasality and voicing. They write KAT for both cat and can't, and use S for the plural marker in both caps KAPS and cabs KABS.

The significant thing is the systematic nature of the spellings and the uniformity from child to child. It would be an intellectual feat of some scope if the children merely produced an accurate phonetic transcription of their language. Apparently they do even better, classifying sounds into categories efficiently on the basis of perceived similarities. This is a fairly sophisticated form of linguistic abstraction.

Some samples of early messages will be of interest. R U ƆF [Are you deaf?], EFUKANOPNKAZIWILGEVUAKANOPENR [If you can open cans I will give you a can opener], 5 year old boy (Bissex, 1976); FES SOWEMEG EN WOODR [fish swimming in water],

picture caption, 4 year old (Read, 1975 a).

One boy of 5 1/2, confined to his room as a punishment, sent paper airplanes downstairs with the following messages on them:

DADE I DONT LIK THIS ROOM — WIN U GO UPSTERS
KEN I STA DAOON STERS
I AM CMIN DAOON STERS — YES
I WIL KOMM DAOON STERS

(Read, 1970)

And a 6 1/2 year old girl produced this familiar plaint:

MOMME I WOOD LIK YOU TOO GET UP BEKUS I WANT SMTHING FUNT DOO WAK OP MOMME (7 times) POLES (please; 4 times) I WONT SOMETHING FON TOO DOO WOT KAN I DOO THET IS FON

(Read, 1970)

This appears to be a rather remarkable ability for children who do not yet read, and two questions come immediately to mind. What knowledge did the spellers have that enabled them to write, and what factors in their environment encouraged them to do so?

With regard to knowledge, apparently all the spellers knew the letters of the alphabet, and were aware of the sounds of words to the point of being able to segment words phonemically (cf. Liberman, 1973). They knew, for example, that in a word like table, the first sound is a [tə], then comes an [ey], then a [bə], and finally an [əl]. They knew that letters can be used to represent sounds, e.g., that [tə] can be represented by a letter that sounds like it, namely T. They were able to write their names, so that they had the idea of sequence of written letters.

As to environment, Read (1970) discusses the characteristics of the families of the spontaneous spellers who began to write at home. He reports that the main similarity among the families, beyond providing opportunities in a general atmosphere of freedom of expression, was their responsiveness to the child's interests and their acceptance and enjoyment of the results of the child's efforts. 'All the spellers had somehow come to believe that they could express themselves freely through spelling,' reports Read. The parents were tolerant and appreciative of their children's productions, and while they did not specifically encourage the

children, neither did they inhibit them. Evidently the children were not expected to keep hands off -- the parents did not transmit the attitude that spelling was arbitrary and had to be memorized. They simply 'accepted and enjoyed what their children produced . . . reading what they had written, letting writing be an accepted form of communication, and hanging up stories in the home or office' (Read, 1970).

The spelling activity may continue for months, or even up to a year, before the children move on to reading. In a number of ways the spelling appears to precede reading by its very nature. It is primarily a creative endeavor. The inventive spellers compose words according to the way they sound, figuring out for themselves what comes first, next, and so on. They do this for their own purposes as a means of self-expression. They appear to be more interested in the activity than in the product. In certain respects it is like drawing a picture. A child who draws a face, for example, is not trying to match a particular pattern, or to reach a standard of correctness. In drawing, children work from their own perceptions, representing salient features. As time goes by they represent more detail, and perhaps the organization changes somewhat. One can detect the development from early productions to later ones.

The spellings are much the same way. The children spell independently, making their own decisions. They have no preconceptions of how the word ought to be spelled, nor any expectation that there is a right or a wrong way to do it. They spell creatively, according to some combination of what they perceive and what they consider worthy of representation. They progress through several stages, their early productions differing in a number of respects from later ones. The development, as with drawing, can be traced.

The changes over time are interesting. One feature of many early spellings is the use of the letter H for the ch sound. The ch sound is in the name of the letter: aitch. Children who rely on a letter-name strategy (Beers, 1976) will

quite logically choose H to spell the ch sound. It is no more surprising than choosing eff (F) to spell the f sound, or ell (L) to spell the l sound. This use of H for ch has been observed repeatedly in early invented spellings. E.g., I MED A SBOYDR WEB ON A BRENH AND EFTR I WHT THE FILM AND I LOT AT KRAFIH (Fig. 1) (I made a spider web on a branch and after I watched the film and I looked at crayfish.) Notice the spelling of branch and watched: BRENH, WHT. Above we noted the word NHR nature.

(INSERT FIG. 1 HERE)

The letter H also serves to represent the sound sh. The child searching through the letter names to find a way to write sh will find the closest match in the name aitch. If pronounced very slowly, aitch does end in a sh sound. Notice KRAFIH above for crayfish. And in the following story by a 4 1/2 year old, there are two examples: YUTS A LADE YET FEHEG AD HE KOT FLEPR (Once a lady went fishing and she caught Flipper.) This story was accompanied by a picture of a woman fishing for dolphins, and HE was reported by the child as the word she. These 'letter-name' spellings persist until the child learns the standard spelling for [č] and [š]. They are particularly early features, and rarely appear beyond kindergarten age.

Another common early spelling is the use of CHR and JR (GR) for initial tr and dr. Words like CHRAN train, CHRIBLS troubles, CHRAY tray, and JRIV drive, JRAGN dragon, JRAN drain, abound in the early spellings. Initial tr and dr are heard with a ch and j sound, not t or d. Since the children hear it this way, that's how they write it. One first grader wrote: I HAV A NUO CAR AND MI MOM DUSINT WNOU HOW TO GRIV IT (I have a new car and my mom doesn't know how to drive it.) GR is not an error, but a correct choice using the child's own perceptions and a letter-name strategy. This particular spelling tends to persist in children's writing well into first grade, where many children explicitly describe the first sound of tree as being more like a ch than a t (Read, 1975 b).

Once the children get started, they can go on to write any message at all. For it is not that they know the spelling of certain words. Rather they possess the means to write any and all words. In this sense they are equipped to write much as are children who learn reading through an augmented alphabet like ita. Many children who have been trained in ita are able to write freely, and this is sometimes considered an important benefit of the use of the alphabet. The creative spellers, however, are writing before they know how to read. Often they cannot read back what they have written, nor are they interested in doing so. For the time being they are concerned with production.

Another aspect of the spelling that makes it more accessible than reading is its direct relationship to the way words are pronounced. The task consists of translating from pronunciation to print. The alphabet lacks some symbols so that sounds must be classified together, but the classifications are made on a phonetic basis. If the children have sufficient metalinguistic awareness to permit the segmentation of words into phonemic components, and a knowledge of letter names or sounds, they can go ahead.

Reading, on the other hand, is not simply the reverse of spelling, i.e. translating from print to pronunciation. In English the relation of print to pronunciation is largely indirect, the spelling corresponding to a linguistic level considerably more abstract than pronunciation. Learning to read involves learning to relate spelling to this more abstract linguistic level. The child's task is thus a considerably more abstract and more difficult one in learning to read.

An additional factor in the greater accessibility of writing is that in writing the words and message are known whereas in reading the words must be identified. This is an inherent difference between the two activities regardless of the nature of the spelling system. Although much the same background information may be required in translating from pronunciation to print and from print to pronunciation, the need to identify the word, which reading involves, is a considerable extra step that is not required in learning to write.

Montessori (1964) comments as follows on this difference, and the consequent greater accessibility of writing for children:

> Experience has taught me to distinguish clearly between writing and reading, and has shown me that the two acts are not absolutely contemporaneous. Contrary to the usually accepted idea, writing precedes reading . . . The child who knows how to write, when placed before a word which he must interpret by reading, is silent for a long time, and generally reads the component sounds with the same slowness with which he would have written them. But the sense of the word becomes evident only when it is pronounced clearly and with the phonetic accent. Now, in order to place the phonetic accent the child must recognise the word; that is, he must recognise the idea which the word represents. The intervention of a superior work of the intellect is necessary if he is to read.
> (Montessori, 1964)

Recognizing this difference, Montessori began reading instruction with word composition. She considered this order to be a natural one.

The inventive spellers, during the months that they engage in their writing activities, are providing themselves with excellent and valuable practice in phonetics, word analysis and synthesis, and letter-sound correspondences. In addition they are experiencing a sense of control over the printed word. There is an independence that is gained with print, and a sense that print-sound relationships are something that one works out for oneself. This practice and this attitude will serve them well when it comes time to read.

The initiative and self-reliance developed through writing carry over into learning to read. The children expect to take an active role in learning to read, as they did with writing. In my opinion this attitude is a crucial element in reading. Since the children are prepared to go ahead on their own, what they need is adequate input from the environment. They need to be exposed to large quantities of print.

The inventive spellers have not been limited to writing only, of course, over the months that they have been involved in spelling. Curiosity about reading grows, and the children find opportunities around them as they go about their day. Typically spellers reach a point where they begin to ask about words in the environment. Either they try to pronounce them, reading them off phonetically

in order to identify them, or they ask what they say. It is as if suddenly they begin to notice all the print in the world around them: street signs, newspaper headlines, billboards, cereal boxes, food labels. They try to read everything, already having a good foundation in translating from pronunciation to print. If help is provided when they ask for it, they make out wonderfully well. It is a very exciting time for them.

I think that what helps children most of all at this point is their heightened activity level. Learning to read, or at first to identify printed words, surely involves forming hypotheses about the relations (direct and indirect) of spelling to pronunciation, changing these hypotheses as new evidence is added, and eventually arriving at a system of interpretation that is in accord with the facts. This hypothesis construction is an active process, taking the child far beyond the 'rules' that can be offered by the best of patterned, programmed or linguistic approaches. The more the children are prepared to do for themselves, the better off they are.

Piaget (1972) has said, "Children should be able to do their own experimenting . . . In order for a child to understand something, he must construct it himself, he must re-invent it. Every time we teach a child something, we keep him from inventing it himself." This view applies quite well to learning to read. The printed word 'belongs' to the spontaneous speller far more directly than to children who have experienced it only ready made. For once you have invented your own spelling system, dealing with the standard system comes easy. A considerable amount of the intellectual work has already been done.

The major need of inventive spellers who are beginning to read is to have someone to answer their questions and to correct their mistakes when necessary. Responding to 'What does this word say?' becomes the primary form of instruction. And when they misread a word, they need to be corrected. When first learning to read, my son, an inventive speller, pronounced the name Joan as Jane in a book

about Cousin Joan. I told him no, the name was Joan. "Oh," he replied, "I see. The A is silent. I thought the O was silent." He had already been introduced to the idea of silent letters when asking about words like 'ride' that he saw written and had pronounced with two syllables: ride-ee. This was not a bad way to account for the pronunciation of Joan.

Not long after this incident, he put this silent letter information to use again. He was playing one day with a music box that had the word TURN printed on the knob, with an arrow indicating the direction. He came running over to announce,"I figured it out! First I thought it said toorn, toorn, but then I saw that it says turn. The U is silent!"

This child, like most inventive spellers, had been using L and R syllabically in words like FRN fern, BRD bird, GRL girl, and used U according to its name as in UNITD united. When it came time to figure out a word in reading, he assumed that the same conventions held. However, the strong assist from context plus the available silent letter idea permited him to read the word TURN.

He used the same logic in dealing with the words church, bird and mermaid that he ran into over the next weeks. He commented that "It's not chuh-rch, because the U is silent. It's church." And similarly, it's not bih-rd or meh-rmaid because again the vowels are silent.

These examples are indicative of the way in which inventive spellers begin to deal with conventional spelling. There is a recognition that the conventions are different, and a willingness to undertake figuring it all out to one's own satisfaction.

Apparently children are not confused by differences between what they write and what they read. Read (1970) comments that 'there were no observations or reports of a child questioning the lack of correspondence between what he read and what he wrote.' Whereas their own spellings were a form of phonetic transcription, standard spelling is not, and the children seemed to accept this distinction with

no difficulty. In general as they learn to read, the spellers read standard spelling more easily than their own spellings.

It is interesting that spellers at first may treat writing and reading as distinct activities that they may separate quite effectively. The child above who spelled turn TRN and came to read TURN as the same word does not necessarily begin to spell it TUPN in his own writing. It can be almost as if there is a writing mode and a reading mode that exist for the child, and he or she may operate in one mode at times without recourse or attention to the other.

Such a child as he writes is concerned with representing the sounds of the words, using his productive system actively and carefully. He attends to the sequence of sounds, choosing appropriate letters each step of the way. If he does check his result once the word or phrase is completed, he checks it by starting again with pronunciation and making sure that he has chosen the requisite letters, syllable by syllable, or sound by sound. He works from his pronunciation to the letters, not the otner way around. I.e., he does not read the product so much as review and check the production process.

I observed an example of this separation of writing from reading one day when I brought a 4 year old speller to visit a seminar on child language that I was teaching. He had agreed to come to class and write some words for my students. Jeremy was then 4-1/2 years old, had been writing for some months, and had just recently begun to teach himself to read. He was quite cooperative about writing words that the students asked for, using a plastic letter set spread out on the table in front of him.

Among the words that the students requested was pencils. Jeremy spelled it PASLS, consistent with his other spellings and in accurate tradition. The letter A for the vowel [e], preconsonantal nasal [n] omitted, L used syllabically, and S for the plural [z]. Someone kept track of Jeremy's productions, copying each word

onto paper as Jeremy composed it with the letters.

Somewhat later in the session, it occurred to one of the students to ask Jeremy to read some of his own spellings. We reconstructed PASLS on the table and asked Jeremy what it said. [paezəlz], he answered confidently, to everyone's surprise. But indeed, that is the way one pronounces that sequence of letters if one is reading. Jeremy was operating with readir was a very different matter from writing.

Still later in the session, we wrote PENCILS with the letters and asked Jeremy what it said. With no hesitation he replied "Pencils."

I think that this incident illustrates very well the fact that the inventive spellers may take a very different view of their two activities, writing and reading. This separation may persist for some time, until they eventually adopt standard spelling in their own writing.

With regard to the transition from invented spellings to standard spelling in their own writing, they make the replacement as they become more experienced with reading and are expected to abandon their earlier form of writing. Using standard spelling is a very different activity from inventing spellings, and the children that I have been able to observe have made the transition with no particular difficulty. Some children begin to use standard spelling in school, and continue to use invented spellings at home. Others adopt standard spelling throughout. Some make the transition rapidly, apparently substituting the new principle rather easily. Others use a mixture of the two, using standard spelling when it is known, and falling back on inventions when words are not known. Whatever the particular course of the transition, children seem to make it with no apparent difficulty or confusion.

Read (1970) stresses the lack of confusion or conflict between the child's spelling system and the standard forms. Children relinquished their private spelling systems and acquired standard spelling whenever demands were made on them

to do so. None of them experienced any difficulty. He accounts for this case of transition by a characterization of the invented spellings as constantly repeated inventions, never assuming the quality of a habit.

> (Since) the transition (to standard spelling) was neither difficult nor necessarily slow, one conclusion seems justified: if 'habit' refers to behavior that is acquired and altered by frequent repetition and constant correction, the early spellings were not habits. Some young spellers wrote hundreds of words before entering school; it seems inconceivable that each word could have required individual correction in first grade without spelling becoming an issue between these children and their teachers and parents. The spontaneous beginning of the children's spelling also shows that it was not habit-formation, in the sense referred to. We can only believe that the children acquired . . . general notions of spelling that allowed them to spell virtually any word and that later altered quite readily, despite the fact that they had been applied many times. (Read, 1970)

That the spellings did not become habitual seems borne out by the fact that they changed as the children matured. At each point the spellings were the products of a system of representation; as the system changed, so did the spellings. Acquiring standard spelling would appear to require replacing the principle of representation, not the individual spellings. Apparently the children were able to do this readily.

As I said above, children who have been writing for months are in a very favorable position when they undertake learning to read. They have at their command considerable phonetic information about English, practice in phonemic segmentation, and experience with alphabetic representation. These are some of the technical abilities that they need to get started. They have in addition an expectation of going ahead on their own. They are prepared to make sense of the print by figuring it out or by asking questions. They expect it to make sense, and their purpose is to derive a message from the print, not just to pronounce the words.

I think that an important advantage of these children's prior experience with writing is the lack of a dichotomy in their view of reading between pronouncing the words and understanding the meaning. At no point does sounding out the words

become an activity of any relevance. Their approach from the start is 'What does it say?' rather than 'How is it pronounced?

Children who are taught to read first are often taught to pronounce the sequence of letters, and then to derive the meaning somewhat as an adjunct to the pronunciation. The view that converting from print to sound can somehow take place independently of or prior to word identification unfortunately often leads to a form of teaching in which children are taught to read English as if they did not already know the language. They are expected to react to print by converting to pronunciation, using methods appropriate to a foreigner who does not know English. Letter-sound correspondences and pronunciation rules form the substance of instruction. The assumption is that spelling corresponds directly to the pronounced form of words, and that whether one knows English or not, the activity of converting from spelling to sound is essentially the same.

English spelling, however, is a system designed for readers who know the language. Because it does not represent pronunciation directly, it cannot be read by applying a learned set of limited pronunciation rules. English spelling corresponds to a level of linguistic knowledge that is more abstract than pronunciation, and is related to pronunciation by the phonological rules of the language. Speakers who know the language have these rules at their command as part of their tacit knowledge of the language.

The phonological rules supply much of what is necessary to convert the spelling to pronunciation. Correspondingly, the spelling omits a great deal of information about pronunciation that can be supplied by the phonological rules. Readers who attempt to pronounce English from its spelling without knowing the language will encounter a great deal of difficulty because they do not have recourse to the phonological rules.

The spelling to a large extent omits information that is predictable from the phonological rules. Stress placement, for example, is not indicated. The form

photograph is written alike in photograph, photograph-y and photograph-ic, although the stress is different in each case. The reader must supply this. Vowel reduction, a consequence of stress placement, is not indicated, but the reader who knows English will know to pronounce the underlined vowels above as the reduced vowel [ə], although they are written alike in the three forms. Certain voicing alternations are also not indicated where predictable, so that [s] and [z] are written alike, with the letter S, in the related forms sign [s] and resign [z]. Certain vowel alternations in related words are not indicated where predictable, so that nature and natural are written with the same vowel in the first syllable although the pronunciation is [ey] in one case and [æ] in the other. Child and children are both written with i although the pronunciation is [ay] in one case and [I] in the other. There are many examples of this sort. The point is that these examples are not exceptions, but regular aspects of the orthography of English. The spelling, as said earlier, is designed for a reader who knows the language.

Emphasis in beginning reading should be placed not on pronouncing the print but rather on determining which word or sentence is presented. Assigning a pronunciation follows such an identification. Identifying the word or sentence is the primary task. The spelling relates to pronunciation more by providing clues to it than by specifying it.

There is a range of possible pronunciations, for example, for the letter x. It can be [ks], [gz], [kš], [eks], and [z]. Cf. tax, example, anxious, x-ray and Xerox. It cannot be [l] or [m] or [b]. Knowing the range of possible pronunciations helps in identifying the word. Once the word is recognized, the correct pronunciation follows automatically.

For the correct pronunciation to be assigned automatically from word identification, however, the reader must know the language. The pronunciation rules are part of the equipment of the native speaker. For example, consider the letter x more closely. It is [gz] in example, but [ks] in exercise. A foreigner who

does not know English would have to learn a rule that says: Intervocalic x is voiced pre-stress, and unvoiced post-stress (mostly). Pre-stress examples are example, exaggerate, exact, exam, exert, exist, exult, all [gz]; post-stress examples are exercise, execute, exodus, oxygen, axis, all [ks]. In some words there is dialectal variation, and exceptions result: exile, exit.

The voicing of x is of concern to the foreigner trying to read English aloud, because he lacks the automatic voicing rule. Since the necessary information is not given in the spelling, he can pronounce x correctly only by working from explicit memorized rules. First he must use an explicit rule to assign stress to the proper syllable, and then, on the basis of stress placement, apply the voicing rule correctly.

The native speaker need not bother with such explicit rules. Stress placement and x-voicing rules are part of his or her phonological system. They operate automatically without conscious attention or explicit knowledge. Once the word is identified, the native speaker automatically know where to place the stress and whether or not to voice the x.

This picture of reading describes the experienced reader. The question for the learner is: How does the non-reader proceed to identify a word, if not through the medium of its pronunciation?

The learner's task is to develop the relations between spelling and the abstract linguistic level to which it corresponds. I think, quite seriously, that this is best accomplished not by learning rules, but by repeated exposure to print with identification provided, as for example in listening-while-reading activities. Extensive input of normal text that is understood is the raw material from which the learner can derive the necessary connections and construct the relevant system to read on his own.

It seems clear that in order to learn to read some background information is necessary, of the sort discussed here with regard to writing. It is also the case that once a person knows how to read, he or she has available quite extensive

information about letter-sound correspondences and relationships, and spelling patterns. The person who knows how to read can determine, on reflection, all the pronunciations of ough, for example, or the eleven or more ways of writing the sound [š] reputed to exist in English. But this latter sort of information is the result of knowing how to read. It is not at all clear that memorizing such facts will be of any particular help in learning how. Although one ends up knowing such facts implicitly, explicit memorization of some specific number of them may be beside the point in learning to read. Rather the process of learning how would seem to involve a good bit of hypothesis construction and testing, as in learning language in the first place. Children are well equipped to organize linguistic knowledge on the basis of rich and varied inputs, to seek regularities and to construct tacit rule systems. What they need in reading, beyond the requisite background, is adequate input of understood text. When beginning to read on their own they need to have their questions answered and their mistakes corrected when necessary. If this much help is forthcoming, they should be prepared to do the rest.

How then does the teacher begin if she wishes to start with writing? Developing children's phonetic abilities, and of course letter knowledge, are the teacher's initial tasks.

By age five or earlier many children's ability to analyze words phonetically will already be well developed. They can recognize words that begin with the same sound, and words that rhyme. Those who can't will need practice in this sort of analysis before they can be expected to spell (cf. Liberman, 1973). It is surprising how much phonetic information is available to introspection at this age, and how readily this knowledge can be raised to the level of awareness through word play, questioning and talk about sounds. Easiest of all for the child is to recognize words that begin with the same sound, such as toy, table,

touch. Once children can do this, they can become aware of what sound a word begins with, e.g., that table begins with a [tə] sound. Awareness of rhyme, or knowing that toy and boy end alike, is also an early ability. Usually sensitivity to rhyme precedes the ability to identify words that end alike only in their final sound, such as dog and hug. The syllable is easier to deal with than individual sounds at this stage. The most advanced ability is segmenting the entire word into its component sounds, i.e., being able to figure out, on reflection, what sequence of separate sounds make up the word.

Practice in attending to sounds with guidance from a teacher who is aware of these separate abilities will be enormously helpful to the child. But in order to get started with spelling, only the simplest phonetic awareness is needed. Children who know that man begins with a [m] sound, for example, are ready. If they know letter names or sounds, they are prepared to find the letters that they need to spell their first word. Just the letters needed for the particular word are enough.

At first children will sometimes use only the first letter to represent a word. Man will be written M; next the final sound may be represented as well: MN; and finally, all the sounds of the word: MAN. Paul (1976) provides an excellent description of such beginnings in her kindergarten class in which she encouraged the children to spell inventively. One of the major benefits of the spelling, she reports, if the independence that children feel when they can write on their own without having to ask the teacher for help.

Much of the early writing looks unkempt, until inexperienced fingers develop the control to make it more readable. But no matter. The message can usually be retrieved, and the children are deriving the satisfaction of self-expression. Most important, they are getting practice in figuring out their own spellings. For reading, this practice is the part of the job that matters at this stage, the part that requires thought. And this is the part that children are quite ready for in kindergarten and early in first grade. The mechanical handwriting

skill can come later.

Some children do better using plastic or wooden letters than attempting to write in their own handwriting. They find it easier, and there is no reason to discourage it. In time they will develop their handwriting to the point where they can use it, but for the time being the letter sets let them get their message across. The letters provide a way of getting around the mechanics of writing so that the children can develop the thought processes that go into writing, and eventually reading.

In a first grade classroom where the children are encouraged to write freely, with attention to representing how words sound rather than standard spellings, an interesting attitude develops. There is a confidence that you can write anything you can say, because you've got the principle of writing. It isn't as if there are certain words that you know how to spell and others that you have to ask about. You can write anything, on your own. You learn to develop your own judgments and to trust them. Children who work from such a principle do so with initiative and self-reliance. They produce quantities of imaginative and creative writing, including diaries, letters, posters, illustrated stories, plays and whole books. Most often artwork accompanies the writing. The spontaneity and imaginativeness of the work are impressive. It is a creative outlet of the first order.

They also keep records and write reports. Accounts of science experiments, reports of trips and research reports all can be written in one's own spelling. Some samples of children's work will be presented below.

When children are ready to begin reading, the teacher may wish to provide a structure to foster reading activity. There are a variety of ways to provide the inventive speller with reading exposure. To some extent the children provide themselves with inputs from the environment, as mentioned above. The teacher, however, may wish to take a more directive role. For example, Florence Bailey

of the Franklin School in Lexington, Massachusetts starts her first graders off with writing and uses the following method for purposeful introduction of reading in standard spelling (cf. Chomsky, 1975).

The children write and illustrate books in their own spellings. These can be quite long at times, and full of action and excitement. The children take their books home, but before they do so, Mrs. Bailey makes a copy in standard spelling. She copies the story onto cardboard sheets held together with large rings, in book form, and the child re-illustrates it. The child then reads it to the group at meeting time. The set of books grows through the year, and the collection of these child-written books forms a core of reading material for the whole class. The children read and reread them many times.

The role that these books play among the children is an excellent and an important one. One day when I was in the classroom Mrs. Bailey asked Chrisopher if he would read his latest book to me. He did so with some pride. When he was through, another child happened by, and said, "Christopher, can I read your book now?" Christopher said yes, and she proceeded to read it aloud. When she hesitated over a word, Christopher provided the needed help. It was an activity entirely between the two children. She read the complete book, with Christopher's assistance as needed. They talked about the story, she asked him some questions, said she liked his book, and wandered off.

These child-written books, hanging on a pegboard panel within easy reach, are such an integral part of the children's day that the teacher was reluctant to let me take a few of them out for any length of time to have them photographed. They needed them daily. I ended up taking some out just overnight.

A sample book is presented below and in Fig. 2. This one has been copied over into standard spelling. Through first grade Christopher wrote a series of these books about a hedgehog who could transform himself (Superman style) into a superpowered hero, engaging mostly in crime-solving and rescue operations.

THE ADVENTURES OF MOOGYE

Chapter 1.

The hedgehog was walking down the street, when suddenly a robbery at the corner! Quick into a nearby telephone booth, and it's Moogye!

Faster than a speeding comet! More powerful than all the superheroes put together! Able to leap right over Pluto in a single bound!

Phooey the robbers already got away. What's this! A seagull in the city.

Moogye flies to the sea to talk to the seagulls.

Chapter 2. They Know Nothing

The seagulls know nothing. So Moogye waits, as the hedgehog.

Again the mysterious seagull comes! Again a robbery!

Chapter 3. The Robbers are Captured

Moogye follows the seagull.

The seagull takes Moogye under water.

A sub under water. The seagull goes in! Moogye goes in!

They have a fight. Moogye wins! Moogye ties them up.

PART TWO

A rocket is being launched. Everybody is there. 10-9-8-7-6-5-4-3-2-1-zero.

Up into space the rocket goes. What's this? The rocket's on fire.

Meanwhile, back at earth, street hedgehog is watching.

Quick! Into a nearby telephone booth, and it's Moogye! Moogye speeds to the rocket.

Moogye blows the fire out!

THE END

(INSERT FIG. 2 HERE)

The children in Mrs. Bailey's room write scientific reports as well as fiction. George is a case in point. His willingness to write came slowly. He was involved with ships at the beginning of the school year. At first his teacher encouraged him to dictate his battleship stories: "This is a battleship. It can fight the Indians. It has radar and the Indians try to blow it up." He progressed to drawing pictures to go with his stories, and the pictures were accurately done. "It's a form of recording for George," said his teacher, "since drawing is a natural beginning for some children." Next came dictating mini-stories that were short enough for him to copy. These were simple things like "I made a submarine," but he began to get the practice of writing himself. Finally he was able to write a battleship story on his own (Fig. 3):

WANTS THER WAS A SHIP
IT SELD THE SEVIN SESE
IT WAS A BATL SHIP
IT HAD RATRRE

(Once there was a ship. It was a battleship. It sailed the seven seas. It had radar.)

(INSERT FIG. 3 HERE)

George's dictation of the battleship story to his teacher took place in October. The self-composed story above followed in a few weeks. By December his stories had lengthened, and he had moved on to planets and science reports:

THE WONDERS OF MERCURE

MERCURE THE SMALLIST PLANIT IN ARE SOLAR SYSTEM. ON ONE SIDE IT'S STARGH AND ON THE OTHER SIDE IT'S FROSIN. THE MOST FREQUINTN THING WE THINK IS ON MERCURE IS VOLCANOSS. GEORGE

(Mercury (is) the smallest planet in our solar system. On one side it's stark and on the other side it's frozen. The most frequent thing we think is on Mercury is volcanoes.)

Fig. 4 illustrates another planet report of George's:

SATERN IS THE SECINT BIGIST PLANIT IN ARE SOLER SYSTM. THE SUN IS IT'S MUTHER STAR. SATERN HAS SUM CINDE OF HOT GAS RING'S. SATERN'S RINGS ARNT VERY THIC. SATERN IS A STERANJ PLANIT THE END GEORGE

(Saturn is the second biggest planet in our solar system. The sun is its mother star. Saturn has some kind of hot gas rings. Saturn's rings aren't very thick. Saturn is a strange planet. The end. George)

(INSERT FIG. 4 HERE)

And in January he wrote the following elegant rocket piece under a careful drawing (Fig. 5):

THIS IS A ROCKIT. THE LOONER MOJRAI IS ON THE THERD DECK. IT'S A PEAS AV SIYINTIFIC EQUIPMENT. THE NEXT PEAS OF SIYINTIFIC EQUIPMENT IS THE CMAND MOJRAI.

(This is a rocket. The lunar module is on the third deck. It's a piece of scientific equipment. The next piece of scientific equipment is the command module.)

(INSERT FIG. 5 HERE)

George, not yet 7 years old, was writing science reports with very complex vocabulary. In a classroom where the do-it-yourself ethic is top priority, creativity of this sort can flourish.

Mrs. Bailey stresses that the teacher's belief in the value of the writing and its potential is most important. In her words, "Children need to feel that teachers do trust and believe in their sensible beginnings in writing. And teachers do need to believe that, with proper intervention and encouragement, this writing will develop and grow, as did George's."

Mrs. Bailey pointed out that children read what they themselves have written more easily than unfamiliar material. Whether it's in their original spellings or copied over in standard spelling, it's easier. In a way they are less fearful of reading their own writing than of undertaking a book, she says. "Someone <u>else</u> has written the book. While the pictures help and the story can be discussed in advance, still it is someone else's product. What they have written themselves

is organically personal. Their own writing has virtue--it's sincere, genuine and original. The children respect their stories and their own kind of thinking."

The Language Experience approach to reading, is, of course, motivated by these same principles with regard to reading. However, the inventive spellers are expected to write first, independent of whether they can read back what they have written. The writing is a valued activity in itself, and may be engaged in for months before the child moves on to reading.

After a class trip to a milk bottling plant, one girl wrote the following account:

THE MILK GOSE TO THE BOTLING PLAT WER THE MASHEENS PUT THE MILK INTO CARTENS AND THEN A TRUC CUMS AND TACS THE MILK THE MILK GOSE TO THE MARCET

When the children were asked to write about their wishes, one boy wrote:

IV I CUD WISH ENEASING (anything) IT WOD BE TO MC (make) EVREBODE LIV FOREVR

At Christmas time, a number of diary entries reflected seasonal concerns:

IT WIL BI CRISMIS SOON BUT IF THE ENRGY CRISIS GES WRS WE MIT NOT HAF NO MOR CRISM LIS (Fig. 6).

(INSERT FIG. 6 HERE)

MY SISTR MAD A KRISMIS RETH (wreath) IT WUS A LITTLE RETH

SATU CLOS (Santa Claus) (Fig. 7)

(INSERT FIG. 7 HERE)

A snake book reported on boa constrictors, coral snakes, garter snakes and cobras (Fig 8):

THE INDEAN BOA KINSTIRE IS THE LOGIST SNACK IN INDEA. IT IS 39 FET.

THE CKOROL SNACK IS A CIEND OF RADOLER.

THE GARDINER SNACK YOU CAN ALLMOST ANY WAR.

THE SPITING KOBERA IS WON OF THE SDOGIST SNACKS.

AND THE CIEINT CKOBERA IS THE SDROGIST!

(The Indian boa constrictor is the longest snake in India. It is 39 feet. The coral snake is a kind of rattler. The garter snake you can (find) almost anywher The spitting cobra is one of the strongest snakes. And the giant cobra is the strongest!)

(INSERT FIG. 8 HERE)

And an illustrated story told of Brontosaurus coming home from school (Fig. 9):

WUN DA BRUNTSRRS WUS CUMING HOM FRM SCOL WEN HIS BEST FRAES SUPT

BY FR A CHAT THE END

(One day Brontosaurus was coming home from school when his best friends stopped by for a chat.)

(INSERT FIG. 9 HERE)

One group project which the children were all asked to contribute to was a monster book. They were told to imagine a monster, draw him, and write about what he looks like, what he eats, and how they would convince their mothers to let them bring the monster home. One girl wrote:

MI MONSTR FDS ON PEPOL AND I WD POSWAD MI MDR LC THIS I WOD TOL HOR

THET I WD BING THE MOSTR HOM

(My monster feeds on people. And I would persuade my mother like this. I would tell her that I would bring the monster home.)

And a boy wrote as follows, copied over in standard spelling;

My monster eats shakes, french fries, hot dogs and hamburgers. He is 6 feet tall and 7 feet long, and weighs 600 pounds. His name is Crikasouris.

How to con my mother to keep my monster. I'd beg and beg and beg and then I'd cry and then I'd sneak.

I'd keep my monster in the woods, and he would live in a hole at the bottom of the Res, just beyond the first rope. I'd put on my suit and flippers and go down and play.

The children's writing is superb. A good bit of the reading that they do through the year is of each other's writings.

Another more formal way to provide the speller with exposure to print for reading purposes is to encourage the children to listen to stories and books read aloud while following along in the text. An easy way for the children to engage in this listening-while-reading activity is to use a tape recorder and listen quietly to a book, through earphones, at least once a day. Rereading a book in this way until it is well known is a particularly valuable activity. Children become 'fluent' with a book which they perhaps cannot yet read independently. It provides them with a wealth of material from which to organize their reading knowledge. It also saves the children from constantly having to ask for help with words that they cannot figure out.

Conclusion

To summarize. I have suggested that children be taught to read by beginning with writing. This reversal of the usual order of instruction allows children to practice with the more concrete activities of word composition before they undertake the relatively abstract task of reading. It provides the background information that they will need, in a particularly active and functioning way.

When such children move on to reading they are prepared to take an active role in teaching themselves. They need exposure to print and someone to answer their questions and correct their mistakes when necessary. I suggest that the school see its role as one of providing the requisite background together with extensive reading exposure in an atmosphere of independence for the children. In effect they teach themselves to read, having received from instruction the basic tools needed to do the job. The primary function of the reading teacher becomes that of answering the questions.

Figure legends

Fig. 1 Sample of an early invented spelling, written in school by a first grade boy: I made a spider web on a branch and after I watched the film and I looked at crayfish.

Fig. 2 Book by a first grade boy, copied over in standard spelling by the teacher.

Fig. 3 Battleship story by first grade boy:

Once there was a ship
It sailed the seven seas
It was a battleship
It had radar

Fig. 4 Science report of first grader:

Saturn is the second biggest planet in our solar system. The sun is its mother star. Saturn has some kind of hot gas rings. Saturn's rings aren't very thick. Saturn is a strange planet.

Fig. 5 Rocket description, first grade boy:

This is a rocket. The lunar module is on the third deck. It's a piece of scientific equipment. The next piece of scientific equipment is the command module.

Fig. 6 Diary entry, first grade girl:

It will be Christmas soon but if the energy crisis gets worse we might not have no more Christmas lights.

Fig. 7 Diary entry, first grade girl:

My sister made a Christmas wreath. It was a little wreath. Santa Claus.

Fig. 8 (a-f) Snake book, first grade boy:

The Indian boa constrictor is the longest snake in India. It is 39 feet.

The coral snake is a kind of rattler.

The garter snake you can (find) almost anywhere.

The spitting cobra is one of the strongest snakes.

And the giant cobra is the strongest!

Fig. 9 Illustrated story, first grade boy:

One day Brontosaurus was coming home from school when his best friends stopped by for a chat. The erd.

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OPEN DISCUSSION OF CHOMSKY PRESENTATION

ROSNER: Your prerequisite skills make good sense. With them, a youngster enters into this kind of learning situation knowing the letters, knowing that the letters correspond to sounds, and knowing how to conduct phonemic segmentation. But, considering Lauren's prefacing remarks about focusing on kids who need compensatory education, and recognizing that there is a lot of evidence showing that one of the problems of compensatory education kids is poor phonemic segmentation skills, what do you do with kids that can't demonstrate phonemic segmentation ability?

CHOMSKY: I think what you do is start with the phonemic analysis. I think the most valuable thing that they will need is that kind of segmentation; that ought to be a beginning point.

ROSNER: Out of the context of letter representation?

CHOMSKY: No, I think by just playing with words, learning about rhyme, doing it on an oral level.

ROSNER: Without using letters to represent sounds?

CHOMSKY: Yes, I think I would do it totally on an oral level, just to get them attuned to sounds. Then I would get to the fact that these separable things can be represented by letters.

ROSNER: Do you have compensatory education children in your data base?

CHOMSKY: No. I don't have a data base. I don't have a data base of large numbers of kids who were taught specifically this way, no matter how they came in.

WHITE: Eve Weiner, in the New Public Schools, has invented a new trade, that of "reading disability teacher" at the high school level. When she started, there was one of her, now she has stated that there are five of her. She has been identifying kids at the high school level who can't read, but who have invented various interesting strategies for sort of ducking that fact. It is interesting, because she works with a population that is old enough to be articulate about their problems, and she has a lot of insights about problems in reading. I had her at one of the NIE meetings last year, because she is very good on all kinds of questions in reading. But the interesting thing to me is she is now actively selling the notion of teaching reading through writing; she says that schools don't use writing enough; she has written a couple of little papers, apparently she has been trying this writing strategy, and it has been working for her high school population. I just want to add that as another kind of data base for the discussion. It is purely a clinical innovation, but she has been doing some writing--apparently it is a widespread thing--and I have been trying to encourage her to look at it more systematically.

CHOMSKY: What I thought you were going to say, and what is usually said, is: These kinds of spellings are lovely when you are five years old, but what do I do with my 12-year-old who is still spelling this way? There I have a problem. You know, that is really a problem. The approach serves one function at this point, but what about the phonetic spelling later on?

WHITE: I don't know how well these high school kids spell, but she apparently feels that in order to get them to read, it is useful to give them writing-exercise exposure.

CHOMSKY: Again I would be interested in seeing what kind of things she does, and results she gets.

LIBERMAN: We have some data from a dissertation at the University of Connecticut that might be relevant to the question of compensatory education. The subject population for the dissertation was drawn from a school in which roughly half of the students were bused in to achieve racial integration. Therefore, half the children in the school were disadvantaged and black, while the other half were white middle-class children.

This student studied the invented spellings and phonemic segmentation of the whole second grade population of this school and found that with that group, at least, there was no difference between the Blacks and the Whites in these skills. However, there were individual differences. That is, there were some black children who couldn't do phonemic segmentation, and there were some white children who couldn't do phonemic segmentation. If they couldn't do phonemic segmentation, they couldn't do invented spellings. We are compiling data on this now, and they should be in soon.

JOHNSON: We found that in some cases spelling is actually better than reading, because it seems that the examiner provides the part of the temporal organization which the child cannot superimpose on the visual display in his reading.

JACKSON: Your talk is almost exactly the same one that Sir James Pittman gave,

except for the fact that your system is one that the youngsters are making up. I see the same kinds of problems in both, and that is the transfer to traditional orthography, which has to be planned. If you are following Sir James Pittman, he does not feel it has to be planned. He suggested the same kind of transitional activity; that is, just the informal following of reading text, which, he believes occurs normally.

I thought, too, that it's extremely important to note that youngsters must have a very high degree of sound sensitivity prior to being able to move into your system, and the writing there suggests that those youngsters have a fantastic degree of sound sensitivity.

CLAY: In our reading research program, we were putting in several kinds of language tests. We included articulation. It didn't show any relation to the reading process in the early studies, but we routinely put a test of articulation into our test battery. We were very surprised when one study showed a very high relationship of this score to early writing.

It seems to me that the Elkonin segmentation exercises in John Downing's book, Comparative Reading--the exercises using blocks with nothing printed on them at all to represent how many things you can hear--these seem to be related to training in this early writing.

CHOMSKY: Very much so.

E. SMITH: Do you know yet if a child who has gone through this kind of phonetic spelling program, could read a text faster, if it was spelled phonetically?

CHOMSKY: No, because they don't usually see a text that way.

Typically, they can read their own story back right away, but three days later, it is gone. The writing that they see, by and large, uses conventional spelling, and they read conventional spelling more easily than they do their own spellings or their own friends' spellings. They can work it out, but the expectation is built up for reading with conventional spelling.

E. SMITH: I raise the question, because I am trying to think of a way that you could get direct evidence that the actual linguistic skills, which the child is learning in phonetic spelling, are transferring to reading.

There is a possibility that part of the success of your training program could be motivational. You mentioned the feeling of involvement, of having it under control. There would be other procedures one could use that look nothing like phonetic spelling, but that had this motivational aspect. They could work as well.

CHOMSKY: The motivation and the expectation to do it yourself is very high, but I think there is a base of information that you really do need.

Now, if you can get that same base through something other than phonetic spelling, fine. But the separation of the writing mode from the reading mode is very interesting.

I'll give you an example: I brought Jeremy to a graduate seminar I was teaching. He agreed to come and write words for my students. The students were giving him different words, which he "wrote" by manipulating plastic letters. We asked him to write <u>pencils</u>, which he spelled in correct invented spelling

fashion, pasls leaving out the nasal, using A for E, S for the plural, S-Z distinction is typically not made in the material. As we saw, the T-D distinction is made in the past tense: in the plural the S was not. So there was Jeremy's rendition of pencils, pasls.

Somebody was taking notes and keeping a record of the spellings that Jeremy produced. It occurred to someone near the end to ask Jeremy to read back some of the words that he had written, and we reconstructed that sequence (pasls) on the tabletop and said to him, "What does it say?"

And he said, "Pasls."

Then a little later, somebody wrote, pencils, and he said, "Pencils." So there you have the separation.

ELLSON: I found this very interesting, I can see applications to teaching that I would be interested in trying, and I can see all sorts of research questions coming out of it, but I had the feeling you didn't tell us all you knew. I felt a little bit the way I feel about Edgar Rice Burroughs' theory of reading. He said that Tarzan taught himself to read in the jungle with nothing but a book; he had the graphemes without the phonemes. I see your system as the phonemes without the graphemes. If the prerequisite skills were simply ability to show the names of the letters--and you say that they figure that out each time they do it--how did they ever come to the ck understanding?

CHOMSKY: That was taught.

ELLSON: All right. That was really my question. What is the teacher actually teaching? The children are not really figuring this out.

CHOMSKY: Okay. I won't say so quickly that that was taught, because the children were not taught to use the letter i in the word be, for example. It's very possible that the child got the idea from somewhere, perhaps from being taught that the short vowel [I] is written with the letter i and then proceeded to apply that to the class in which [I] fits.

The sound k was written k. You don't even have a class; you have a single sound k, for which the child learned somehow that ck is a representation. He may have picked it up; he may have been told. Then he proceeded to use ck when he wanted to write k.

ELLSON: That was my question: How did they pick these things up? That is, I don't think one can figure that out; it is impossible. You must have some rules within the system to tell the teachers what they can teach and what they can't.

CHOMSKY: I don't think there is a specific list prescribing what I may teach and what I may not. I think if the child sees the word pick and comes up and says, "What does it say," you tell him it says pick.

ELLSON: That is reading, not writing.

CHOMSKY: Okay, I didn't understand the question then.

ELLSON: Are you teaching reading as well as writing?

CHOMSKY: The reading material is being presented, yes.

ELLSON: I see what you are talking about as a part of a system, but I don't

understand how you dispense with the parts that you didn't learn. It seems to be a part of a very, very interesting, ingenious, and probably very useful way to teach some parts of reading, but I don't see how you can do it simply by telling the children the names of certain letters and leaving it up to them to figure the rest out.

CHOMSKY: It isn't left up to them, because some children will never pick it up. There is great encouragement given to do the writing, and I have examples of how the teacher gets the child to write in the first place. For children who don't write at all, the teacher has a very specific sequence of things that she does to get them to start writing. First they draw. Then they will dictate a minor story, which the teacher writes down. Next, they will draw the picture for the story. Then there is a brief mini-story that they can dictate and copy. By the fourth month of school, they will be willing to try writing their first story by themselves, and by January--I am just going through the history of one particular child--they are writing long science reports. There is a great deal that is done to get the machinery going. It is not, by any means, a case of saying, "Just go ahead."

With reading standard spelling, it is the same. For standard spelling, this same teacher takes the children's self-written books and copies them over in standard spelling on large card board sheets put together with rings. Then she has the child put the illustrations on. She makes up the book, which the child had originally written in phonetic spelling, in standard spelling. These child-written books, in conventional spelling, are a major source of reading material for that class for that year.

The books hang on a pegboard panel, and I couldn't even take them out for a couple of days to photograph them. They had to be there every single day, because they were used so much.

What those books provided for the kids was utterly fantastic. One day I asked a child if he would read me his book or one of his books. He got the book down and read the whole thing to me. When he was through, a girl walked by and said to him, "Christopher, can I read your book now?" She proceeded to read it aloud to him. I sort of stood there in the background, the interaction was between those two children. He helped her when she couldn't read a word; he made the corrections. She went through the whole book and said, "Thank you," and then went on to something else. That is the kind of reading that is going on. It is not by any means unstructured, but the nature of the structure is of this specific sort.

GLASER: Speaker requested that his comments be deleted.

CHOMSKY: I think that listening is a very powerful guideline. I think that memorizing a book gives tremendous information on that score. Kids who teach themselves to read sometimes do so by memorizing books; that is a special case that can happen earlier. But I think that kids in the middle of first grade, who begin reading and rereading while listening, are getting the sort of raw data from which they can construct hypotheses to get to the system.

F. SMITH: There has been some concern around the table over how one gets to traditional orthography. I think Carol is into a very interesting thing. I don't think she wants to say that just encouraging inventive spelling will teach a child to read; in fact, I would have liked to have heard her talk about other

things that are clearly involved in learning to read. She did solve one problem for me, though, and I wonder whether she would agree with my view that what her technique does is enable the children to make sense of phonics. There are other aspects of learning, some other insights that children have to get; yet, at some point, they have to come to grips with this absense of one-to-one relationship between the orthographic and the phonological systems. What this prior exposure to spelling does is prepare children for this.

As Carol mentioned, children cha almost on a day-to-day basis, in the spelling that they use. They don't regard these spellings as immutable; they are ready to accept that there are different spellings, as in the case of pencils. It reminded me of the child who draws a man that looks like a potato. If you say to the child, "well, which is the picture of a man, the potato or this more skilled drawing of a man," the child will obviously pick the more representational one. Children recognize their own inadequacies; they are just making their best approximation. I think that is the case with Jeremy. He knows that pencils isn't really spelled that way, and he can move towards the correct spelling.

So one advantage of this approach is that it will help children make sense of phonics, when they are introduced to phonics. I think that is a very, very useful insight.

I want to get back to the question of how a child eventually moves from this kind of spelling into traditional orthography, or conventional spelling. I have a hunch here, and I wonder if Carol might comment on it? It seems that it is reading, itself, that moves the child back to the notion of conventional orthography, so that these two things are really very closely interlinked. The experience with spelling initially helps the child make sense of

spelling-to-sound correspondence. Later it is the experience of written language that helps the child get the idea that there is a conventional spelling for words, and that has to be developed.

CHOMSKY: I think there are two things at work here: It is invented spelling, or traditional spelling. I mean, you are doing it differently in those two systems. The kids who have learned invented spelling and have gone on to conventional spelling in school will continue, for example, to write invented spelling at home. It depends on what kind of situation they meet in school, or what the teacher does about it, as to how rapidly they make the switch. They can write in either mode, and the principles are different.

One class of children was followed into second and third grade, to see what their spellings looked like after they left the first-grade teacher, who didn't correct them. She withheld information about correct spelling because she was doing a dissertation on development of invented spelling when these children were in first grade. She kept diary records on her first-grade class for a year, and she purposely withheld answers about correct spelling.

When these children got to second grade, they were given the California achievement test in October. On the spelling subtest, they performed worse than children in that class from other first grades, who had been using conventional spellings.

This was in an upper-class suburb of Boston, where the norm for the school is above the national norm. The average for the first graders from this particular teacher's class, was at--not below--the national norm but it was below the other children in the same school.

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By the time these kids got to third grade, however, they all looked alike; everybody spelled alike in October of the third grade. So the second-grade year, once our kids began to get spelling instruction, erased any differences that were there at the beginning of the year.

But the comments of the second-grade teacher were interesting, aside from the test scores. She said she had seven of these children in her class (they had been mixed together with children from other first grades). It was not noticeable to her from the kid's poor spellings that these kids were any different. She said that the way they spelled was not what struck her. What struck her was how much they wrote, and how easily they wrote.