From Invention to Convention
Children's Different Routes to Literacy

How to teach reading and writing by construction vs. instruction

Curriculum concepts for and research evidence on
language experience in open classrooms

Paper prepared by Hans Brügelmann, Siegen, for the international conference
"Integrating Research and Practice in Literacy"
at the London Institute of Education , March 13-14, 1997

-- Revised Summary --

The following paper is structured in two parts.

Chaps. 1 - 4 summarize our psychological thinking and empirical evidence on patterns of literacy acquisition, esp. a constructivist model of orthographic development.

Chaps. 5 - 7 present our educational ideas and empirical evidence relevant to the evaluation of our "language experience approach" (LEA) and of open classrooms in general.

A preliminary note: Researchers usually confine themselves to analyses. The following paper is constructive, even programmatic. I use research to explore the potential of ideas, of theories, of methods, here: of language experience embbeded in an open curriculum. The studies reported are developmental in that they try to find out what is "viable" (Glasersfeld) in the field. Therefore variables and methods cannot be as controlled as in psychological experiments.

Further, I am not "deriving" the need for "open classrooms" from research on orthographic development (as the sequencing of chapters may suggest). We need a curriculum respecting self-determination and fostering the independence of the child *on normative grounds* (education in a democratic society). But then two questions arise:

Firstly, what type of teaching a specific subject matter does match this general educational conception? In my opinion a "language experience approach" emphasizing free writing better fits in than does teacher directed instruction of isolated skills.

Secondly, is there any risk that children's academic achievement will suffer when emphasizing these general principles of education? Thus, I am not interested in proving that LEA is more successful (a very difficult task in field research, anyway).

A brief summary of the main arguments:

1   Regarding print school beginners are no "blank slade" when they enter first grade. Therefore the idea of "introducing" print, letters and words by controlled instruction becomes problematic. [pp. 4-6]

2   Between children the preschool experience of print differs tremendously, however. Therefore the idea of starting from the same point and progressing at the same pace through a graded scheme becomes problematic, too. [pp. 6-8]

3   Mistakes necessarily accompany learning as a process of reiterated construction ("from invention to convention"). This insight questions the idea of conveying units of knowledge intact into the heads of children by drill and practice. [pp. 8-13]

4   Learning is not the product of teaching; mechanistic models of cause and effect do not fit the nature of learning as an implicit ordering of experience. Therefore the idea of teaching the system bit by bit (practicing words or explaining rules) and storing these units in the heads of children as a basis for further learning becomes problematic. [pp. 13-17]

5   The advantages of direct teaching are restricted to the "playpen" of practiced skills and to short-term recall. The developmental logic inherent in childrens constructions of orthographic systems filters what school offers; individual progress is not causally related to instructional input, short term behavioural changes do not mirror cognitive progress. [pp. 17-22]

6   Language experience as an "open" approach is not to be equated with laissez-faire on   the one hand, or with whole word learning and context guessing on the other. Both, children and teachers need structures to be built into materials used and into the organization of activities. Task demands have to correspond to the (psycho)logical structures of print (cf. our "didactic map"). But structures have to support and not to restrict participation of children [pp. 22-24]

7   The evidence on effects of open classrooms is promising. Specifically research on the "writing to read" method supports the potential of a "language experience approach": it activates the personal experiences and interests of children, it allows for relevant uses of print from the beginning, it matches the early stage of orthographic development, it discloses the phonological basis and alphabetical nature of print, and orthographic spelling does not suffer in the long run [pp. 25-29]

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In this paper I shall focus on different approaches to reading and writing instruction and analyze their psychological assumptions and educational implications referring to results from different studies of orthographic development. I will use my presentation also to make you aware of relevant research in the German speaking countries during the past 20 years that has not been recognised in the English academic community so far.

The acquisition of literacy can be viewed from different angles. Our project "Kinder auf dem Weg zur Schrift" ("Children's routes to literacy") has taken a Piagetian stance since its beginnings in 1980: The learning of children (as well as of adults, of course) is rooted in their personal experience of the world and dependent on the individual concepts they construct from interacting with it (cf. Glasersfeld 1995).

Our research and development work is guided by two basic assumptions.

Learning to read and write has to be seen as a process of *cognitive* development (cf. Downing/

Valtin 1984). By experimenting with print the child gradually extends and differentiates her/ his reasoning about print (rather than accumulating isolated skills and pieces of knowledge bit by bit). Children do not simply copy words, they actively construct orthographic systems, though unconsciously to a considerable extent..

Moreover, the acquisition of literacy has to be seen as process of *social* development. Children develop an understanding of, and competence in, reading and writing by using print for personally significant purposes. The culture they come from, but also the social context of the classroom play an important part in modelling how the child values, understands, and uses print.

In recent years, this position has become influential in educational theories and programme development in the German speaking countries, but also in a growing number of classrooms (e. g. in the Cologne region the number of classrooms working without primer and a graded scheme ["Fibel"] has increased from 2-3% in 1988/89 to 16-19% in 1994/95, cf. Hanke 1996).

In our own project "Childrens Routes to Literacy", we have tried to find out how children's understanding and mastery of the German orthography develops. On the following pages I will trace our main ideas by sketching this development from K through 4.

Our first studies have focussed on children's *pre-school experiences* with print.

1 The First Day at School is Not a Clean Start

In Germany, the "Fibel" has been the medium of reading and writing instruction since Gutenberg. Usually, letters and words are introduced via a graded scheme. Methods differ, but the basic assumption always has been that it is the school that introduces children into the world of literacy, and that the easiest way for children is to additively learn simple units such as letters and words step by step. Exercise books are supposed to guarantee the mastery of the elements introduced so that the acquisition of later units can build on the mastery of earlier ones. Only recently more complex approaches confronting children from the beginning with the basic idea that letter sequences represent sound patterns that in turn represent meaning have been

developed (cf. Vestner 1974; Metze 1992; 1995).

In general, however, it is supposed that children start learning to read and write at school and that this process can be controlled by instruction.

During the last few weeks at kindergarten (or briefly after their first days at school) we have given several reading and writing tasks to children tapping their explicit as well as their implicit knowledge of print, of its social uses and of its technical logic. The type of task resembles those known from earlier studies by Clay (1979), Downing (1979), Ferreiro & Teberosky (1979/82), Mason (1981) and others.

To tap the whole range of relevant concepts we have developed a "didactic map of eight learning areas" (as depicted in fig. 1 from Brügelmann 1986, 296) and different tasks related to each one of them. I come back to this idea of a didactic map later when talking about the need to provide a framework for teaching in open classrooms (cf. chap. 6).

<<< insert Fig 1 somewhere here >>>

Like Harste et al. (1984) and others researching "emergent literacy" (e. g. Teale/ Sulzby 1986) we found that already pre-school children use print in productive ways, that they understand a lot of its functions, that they have ideas about its relationship to spoken language and/ or to meaning and that they also have mastered a number of its elements (e.g. knowing names of letters or words, being able to write their own name and some other words).

Our main finding was that literacy "emerges", i.e. that children build and gradually strengthen their foundation of understanding print long before they grasp the logic of our alphabetic system proper. In a "logo" task using environmental print, for example, 58% of school beginners could not read one word in standard print they were able to identify as a complete logo, 26% could read 1-2 words, and 16% three or more out of 10. Thus, we did not get the bi-modal distribution of print knowledge with our West German children as reported from the US, e.g. by Masonheimer et al. (1984) as evidence for a "break" in children's development when they move from logographic to alphabetical reading. The distribution of letter knowledge (naming as well as recognizing or writing them spontaneously) was even normal.

Recognizing the different TV and kindergarten practices in both countries we assume that letter knowledge means different things in different cultural contexts. It is impossible to decide generally if it is the *cause*, merely an *indicator*, or a *consequence* of insights into the alphabetical structure of print.

Interesting is our finding that there was a significant correlation between performance in diffe-rent tasks, but only of a moderate size (.40 to .50). Literacy in our world today is not a homo-geneous phenomenon. In another "Logo" task, where children had to compare/ recognize logos in different forms of presentation (some of them deliberately alienated), data from two other German studies by Schneider & Weinert (1989) and Skowronek & Marx (1989) and from our own show that different aspects of the logos (letters, font, graphic context) play a role in children's strategies for recognizing them.

That the children's notions do not necessarily match our conventional structuring of print is another story. The more important it seems to understand the different logic of childrens construction of print (cf. Ferreiro & Teberosky, 1982). Otherwise a serious mis-match between children's thinking and what the school has to offer will create learning difficulties.

Interim summary: Children bring to school a rich naive experience of print. This everyday experience has solidified into concepts of the functions of written language and of its technical relationship to the spoken version. Such concepts influence the children's perceptions of instruction at school and explanations offered to them. This fact makes the graded "introduction" of individual letters and words found in reading schemes problematic as they take no account of what these children are already capable of when they start school. We need an "open classroom" that is responsive to children's specific understanding, knowledge, and use of print.

2 Beginners Differ Tremendously in their Experience of Print

The differences between children are a second reason for the "openness" of instruction as demanded above.

Already 20 years ago. Rathenow & Vöge (1982) found in Hesse, one of the 16 states of the FRG,

* that 15-20 % of the beginners were independent readers or close to this stage;
* that roughly 40% could name a few words and between 6 and 20 letters;
* that more than 40% had hardly any knowledge of print and its logic.

These data have been differentiated in the meantime (e.g. by Neuhaus-Siemon 1994), but the fact of such a broad range has been confirmed, e.g. by our own results (cf. Brügelmann/ Richter 1994, 62-67): children differ not only in the number of letters they can name or write, they also differ in the number of words they can recognize or spell by heart.

Even more impressive than these quantitative differences in individual knowledge or skills are the differences in the development of their thinking about written language, e.g. , in their capacity to read and write unknown words. Other studies have equated the differences in literacy experience at the beginning with a developmental lag of 3-4 years (cf. Mason 1981, 25).

Fig. 2 (from Brügelmann/ Richter 1994, 83) shows what we can expect from 6 year olds when they try to represent notions like "four houses" in a "Kim"-like memory game. We asked them to remember objects distributed on the table and their quantity over night . To make the task easier we offered them paper and pencil "to take notes"**.**

<<< insert Fig 2 somewhere here >>>

The results resemble an overview of a history of print representing systems of different logic (e.g. pictographic, logographic, syllabic, phonetic, orthographic; cf. for specific comparisons: Juna 1989/95).

Another game we play with pre-school children are the "Marked Memory Cards". We use this to find out to which extent and how children utilize cues given by print at a time when they cannot read yet. In the basic format the name of an object (*pictured* on the hidden *bottom* of the card) is *printed* on the visible *top*. Thus children have to construct a relationship between object identity (on the bottom) and print identity (on the top) to benefit from the cues. We found that some children have mastered this "sign concept" before school. Others easily acquire it in the course of

this game without any instructional help while a third group continues to choose cards randomly, without reference to the visible print.

To make the task more difficult, one can use words that differ only in one letter (e.g. *Hammel, Hummel, Hummer, Hammer*) or that differ in the direction of letters only (e.g. *ROT/ TOR*). Thus, it is possible to gradually explore the range and the differentation of specific concepts.

From our own studies (cf. Brügelmann/ Richter 1994, 62-77, 82-86) and similar investigations in other countries (see above) we have constructed a developmental model of literacy acquisition (cf. fig. 3 from Brügelmann 1986, 297).

<<< insert Fig 3 somewhere here >>>

Though we do not believe that a childs thinking and writing can be located "at one stage at a time", the profiles of strategies observed change considerably,
- from mainly pictographic and/ or ornamental,
- via phonemic-alphabetic,
- then using orthographic patterns ("legally" as well as "illegally"),
- to mastering the morphemic principle.

To describe this change of strategies we use the "wave" analogy replacing the common "particle" model of skills.

To this extent, less developed spelling or mistakes in reading do not necessarily indicate personal "defects" in basic capacities such as perception or memory, but often indicate a mere lack of experience with written language. Those children starting from a lower stage, in spite of individual progress, always lag behind. Thus, in classes of children of the same age slow learners are "normal at the wrong time" (cf. also chaps. 3 and 5).

Interim summary: We assume that children start with imperfect, but comprehensive forms of reading and writing (e.g. scribbling and mock reading). Learning, then, is seen as gradually refining these rough forms (usually interpreted as "mistakes") through experimenting with approximations, i.e. as continuosly replacing earlier "waves" of concept and strategies by more

differentiated ones (cf. for more details: Brügelmann, 1989).

The divergence mentioned places a question mark over a second concept of graded reading and writing schemes, namely the intention to bring all children to the same performance through the same stages, in the same sequence and at the same time.

For the pre-school period this model seems to be well founded on evidence from different studies in different cultures. But what happens when systematic instruction starts in school?

3 From Invention to Convention: "Mistakes" are no mistake

In a second type of study we have followed children through grade 1 and 2 (mid-term) to investigate how they spell unknown words. We have chosen this task because we wanted to find our about children's orthographic thinking and not about their capacity to memorize for specific words. Our assumption has been that children construct patterns from the words they read and write and that these structures will regulate their own spelling -- i.e. lead to spellings that are wrong, but wrong in predictable ways. Thus, we think that orthography is learned not word by word, in an additive way, but by re-structuring a system of (mostly implicit) rules or patterns (cf. chap. 4).

Three groups of altogether one thousand school beginners were studied in the consecutive school years 1987/88 (wave 1), 1988/89 (wave 2), and 1989/90 (wave 3). In wave 1 at five measuring points (November 1st grade to November 2nd grade) nine words (not practiced in the classroom) were dictated to the children. We asked them "to write these words you have never written and presumably not seen before as accurately as you can" (cf. for more details of the study: Brügelmann/ Richter 1994, 102-125).

We had two main measuring points at the end of the year (June) and half way through (January), but we drew also smaller samples to check for the hypothesized development in between as well as at the end (half way through 2nd grade).

The school year in our region starts in August/ September, the final investigation of invented

spellings took place in November (2nd grade), i.e. after 14 months of schooling. For subsamples of wave 1 and 3 we added a further task another three months later (in February 2nd grade) dictating high frequency words that in many classrooms are regularly practiced. Thus, we wanted to see not only how the strategies of "constructing" words (through translating the analysis of their sound sequence into letter sequences) develop, but also if there is a relationship between progress in this dimension and the acquisition of orthography and of specific spellings of single words afterwards.

The children came from classrooms representing different types of orthographic instruction. In some classrooms children were explicitly encouraged to invent spellings while in others this was more (or less) tolerated. Orthographic writing was gradually introduced by practicing particularly frequent words (generally a basic vocabulary of up to 50 words in 1st grade and some further 100-150 in 2nd grade). Again, there were differences in the intensity of practicing these words.

Invented spelling in grade one ...

In this study we did not focus on the impact of instruction on the development of spelling or on differences between individual children (though we noticed considerable differences in both respects). The aim of this study was to evaluate our model of spelling development that states:

*   Spelling development cannot fully be explained as gradual addition of elements,
     it also includes qualitative shifts in orthographic structures and in spelling strategies.

*   Children acquire spelling through a set of general stages
     though individual pupils progress through these stages at different speed.

*   The rate of development depends on the experience with print before school.

*   Spelling errors are inevitable and productive in gradually acquiring
     the conventions of alphabetic print.

In evaluating spelling progress we used the following coding scheme related to consecutive stages of spelling competence:

0   no letters written at all, or letters selected arbitrarily (with respect to the sound
     sequence of the spoken word)

1   one (mostly the initial) sound of the word represented in print

2/3 gradually elaborated "print skeletons" with reference to the individual pronounciation of the word

4 complete transcription of the spoken word (increasingly including spelling patterns though often in the wrong place, e.g. <shipp> instead of <ship>).

5 completely correct spelling of individual word.

A child's writing was interpreted as having reached a certain stage if 2/3 or more of his/ her spelling were judged to be at this level. We checked the adequacy of this stage indicator by correlating it with a "spelling index" adding points

(a) for each sound that could be adequately reconstructed from the letter chosen by the child
(b) for each orthographic pattern (i.e. letter combinations that together represent a single sound or single letters deviating from their normal sound value to represent a special orthographic feature -- independent of its appropriateness in this specific case)

(c) for the orthographically "legal" (though perhaps not correct) spelling of a word (e.g. <shipp>).

The correlation between this spelling index and the simpler stage index was .95 . In working with teachers and in the third wave of our investigation we even used the arithmetic mean, though statistically not proper, as a very good approximation of this index.

The following Table 1 gives an overview over the main results for waves 1 and 2:

Table 1: Classification of Spellings in 1st Grade (in % of words)

Date of Observ	NOV-1	DEC-1	JAN-1	FEB-1	APR-1	MAY/JUN-1	JUN/JUL-1	NOV-2
Wave 1 : N =	51		262	57	261			78
Wave 2 : N =		262		124			260	
Stage Index	1.9		2.8	3.9	3.9			4.5
mean (0 - 5)		2.5		3.7			4.1	
% orthographic	12		20	43	42			51
correct		14		34			44	
% phonetic	9		23	26	34			34
transcription		16		34			35	
% phonetic plus	21		43	69	76			85
orthographic		30		68			79	

A further inspection of the results (cf. Table 2) shows a broad range of differences already in

November, i.e. after 10 weeks of schooling (% of children at particular stages) :

Tab. 2: Distribution of Spelling Stages at Different Dates
        (in % of children (wave 1))

Date	N =	Stage 0	1	2	3	4	5
NOV-1	51	23 %	13 %	43 %	12 %	7 %	2 %
JAN-1	262	7 %	8 %	36 %	18 %	27 %	4 %
JUN-1	261	3 %	2 %	11 %	11 %	48 %	23 %
NOV-2	78	–	1 %	3 %	9 %	56 %	31 %

These differences reflect different experiences with print before school as we had already found in our investigations at the end of kindergarten. This broad range of achievement remains the same throughout the school year (cf. JAN-1, for example) as all children make progress -- from their respective starting points, however. That is to say, the children do not simply learn what is taught during a certain period. They rather learn what matches their level of development. This may be "less" from the perspective of the teacher, but it also may be seen as different (and in many cases is far ahead of the teaching).

Interim summary: The problem of slow learners is that their progress is not recognized as improvement by the school because in their peer-group they still remain behind. Further, invented spellings often are counted simply as mistakes without acknowledging the qualitative differences. Continuing mismatch causes "disturbances" of learning that later on may solidify as individual learning "disabilities". Traditional psychology then looks for "defects" in the child -- and will find them. Often such (cognitive as well as social) "defects" are a result of excessive demands for progress (rather than a *cause* of its failure).

... and its consequences for conventional spelling in grade 2

In a longitudinal perspective, our correlation studies have yielded the following results:

Performance with our "9 unknown words" is a good predictor for future spelling development. The correlations between spelling indices at different dates are shown in Table 3:

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Table 3                                           N = < >
Date of                    Date of Criterion Performance
prediction    JAN-1      FEB-1     JUN-1      NOV-2    ORTHO FEB-2

--------------------------------------------------------------
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NOV-1        .68 <51>             .58  <51>   .60 <33>   .49 < 48>
DEC-1                   .56 <54>  .58 <156>
JAN-1                             .65 <239>   .57 <67>   .46 <119>
FEB-1                             .70 <140>
JUN-1                                         .70 <71>   .52 <118>
NOV-2                                                    .63 < 71>
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ORTHO FEB-2 is an index for the correct spelling of 25 words from the basic vocabulary 1½ years after school entry. The correlations with the levels invented spellings at earlier dates (NOV-1, JAN-1, JUN-1 and NOV-2) are particularly interesting. They confirm that "wrong" spelling does not hinder orthographic development. On the contrary: though the level of invented spellings reflects a different strategy, it is a good predictor of orthographic achievement. We interpret this as a validation of the assumption of qualitative stages in spelling development.

Results from our third wave show that later on (at the end of 1st grade) the mastery of high frequency words becomes a better predictor of spelling competence in 2nd grade than the "phonetic construction" of unknown words. Moreover, taking the use of spelling patterns as an indicator of orthographic competence, their "legal" use becomes more important now -- while in JAN-1 the mere number of ("legally" plus "illegally" used) spelling patterns is the best predictor.

These results seem to require an instructional shift in the classroom after grade 1 -- as well as a theoretical shift in modelling spelling development from grade 2 through 4.

Interim summary: Orthographic errors as a consequence of invented spelling do not jeopardize orthographic development. The roundabout ways taken by children are not necessarily blind alleys. This result contradicts those reading and writing schemes that are based on the assumption that knowledge can be transferred into children's heads piece by piece, and "intact" so to speak, i.e. that something once taught could also be assumed to have been learned -- once and for ever.

4 Learning is Not the Product of Teaching: On the Developmental Logic of Constructing Orthographic Systems

I want to conclude my journey through different projects by referring to two studies investigating orthographic development in higher grades.

Take the word "Fahrrad" (bicycle). Inventing spellers spell it FARAT translating each phoneme into the regular letter counterpart. Peter May from Hamburg University has dictated such words to children every six months and he has tried to depict how the spelling of "Fahrrad" develops. The evidence from this study (1990) is interesting in several in different respects.

First: The spellings produced do not scatter arbitrarily. Children prefer certain spellings above others. When analyzing the mistakes May found systematic rather than trial and error solutions -- as we can observe in oral language acquisition, too.

Second: Development does not occur as shifts from wrong to right. Children pick up one orthographic pattern after the other improving their spelling step by step -- as we can also observe in syntactic and morphemic learning during oral language acquisition.

Third: Taking the group as a whole there is a common pattern of development
- starting with the marker <d> for the final sound /t/: FARAD (this is because of the *lexical stem constancy principle* in German orthography: "[one] Fahrrad", but "[many] Fahrräder");
- then marking the closed (we say "long") vowel in /fa:r/: FAHRAD;
- and finally recognizing the compound nature of the word ("Fahr-rad" from "fahr(en)" and "Rad") and thus representing the two <r> for the one sound /r/: FAHRRAD.
This pattern reminds us of the regularities in grammar development in oral language acquisition, e. g. in marking the past tense in irregular verbs as in "I went" to "go": in German the verb is GEHEN, the past GING, but children will produce ICH GEHTE first (because of the regular SAGEN - ICH SAGTE, etc.), then ICH GINGTE and finally ICH GING.

Fourth: We find that the groups of fast and slow learners follow the same sequence (s. fig. 4 from May 1995, 224). Note, however, that May has depicted the most frequent spelling(s) only taking 50% of a group as his criterion for selecting one spelling as typical; thus, there can be up to 50% "deviations", an issue I will take up later, again.

<<< insert Fig. 4 somewhere here>>>

Fifth: This evidence does not allow us to infer at which points in time instruction has focussed on
- practicing the word FAHRRAD;
- explaining the /t/ - <d> correspondence;
- comparing short and long vowels and their markers such as <-h>;
- analyzing the morphematic structure of composite words such as "Fahr-rad".
There seems to be no direct relationship between teaching and learning specific aspects of orthography.

Sixth: In spite of the broad range of idiosyncarcies in specific spellings from grade 1 through 4 a clear shift can be observed
- from mainly *phonetic* (just transcribing their own articulation of the word),
- via mainly *orthographic* (picking up an [over-] generalizing selected features),
- to mainly *morphemic* (taking account of grammatical conditions of spelling).
strategies in all groups of students (cf. May 1993, 277-285).

Seventh: May has replicated his study in the GDR in 1990 where spelling had been taught in quite different ways (cf. chap. 5) -- and the same developmental sequence could be shown. Although the word stem "fahr" used to be taught in grade one, both the feature <-h> and the composite <r-r> were produced by the children later than the <-d> at the end of "rad".

Interim summary: It seems that children invent orthographic rules and that they construct and reconstruct their orthographic system according to developmental laws moving slowly "from invention to convention" rather than copying single words into their memory and storing them there intact over time (if there is such a thing as a "store" in our brain at all).

However, Peter Mays evidence comes from a group study. His results are average patterns that may be artifacts as he has not looked if every single child follows the same sequence. Finally: Six months between the dates of data collection are a long time; thus he may have overlooked significant deviations from the long term pattern.

As already my colleague Albrecht Bohnenkamp (1994) has shown by case studying two boys with spelling problems, the "spelling biographies" of individual words practiced every week seem to be independent of the amount and type of exercise: the spelling of the words studied oscillated in unpredictable ways.

Starting from this observation Erika Brinkmann, in her dissertation "Spelling stories -- on the development of single words and orthographic patterns at the age of 4 to 10" (1997) has analyzed in more detail what happens when children write the same words again and again over periods of several weeks. The first part of her thesis is the most careful study of a pre-school child's orthographic development I know of: the corpus comprises 1.888 invented spellings that are analyzed in numerous orthographic categories. The same coding and evaluation procedure is used to investigate the spelling development of some 50 children in two 3rd grade classrooms (some 30.000 tokens coded and available on computer for analysis). She focusses on an intensive

documentation of several months' writing in different tasks embedded in a longitudinal study from grade 1 through 4

Basically her results confirm two important conclusions from the May study:

First: Children do learn orthography not word by word. They sort their experience drawn from orthographic examples by constructing simplified systems that then are differentiated over time.

Second: Children do not take over rules given by instruction. They follow their own logic, and this is implicit rather than conscious.

Thirdly, however, Brinkmann has shown that in a short term perspective there is little overlap, only, of the acquisition profiles of
- different classrooms of the same grade level,
- different children in the same classroom,
- different words of the same orthographic type spelled by the same child,
- different orthographic patterns across similar words.

Further, as Bohnenkamp already has suggested the patterns are less stable over time than the May study suggests. Children oscillate and it is not possible to predict from spelling A (or the development up to pint A) how a child may write a specific word next time. Even if a child has written a word correctly several times, her/ his spelling may change again, e. g. because s/he has detected a new orthographic pattern that than is (over-)generalized to what has been "learned" before (or, to mention an alternative explanation by Brinkmann, just increases the options available to the writer that may oscillate between competing variants depending on the features of the specific word, its linguistic context, or the type of activity and its social context).
Brinkmanns central conclusion for teaching: children build orthography *from* words, but they do not learn words *as* compact units.

This implies

... first: short-term progress in correct spelling cannot be an objective for teaching and learning nor can it be criterion for the evaluation of progress;

... second: working with word samples that offer orthographic patterns implicitly can support childrens self-organization of structures, but it cannot replace it.

Taken together, our studies of later orthographic development support the conclusions drawn in chaps. 1, 2 and 3 from our pre-school and the first grade studies:

Children need good models and stimulation, they need help and corrections, and they need exercise. But they also need space to simplify orthography in accordance with their individual level of understanding, to experiment with different hypotheses and to risk new ones (cf. Balhorn 1989/95). In summary: children need an open learning space to develop at their own rate (cf. chap. 6).

Interim summary: We have to accept that learning progresses neither accumulatively nor evenly. Progress in reading and writing means structuring and reorganizing experience with print. It is not confined to a merely quantitative increase in knowledge and skills, but implies a qualitative reorganisation of concepts. The brain orders experience actively on the basis of (implicit) rules which, on the one hand, exclude perceptions that "won't fit" (yet), but which, on the other, can change radically and at a moment's notice when some new understanding is achieved.

In particular, the capacity of the child to organise experience in an individual order raises doubts about a systematically planned sequence of small steps ("from easy to hard") as common to reading and writing schemes (the "Fibel" in Germany) for several hundred years. It also questions the idea that learning difficulties can be overcome through more intensive practice of just "the same".

But what about the evidence from intervention studies? Looking at the evidence reported from the US, "direct instruction" seems to be approach favoured by research (cf. the summary in Dichanz/ Zahorik 1986).

5 The (Dis-)Advantages of Direct Teaching
A Natural Experiment in Spelling Instruction

Much research has been conducted on the impact of different educational approaches to, and

methods of, reading instruction (cf. Chall, 1967; 1979; 1989; Adams 1990).

In spelling the situation is less satisfactory. Little is known about the educational impact of different types of instruction (cf. the few examples in Frith 1980 and elsewhere).

It is difficult to study orthographic performance in relation to different educational approaches. Under natural conditions self-selection of teachers of different types has to be suspected. Random assignment of specific methods, on the other hand, would not be accepted by most teachers (parents and administrators).

Comparisons between approaches in different countries are delicate particularly because of differences in language (i.e. the relationship between spoken and written units).

For a brief period, the re-unification process within Germany has provided a natural experiment in that GDR schools had to follow a higly structured and strictly prescribed scheme of reading and writing instruction and that these practices differ considerably from approaches that have developed in the FRG and particularly in Switzerland during the 80s.

In spite of numerous methodological and logistic problems we have taken this rare chance by applying two different writing tasks in cross-sectional samples from grades 1 to 4 in both countries (cf. for the problems of sampling and our assessment of the validity of the results that have been confirmed by later studies: Brügelmann, Lange & Spitta 1994). Thus, we can link evidence from writing performance in "riddle sentences" of dictated "frequent words" (representative for exercises in common workbooks) to results from free writing. We also sent a questionnaire to teachers participating in the study to learn about some of the variables characteristic for, or affecting, their instruction in this area.

In another paper (Brügelmann, 1993) I have reported the main results from an analysis of sub-samples of 801 children (East) and 1.021 (West), I give a brief summary with figures form these matched subsamples (results from the whole samples of some 900 East vs 1.800 children West can be found in Brügelmann/ Richter 1994, 129-148).

Direct Instruction Makes a Difference, but ...

The results from the dictated "riddle sentences" are clear-cut: In 1st grade West German children make almost twice as many mistakes than their Eastern peers (44% vs 26%), in grades 2 through 4 their error rate still is recognizably higher though it decreases both in absolute as well as relative terms (roughly 16% vs 14%, 25% vs. 20%, 15% vs. 11% -- number of words and their orthographic difficulty increasing with grade level).

We have looked for an explanation in the rate of training -- both at the level of individual words and at the level of classroom exercise. In the questionnaire teachers had to rate each word as either "systematically exercised", as "occasionally written" or as "unknown in its written form" in the class.

Two interesting results emerged.

In 1st grade, the portion of words rated as "systematically exercised" was 42% (West) vs 82% (East), and even in 4th grade a significant difference remained: roughly 70% (West) vs 90% (East). Put in this context the Western children do not compare unfavourably. The instructional system, however, does not come out particularly successful. It seems that direct instruction is more effective and that the "drill and practice" component in West German classrooms has to be considerably strengthened (taking orthographic competence in dictated texts as the only criterion for the moment).

This conclusion is further supported by the correlations between the error rate and the intensity of practicing individual words in both samples (r = -.60 to -.80 in different grades). These correlations are highly significant not only in statistical terms; by explaining 35% to 65% of the variance they are also educationally significant.

This evidence seems to strongly favour the "back to basics" movement. But only at first glance.

The following observation raises first doubts: Although there is an overall correlation between the portion of correctly spelled words and the intensity of exercise (both at the word and at the classroom level), there exist highly drilled words that often are misspelled, and on the other hand

there are words with a low level of training that are spelled correctly by many children.

Second: With increasing breadth of the vocabulary additional factors seem to become relevant. As the "riddle sentences" were composed deliberately from selections of high frequency words, it is important to compare the performance in such a restricted task with evidence from free writing.

The "Playpen" Effect of Direct Teaching

Our first surprise was that the average length of texts hardly differed between the two samples. We had expected that the West German pupils growing up in a more open system (supposed to favour creative expression) might write more freely. However, the length of texts increased almost in step: from some 23 words (West) vs 19 words (East) in 1st grade to 57 vs 52 (2nd grade), 87 vs 93 (3rd grade) and 102 vs 109 (4th grade).

Nor did the proportion of different words (because of our primarily orthographic interest counted as different word *forms*) differ considerably (between 65% and 70% at different grades). Although these are only rough indicators of text quality and more detailed analyses would strengthen our argument, so far we have no evidence of less motivation or of less compository competence in the East German population.

The second suprise came, as we compared the ratio of mistakes in the two samples: After a small difference in first grade (46.6% West vs 41.3% East) the percentages developed precisely in step from grades 2 through 4 (21.1% West vs 20.9% East in grade 2; 13.3% vs 13.1% in grade 3; and 9.1% vs 7.3% in grade 4).

Altogether, the more freely educated West German students can compare with their East German counterparts even on orthographic criteria if we leave the "playpen" and both groups have to cope with the full range of orthographic difficulties (correlations in grades 3 and 4 between orthographic performance in the two writing tasks range between .50 and .70 in both samples).

The missing difference in achievement is not trivial: Orthography has had a much higher status in the former GDR schools. For language teaching 9-12 lessons per week had been scheduled in the GDR (compared to 5-6 in the West German curricula). There was not only more "drill and practice"

in East German classrooms, but the instruction was also much more explicit and highly methodized, based on careful analyses of the content as well as of the steps of learning. Compared to these differences in classroom practice, in educational climate and with living conditions the similarity of performance comes as a surprise.

Instructional Systems vs. Cultures of Learning

At first sight educationists in both systems can be content: At the end of primary school the average 4th grader can spell correctly more than 90% of the words used in free writing (this result from our study is in line with former investigations by Balhorn and Menzel in the 70s and 80s).

However, 15-20% of the children misspell more than 15% and up to 50% of the wordsin free writing (special schools not included, yet). The political dilemma is that this occurs in both systems. Thus, there is no simple remedy by just copying practices from one system to the other. This seems to be the wrong level of strategic thinking, anyway.

Apparently, the differences within each system are much larger than those between the systems. This may not come as a surprise in a liberal Western system, but it is a significant finding in the former GDR system (though it has to be noticed that differences between classes and between children are smaller there than in the FRG). This finding reminds us of similar results from the evaluation of "teacher-proof curricula" in the 60s and 70s and from computer-based instructional programmes in the 80s.

Our analysis of teacher questionnaires indicates that in the text composition task both highly structured programmes (also emphasizing drill and practice) as well as open classrooms (more strongly emphasizing free writing) are to be found in the upper quartile of spelling performance in equal proportions (while the latter groups writes longer texts, the former has its advantages in the dictation task of high frequency words).

It seems that our indicators for classroom differences are to crude for explaining success or failure of certain methods and approaches.

Therefore, our on-going work in this area focusses on what we call "micro analyses" of or-

thographic development and instruction. We think it necessary to document in detail the spelling attempts of children over a short period of 2-3 months and to relate these "learning biographies" of single words and of specific spelling patterns (cf. Brinkmann 1997) to the classroom context: e.g. to general models and special feedback provided by the teacher; to types of writing activity, of exercises and of social interaction related to print (this perspective will be taken up in a secondary analysis by Bohnenkamp).

The work of another (former) member of our group, Sigrun Richter (1996), is also relevant to this issue. Richter's "ecological didactics" attempt to found the literacy curriculum on the individual interests and personal experiences of children. Using the gender polarity as a research "lens" blowing up individual differences she found:

- that girls spell more words correct than boys (a well-known phenomenon in Western countries, cf. Richter/ Brügelmann 1994);

- that boys, however, spell correctly words like *Computer, Schiedsrichter [referee], Lokomotive, Torwart [goal-keeper]* more often than girls (cf. May et al. 1993);
- that both groups name words from different life areas as "important for writing" (boys: *sports, technology, sex and taboo*; girls: *animals, body, ästhetics, nature, clothes, non-technical toys*;

- that even within the same area (e.g. *sports*) preferred words cluster in different areas (e.g. *soccer* vs. *riding*);

- that the same differences appear when the vocabulary of free texts of boys and girls are analyzed (cf. Röhner 1993);

- that texts and exercises in common reading schemes contain 70% "girlish words" and only 20% "boyish words", 10% counted as "neutral");

- that boys prefer to read non-fiction (achieving in this area the same performance as girls), but that readers at school contain fiction mainly (cf. the analysis of the German data from the IEA study in Lehmann 1994).

There is strong evidence, then, for sex discrimination of a different kind in school books. Moreover, the idea of neglecting interests vs. accepting them seems to be a powerful aid in explaining problems (as well as overcoming them by framing the "culture of the classroom" accordingly; cf. also the analyses and proposals by Dehn 1990, 1990/95, and Kochan 1987).

Thus, the productive move of theory from atomistic "particle models" of instruction towards cognitive-developmental "wave models" of learning in the past ten years has to be further elaborated into an ecological "field theory" of children's interactions with both their social as well as their material environment (cf. Brügelmann, 1989; Schneider, Brügelmann & Kochan 1990/95). The educational "sub-culture" of the classroom and experiences in the everday world of print rather than formal parameters of instructional programmes or of the school system at large seem to determine how individual children learn to write and read.

What, then, are the implications for teaching?

6 Open Access to Literacy in the Classroom -- Framed by Structures that Challenge Children and Support Teachers

Developing a literate culture in the classroom rather than following an instructional sequence of tasks challenges pedagogic traditions and personal routines. Many teachers feel overcharged when asked to "open" their programme.
We therefore offer structures in three dimensions (cf. Brinkmann/ Brügelmann 1993):

* a perspective for teaching via **developmental models** of reading, spelling and handwriting differentiating very roughly four critical steps for observing progress, locating difficulties and suggesting "next steps" (cf. fig. 3 above); this provides teachers with a perspective to foster reading and writing strategies, to interpret specific mistakes (e.g. invented spellings) and more general difficulties, and in particular to recognize progress in spite of deviance from the norm;

* a **didactic "map of eight learning areas"** (cf. fig. 1 above) defining critical aspects of accessing print to guide activities within an open "learning space" without forcing a linear sequence of behavioral objectives on teachers and children;

* a number of **"procedural standards"** (Lawrence Stenhouse 1975) specifying the quality of methods of classroom work (see below p. 24).

These general structures are then translated into specific proposals for classroom work:

* a **card index system of tasks**, games, situations that are ordered according to the eight learning

areas and commented with the aim to develop some understanding in teachers what the idea of "learning as construction" on the basis of personal experience means in practice (cf. the two examples in chap. 1 and a copy of one specimen card from our "Ideen-Kiste 1 Schrift-Sprache" to illustrate how we try to combine the description of one "open activity" [upper half] with a "didactic commentary" providing teachers with some theoretical background so that they can transfer the idea to other situations [lower left] as well as with "interfaces" to other parts of the "didactic map" for variation or expansion of activities [lower right]; this framework is introduced by 1 to 3 day workshops to teachers [depending on the regional conditions] and sometimes [but rarely] followed up by monthly meetings of a local working group -- in our opinion the most effective way of challenging and supporting teachers).

The **"didactic map"** has the advantage of not assuming a linear one-dimensional development of literacy skills. It provides scope for different individual profiles in mastering specific principles of the relationship between oral and written language in our orthography, e.g.

-- that print represents meaning;

-- that the form of representation is context-independent;

-- that this representation can vary in type of font, however;

-- that the size, number, and shape of print is not directly related to meaning;

-- that print consists of word and letter units;

-- that these are related to sound;

-- that morphemic patterns differentiate the simple print-sound relationship.

-- that reading and writing presupposes the combination of different "tactics" to be sucessful.

Thus the map is structured according to basic requirements of literacy acqusition covering the following aspects of using and understanding print

- sign concept: understanding different types and fundctions of symbols

- phonological awareness: analyzing oral language and working with phonemes

- letter knowledge: recognizing letters in different fonts and varying their sound value

- breaking the code: understanding the correspondence between oral and written language and the technical relationship between their elements

- segmentation of print: grouping of letters and segmentation of words into frequent patterns such as syllables, morphemes, etc.

- uses of print: utilizing print in different functions and contexts

- sight word vocabulary: extending the scope and automatic mastery of frequent and personally

relevant words

- production and comprehension of different types of text of increasing complexity.

To make our approach more concrete we have integrated the structures mentioned above in a "**four pillar model of teaching**" for balancing tasks and activities (cf. similar models in Hagtvet 1997, 4-5; Teberosky 1997, 3):

1+2 : the use and the interpretation of print as a representation of meaning by written texts;

3+4: the analysis of examples of print to understand its structure, to consciously develop strategies for reading/ writing and for practicing them so that the ybecome available as automated skills.

Erika Brinkmann (1997) has recently specified this model for the orthographic area. For reasons of illustration I have translated the key notions in the following matrix:

Free Writing of Personal Texts (Graves 1983; Spitta 1985; 1992)	Reading from Books and Other Children's Texts Individually and (Aloud) in the Group (Bambach 1989; Niemann 1993/95)
* invented spellings as direct route to print * no demand for complete orthographic correctness * revision of individually selected problems * correction (e.g. by teacher) for readibility only * selecting personally important words for practice	* motivation for reading and writing * tacit knowledge of patterns of written language * encountering different types and styles of texts * material for implicit orthographic learning
Developing and Using Aids / Methods to Spell (Balhorn 1989; Brinkmann/ Brügelmann 1993)	Collecting, Sorting, Practicing: Working With (Structured) Word Samples (Balhorn et al 1990/96; Brinkmann/Brügelmann 1993)
* sensitivity for orthographic problems * group discussions about "traps and tricks" * consulting a dictionary and other index systems * systematically studying and remembering spellings * recognizing the stem principle and derivations * jointly formulating "rules" * "research" on orthographic history of words	* frequent, personally important, orthographically exemplary words * tasks for collecting, analyzing and ordering words according to orthographic criteria * practice with index cards and "word lists" * different types of (self) dictation as learning aids

This approach is based on the idea "from singularity via divergence to regularity" (Gallin/ Ruf (1990) that can be spelled out in the following **five methodical principles** (cf. Brügelmann 1986, 297).

1 Children's individual experience with print in everyday life should be respected and used in

school activities. Personally relevant reading and writing activities are the frame and the driving force for learning specific skills (cf. the Richter study in chap. 5).

2 Children should be encouraged to experiment actively with print, i.e. to learn from their own reading and writing attempts and the responses they get. They should be allowed to gradually extend and differentiate theit individual concepts without being forced to immediately change to the correct solution (cf. the Brügelmann studies in chap. 3).

3 Orthographic development largely is a process of tacit learning that only partly can be made explicit. To be effective practice pressupposes such implicit patterning of exerience (cf. the May and Brinkmann studies in chap. 4).

4 Children should learn how to learn. They should be encouraged to work as independently as possible and increasingly control their work themselves. They should take over as much responsibility for their work as possible (cf. the "Writing to read" study in chap. 7).

5 The conditions of learning as well as specific tasks should be designed so that children can work together and learn from each other (cf. the "open education" studies in chap. 7).

We characterize classrooms of this type as "open".

7   Language Experience and "Writing to Read" in Open Classrooms: Preliminary Empirical Evidence

The notion of openness is elusive. It can refer to programme structures (cf. Brügelmann 1975) or to classroom principles (Brügelmann 1996). In this second sense, often mentioned aspects are:

* openness of the school towards the community
* openness of the teacher as a person for the feelings and thinking of his students
* openness of activities for "learning with all senses"
etc.

Three levels of openness

With respect to our topic, however, it is important to dinstinguish the following more basic dimensions:

1 openness of teaching methods for **differences in achievement** and in style of learning
2 openness of the content of tasks for the **individual experiences** of children in life
3 openness of classroom decision-making for **student participation**

These three dimensions also correspond to stages of development observed in practice:

- teachers start with differentiating amount and level of tasks according to the individual capabilities of their students (**methodical openness**);

- they go on with allowing children to contribute individual experiences and ideas, to follow idiosyncatic ways in their thinking, and to come to divergent solutions **(openness of content**);

- finally, they invite the children to participate in planning and monitoring classroom activities and to take over responsibility for their own work (**institutional openness**).

One can see immediately that free writing, "authors's conferences" (Graves), class corresponce (Freinet) are a good way to increase the involvement and participation of children in classroom work.

The importance of increasing openness assumed hereby raises the issue of effectiveness of open education.

There is a long tradition of studies of classrooms that are not in accordance with the traditional model of teacher directed, stepwise organized instruction.

Empirical evidence on open education in general

Horwitz (1979, 73) reports three reviews of studies of progressive education that have already been published some 60 years ago. These qualitative summaries by Wrightstone (1938), Baker et al (1941) and Leonard/ Eurich (1942) recognize no loss of academic achievement in the main subjects in open classrooms. On the other hand they notice definite gains in different dimensions of personality development.

A second wave of empirical studies followed in the 60s and 70s. Horwitz (1979) has simply counted studies favouring one approach over the other in different areas, Peterson (1979) and Giaconia/ Hedges (1982) have conducted statistical meta-analyses summarizing the results in form of quantifiable effect sizes. The results resemble the earlier findings, although the trends are more conservative: open education lagging behind a little in the academic area, but showing recognizable advantages in non-acievement outcomes.

I have depicted the main results of the latter two reviews in the following table and visualized the general trends in the right column:

Area	effect size in reviews of Peterson 45 studies	Giaconia./ H. 153 studies	direction and degree of differences over all studies
general academic achievement	-.12		▪▪·
mathematics	-.14	-.04	▪▪·
reading	-.13	-.08	▪▪·
language		-.07	▪·
miscellaneous		-.15	▪▪▪·
general mental ability		+.18	·▪▪▪
creativity	+.18	+.29	·▪▪▪▪
independence	+.30	+.28	·▪▪▪▪▪
curiosity	+.14		·▪▪▪
anxiety	-.07		▪·
self concept	+.16	+.07	·▪▪
locus of control	+.03		·▪
cooperativeness		+.23	·▪▪▪▪
attitude toward school	+.12	+.17	·▪▪▪
attitude toward teacher	+.42		·▪▪▪▪▪▪

Bars pointing to the right indicate an headstart of open approaches, those pointing to the left advantages of traditional classrooms.

Interestingly, the conclusions drawn from these results are contradictory.

Some people argue that open education has not proven to be better. Thus, the costs of a broad innovation would not be justified.

Others maintain that the burden of proof lies with traditional instruction because every restriction of the freedom of an individual has to be justified -- and that this specifically applies to the school as an institution dedicated to personal development in democracy. As the school is obligatory anyway, on these normative grounds an open approach is generally to be preferred as long as it cannot be proven that direct teaching yields superior results.

In this general educational perspective our approach seems to be justified. But what about specific research on learning to read? The controversy focusses on language experience vs. direct instruction, closely associated with phonics.

Some empirical evidence on language experience

Many studies have been conducted. There is a general tendency to favour phonics by direct instruction over language experience although the interpretation of the results still is contro-versial (cf. Carbo, 1988; 1989; Chall, 1989; 1989b). The contradictory interpretations may be due to the complexity of educational programmes and their sensitivity to the context of implementation (cf. MacDonald & Walker, 1976). Moreover, different features of treatment are intertwined so closely that it is difficult to discern the "causes" of certain effects.

In reading programmes, for example, such aspects are

* the unit of print (letter vs. word vs. text),
* the focus of analysis (technical logic of print vs. meaning of text),
* the concept of learning (additive integration of "intact" component skills
          vs. gradual differentiation of comprehensive approximations),
* the method of teaching (isolated drill-and-practice vs. functional use)
  and
* the social organization of learning (teacher control vs. independent learning).

Thus, differential effects are to expected from different programmes and investigations depen-ding on the combination of these features and the profile of measures adopted (cf. for research on the goal-specific relevance of different aspects of "open education" Giaconia & Hedges 1982).

In particular, the alleged superiority of direct instruction as reported by many experts may be an artefact due to specific practices in USAmerican schools (e.g. equating *language experience* with a "whole word" approach or with a mere "context guessing game"; cf. Goodman 1967; 1986; and the critique by Liberman/ Liberman 1992; cf. also Smith 1973; 1975; and the critique by Stanovich/ Stanovich 1995).

In the German speaking countries, on the other hand, language experience is based on children's writing of stories that involves invented spellings (e.g. with the help of an "initial sound table" picturing words that start with a specific sound; cf. the example in fig. 5 from the founder of this "writing to read" method, Jürgen Reichen 1982). Thus, the method combines two basic features of

literacy -- meaning of print and "analysis-by-synthesis" -- in the context of an open classroom.

<<< insert fig. 5 somewhere here >>>

In this context the results of another study in our project comparing classes form East Germany (cf. chap. 5) with classes from Switzerland following the "Writing to Read" method by Jürgen Reichen may be interesting. According to this approach children should be encouraged to "write words as they pronounce them" with the help of an "initial sound list" of pictured words. Constructing words in this way is supposed to help them to understand the basic relationship between spoken and written language. Moreover, Reichen favours a workshop approach where children decide over when, what, how, and for whom they write (cf. the general criteria for open education, above).

Results from more than one thousand Swiss studentens at the end of first grade show that they rank higher on the score of phonetically complete transcriptions when compared with the free writings of the East and West German children mentioned earlier. This result may have been expected. However, the letter sequences of dictated words, too, are orthographically correct in almost 78% of the cases (vs. 81 % in East Germany and only 63% in West Germany). In free writing, producing even longer texts, the Swiss children succeded to spell 62% of the words correctly against 59% in the East German and 53% in the West German samples (cf. Brügelmann, Hengartner & Reichen, 1994, 137, comparing figures from the whole, not from the sub- samples mentioned in chap. 5).

Apparently, the "Writing to Read" approach not only stimulates children's interest in print and enables them to (re-)construct unknown words. It also focusses their awareness on word features important for orthographic progress. Thus, these children also begin to acquire spelling patterns without explicit training.

As the method so far has only be developed for first grade, it does not come as a surprise that progress is much slower during second and third grade where no activities and materials ap- propriate for discovery learning exist so far. But even so, at the end of fourth grade, in free writing the "Writing to read" children spell 91% of the words correctly (against 93% in East Germany and 91% in West Germany; whole samples, again).

I report these results with some reservation because classes could not be drawn by random in this field study. Such field studies (though strong in their ecological validity) have to be com- plemented by controlled experiments (as far as they are possible at all). Still, the trends so far are promising. They contradict conclusions frequently drawn from Anglo-Saxon reading studies

(e.g. Adams 1990; see, however, Anderson et al. 1985) in favour of "phonics" (unduly equated with "direct instruction", stepwise teaching, etc.). They are in line, on the other hand, with results from studies of similar approaches in the US (cf. Clarke 1988; Foorman et al. 1991; see also the balanced summary of recent research in Stahl et al. 1990). A recent meta-analysis (reported by Walter 1996) also shows (although only slight) advantages of language experience classrooms: out of 180 studies 22% favoured LEA against 12% favouring schemes focussing on systematic phonics training whilst 2/3 of the studies found no significant differences. More interestingly children in the early stages benefit more from LEA, while phonics contributes more to the development in first grade.

My point, now, is that the "Writing to read" method is sucessful because of combining these ideas in an open approach (cf. Hagtvet 1997, 4, 11-12, for similar conclusions from a Norwegian study):

- firstly, it motivates children to read and write by providing a context stimulating written communication of experience, feelings, ideas to others, e.g. through regular "authors' confe- rences" and "reading conventions";

- secondly, free writing provides children with space and time for the self-determined exploration and discovery of the logic of print as the task of "constructing" words focusses the attention of children on the correspondence between letters and sounds by literally spelling out their own pronunciation of words;;

- fourthly, invented spelling matches the early stages of spelling development as can be observed in examples of spontaneous spelling observed before school;

- fifthly, there is no evidence that the shift to orthographic writing might suffer in the long run.

It should also be clear, however, that to develop from the early stages free writing and invented spelling have to be challenged and supported by models of good literature and of conventional orthography.
Thus, the conventional dichotomies of
- whole words vs. phonics
- meaning vs. structure
- top-down vs. bottom-up
(the former in each case associated with open education, the latter with direct instruction) do not necessarily apply. That so many Anglosaxon researchers (e.g. Liberman/ Liberman 1992; Stanovich/ Stanovich 1995, 95, 99) equate phonological awareness with explicit instruction and direct teaching may be due to an unwarranted simplification of the complex interplay of different factors found in established traditions of teaching. In particular, the conventional emphasis on

reading in first grade may distort the picture.

The importance of metacognition, esp. the role of phonological awareness and of insights in the structure and function of print has already been emphasized by Downing (1979) and Valtin (1984a+b). The key idea of our approach corresponds to this theoretical perspective: By stimulating free writing and invented spelling (rather than reading given texts) it is possible to emphasize phonics without basing it on explicit instruction and drill-and-practice and it is possible to emphasize meaning of texts and their functional use without restricting children's use of print to whole words and context cues.

Thus, the educational goals of an open approach and the psychological insights into developmental tasks of literacy acquisition seem to be reconcilable.

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