

9-1913

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EDUCATION

*Devoted to the Science, Art, Philosophy and Literature
of Education*

VOL. XXXIV.

SEPTEMBER, 1913

No. 1

A Review of the Pedagogical Studies in the Teaching of Spelling

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DESPITE the fact that a few far-seeing men have, from the early years of the eighteenth century, inveighed against the dominance of spelling and the "cruel drudgery" it entailed upon the learner, the subject remained an independent discipline far into the nineteenth century. To be able to spell was the criterion whereby to judge the educated man and so ingrained did this become in the popular mind that even to this day our grandfathers, nay our fathers, dubiously shake their heads because spelling no longer occupies a conspicuous place on the schoolroom program and because, as they insist, the rising generation cannot spell.

In 1905 an unexpected discovery of some old examination papers at Springfield, Mass., furnished almost conclusive evidence that although more time used to be devoted to the subject, the boys and girls of 1846 did not spell as well as the boys and girls of the same age today. This old examination consisted of twenty rather difficult words, such as evanescent, feignedly, and chirography, and was given to eighty-five high school pupils, most of whom were in the second year. Only 15 obtained as high as 70%, 23 missed 17 or more words; nine had one right, and two had none. Just 40% of all the words were correctly spelled. The same test was given in 1905 to 245 ninth grade Springfield pupils with the result that 51.2% of all the words were spelled correctly. The high school of 1846 was in good condition, more

time was then spent upon spelling than in 1905, and the average age of the high school pupils was greater than that of the ninth grade, yet the latter scored higher.

Toward the end of the nineteenth century the feeling that spelling should be subordinated to other subjects, that it is a tool and not an end in itself, and that it was usurping the time of more important curricula, called forth many devices and methods calculated to subordinate it and to reduce the time given to that subject. Some, of course, still clung to the purely oral method, some discarded that altogether for the written; phonetic methods sprang into favor; for some visualization was the only panacea. These methods arose through a "trial and success" procedure, or through experimentation of a more overt and conscious kind on the part of the teachers themselves. Later these empirical methods were subjected to an evaluation by means of a more or less scientific test of results and to a criticism based on the findings of experiments in psychology. Consequently methods of spelling instruction are at the present time in the process of becoming more rational and scientific.

Among the first of these gross tests of results of the various methods was that of Dr. Rice in 1897. He first sent a list of fifty words to various schools in the United States and obtained spelling papers from 16,000 children, together with statements of methods used by the teachers. Dr. Rice, feeling that these tests had not been sufficiently controlled, visited twenty-one schools and under his supervision two tests were given. The first consisted of sentence dictation containing fifty selected words for the lower grades with an additional twenty-five for the upper grades; the second, of the reproduction of a story which was read to the children.

Dr. Rice found that while there was great variation in the per cents. obtained among the same grades below the eighth, there was little variation among the eighth grades themselves. Efficiency in spelling increased in order from the fourth to the eighth grade. Although periods devoted to the subject of spelling varied from five to fifty minutes daily the results show nothing in favor of the longer periods. The grades for the column test fell from 15 to 30% lower than those for the composition test. The youngest and the brightest children of a grade ranked highest.

On the basis of his findings Dr. Rice concluded that there is no direct relation between method and result, that maturity of the pupil and the personal equation of the teacher are the determining elements in producing good spelling. He however decides that no one method is a panacea, that more than fifteen minutes a day of spelling is wasteful, that common words only should be drilled upon while others should be taught incidentally, and that a few rules for spelling are advantageous.

While this study probably established the fact that much time was being wasted in many schools, the investigation was not sufficiently controlled and definite to be of more than stimulating value for further study. It does not give any valid evidence in regard to the most efficient methods. That some teachers reported a use of the phonic method is not in any sense an assurance that they taught spelling in the same way. All kinds of methods are lumped together under the convenient term "incidental method". Those who said they gave no time to spelling but taught it in connection with other subjects probably did give time and attention to the words as they presented themselves. As the test was not a graded one the conclusion in regard to maturity being one of the most important elements in securing spelling efficiency is not well founded. In order to determine this, standardized vocabularies representing the character and the number of words in which a grade should be proficient, ought to be used.

Cornman's test, although better controlled, followed the same general lines as that of Dr. Rice. The former confined his investigations to certain Philadelphia schools giving (1) a list of spontaneously selected words to be written in fifteen minutes; (2) specially selected graded column lists; (3) short sentences from dictation. He also used spelling papers from the regular examinations, and compositions from the regular work.

From a study of the spontaneous word lists Mr. Cornman deduced the following: pupils increase regularly from grade to grade in quantity and quality of spontaneously written words and in accuracy of spelling; boys show more rapid improvement than girls, but girls excel in quickness and in legibility of spelling; rate of movement and spelling accuracy tend to vary together, and both are functions of general mental capacity.

After the first test was given these schools abandoned spelling

books, stated periods for study, and home lessons. At the end of each year for three years the above tests were given and comparisons made with the first.

As the results of this experiment did not show any appreciable difference between the spelling efficiency of the pupils before and after the abandonment of daily spelling periods, Cornman concludes that they are of little importance, and that the spelling drill as generally employed at the time he gave the test adds little or nothing to efficiency. He states that even if spelling drill were brought to the highest efficiency it could not produce better results, as with incidental teaching from 94 to 97% in the primary and from 97 to 99.5% in the grammar grades was obtained. Cornman and Rice reach about the same conclusions,—that improvement in spelling is dependent upon general mental development, grade, and efficiency of the teacher, not upon time and method.

Cornman's study, like that of Dr. Rice, cannot be taken as yielding conclusive results, and it is subject to the same criticisms. It shows that the various so-called methods then used, accomplish about the same result, and would seem to indicate that the "incidental" method is superior because of the opportunity for correlation and because seemingly less time is expended. However, there is nothing in this study to prove the truth of the latter statement.

The best contribution made by Cornman is his analysis of spelling errors. He classifies them according to origin: (1) motorial errors, due to motor incoördination, include omissions, (surveying for surveying), additions (wolfe), change (trumb for thumb), confusion of m and n, transposition of letters, wrong letter doubled, attraction (roap for rope may follow soap), or (groop for group may precede troop); (2) sensory errors, due to sensorial incoördination, include those due to phonetic association (Wensday for Wednesday, or chimbley for chimney), and those due to confusing combinations such as ie and ei, single and double consonants; (3) errors due to a complication of motorial and sensorial incoördinations.

An analysis of the fifteen-minute spontaneous lists for spelling errors showed that both motorial and sensorial occur with about the same frequency. He found no relation of age to frequency of either kind. Boys showed a slightly higher degree of motorial

error than girls. About one-fifth of all the sensorial errors was thought to be due to reliance upon phonetics, and one-fourth of all to the confusing alternations in the English language. Mr. Cornman recommends the latter finding as an argument for reformed spelling.

Mr. Cornman's conclusions are rather general. In answer to the question, "What is the best method to pursue in teaching spelling?" he says that the spelling situation is too complex to be solved by any one method. The secret of success of so many panacean methods lies in the fact that there is some valuable factor in each, and that they furnish new devices which lend interest to an otherwise monotonous task. He gives his views in the words of Dr. Rice,—“the wise teacher will acquaint herself with as many methods and devices as possible, and change from one to the other, in order to relieve the tedium and to meet the needs of the individual children.” Before all she will beware of running off at a tangent with any particular method, because none yet discovered has as yet been proved a panacea.” Motorial errors are to be overcome through vigilance on the part of the teacher in anticipating, preventing, and correcting them.

So intent does Mr. Cornman seem upon the advocacy of the incidental method that he fails to stress sufficiently two important points which grow out of his study of errors, namely, the need of knowing the idiosyncrasies of the individual learner and the need of tracing the causes of errors in the case of each individual.

Another study of errors was made by B. C. Gregory in 1907. He secured from the sixth, seventh, and eighth grades of one of the Trenton, N. J., schools, dictations containing selected words which should present no difficulty to those grades.

Gregory found that almost 82% of the mistakes in spelling the word “journey” were of the ear, and he feels this to be typical. This per cent., however, is twice as great as Cornman's for all sensorial errors, although the latter is a more inclusive term than Gregory's “ear mistakes.” These investigations show, Mr. Gregory thinks, that the sound is the dominating element in children's spelling. The child translates the sound into writing, hence unless the right association has been made between the visual percept “journey” and the sound percept, such a spelling as “jerney” will satisfy the child. Again, he may not have the right percept

as is indicated when he spells journey, "joiney", or wondrously, "wonderously". Because, too, of our faulty phonetic language the child becomes habituated to attaching certain phonetic values to certain letters, so he spells journey, "gerney".

The following conclusions in regard to the pedagogy of spelling are reached: (1) increase in vocabulary should be two, or three, or at the most five, words per day, and these should be words for which the children have use; (2) there should be a large amount of oral work, as the great percentage of mistakes is due to incorrect auditory percepts; (3) errors should be corrected immediately, by the child if possible; (4) errors are individual and should receive analytical treatment.

Mr. Gregory states that his investigation does not deal with a sufficiently large number of children, and that these children come from a rather homogeneous community; but so far as his analysis of errors is concerned, the study does not lose in value because of these limitations. Whether more oral spelling will alleviate the large percentage of ills which he attributes to wrong hearing is still a question. No doubt oral spelling is not used discriminately and such a use is needed. We are not informed by Gregory in regard to the method which is employed in teaching spelling to the children tested. How much oral spelling did they have and what was its character? We need a history of the learning process to make the pedagogic deductions of great worth.

The spelling errors found in 10,000 themes of 300 students of Bowdoin College were classified by Wm. T. Foster as follows: carelessness, 467; mispronunciation, 259; insertion and omission of letters, 853; spelling "er" sound as pronounced, 167; confusion of "ent", "ant", etc., 160; other causes, 99. Seventy-six of all the errors were due to the fact that in our language correct spelling does not represent correct speech.

Foster emphasizes the necessity for accurately spoken English, which he thinks would reduce the errors due to faulty speech. However, he is not so sanguine that errors of spelling will be decreased thereby. On the contrary, in the present chaotic state of our spelling a reliance upon speech as a guide to spelling may increase mistakes. It is necessary to make our students discriminating enough to determine in how far symbols represent sound. To do this, Mr. Foster thinks, demands a lifelong drill of the most

wasteful kind. He draws no further conclusion than that reform is needed in our spelling system.

A more scientific technique than any of the preceding investigators have used was employed by J. E. W. Wallin of the Cleveland Normal Training School. In an article called, "Has the Drill Become Obsolescent," and in his monograph on "Spelling Efficiency in Relation to Age, Grade, and Sex, and the Question of Transfer," Mr. Wallin describes his experiment which was carried out in the Cleveland schools.

Wallin says spelling is of instrumental value and therefore must become automatic. Drill is necessary to the formation of the spelling habit. The psychological laws governing automatization of behavior are initial focalization and attentive repetition. The drill technique used in the Cleveland schools consisted of (1) initial focalization of attention upon two new words per day, brought about by printing them in large type, using them in sentences, or finding them in the dictionary; (2) attentive repetition secured by weekly reviews and by oral and written contests at different periods. Spelling drills consumed 5.96% of the school time, as against 7.22%, which is the average time spent in several leading cities.

From 1905, the year in which the drill was introduced, to 1908 the spelling efficiency of the eighth grade increased from 74 to 94%. In the 1908 N. E. A. contest with several cities, Cleveland scored highest.

In 1910-1911 Wallin gave the grades from the fourth to the eighth, inclusive, of three Cleveland schools, a list of selected words in column and in dictated composition form. These words had been drilled upon from three to thirteen weeks previously.

The general average for all buildings was 97%, the lowest building average was 93.7%, and the highest was 98.43%; the lowest grade average was 93.31%, the highest 97.03%; the lowest average of any grade section was 87.81%, and the highest 99.97%. The general average (97%) is 25.48% higher than Rice's average for column test, and 22.42% higher than his sentence test. It is 25.7% higher than Cornman's term examination. Wallin says the results are comparable because the tests consisted in all cases of arbitrarily selected words. There is this difference, however, the Cleveland children were known to have met all the

words given them in the test, while those examined by Rice and Cornman may or may not have had the opportunity to come in contact with the words of their tests.

Wallin found the variation from grade to grade very slight, amounting to .72%, the difference between the poorest and the best grade in a single building being only 8.73%, and 15.58% between the different sections of the same grade in all the buildings. Cornman found a variation of 16.2% from the third to the seventh grade for eleven schools and 5.6% for fifty schools. Rice's column test gave a difference of 30.7% between the third and eighth grades for twenty-one cities. The comparative uniformity obtained by Wallin is in striking contrast to the wide variation obtained by Rice and Cornman. Wallin gave graded tests but so did Cornman, who found the greatest variation in the two experimental schools where the incidental method had been in use. However, the comparison is hardly fair, as has been noted, for Cornman's test was much more arbitrary than Wallin's.

Wallin's test is a much better one for grade efficiency than either of the others. He found the greatest efficiency in the fourth grade and the greatest irregularity in the fifth, while both Cornman and Rice secured the highest per cents. in the eighth. These two findings of Wallin will bear further study. It may be that the child's ability to learn to spell is at its maximum in the fourth grade.

All three experimenters found that the girls outstripped the boys. The variation was less in the primary and greater in the upper grades in Wallin's test. The average pupil was found inferior and the accelerated pupil superior to the normal.

Wallin concludes that there was transference of ability gained in column drill to dictated composition. The greatest loss was 2.27% and the least .47%, while in five instances there was a positive gain of from .01 to 4.47%. His conclusion is open to criticism, however. The spelling instruction from day to day involved the use of the spelling words in sentences. Words were also taught incidentally. Wallin puts considerable stress upon teaching a word when a child has need for it. In such an instance the child already has the sentence and only awaits the spelling. His slight variation between column and composition tests seems

to indicate not a "transfer of learning", but the result of a sound "all-round" mastery of the words studied.

Wallin's study refutes Rice's and Cornman's conclusion that spelling efficiency is largely dependent upon maturity, and gives evidence that it is to a great extent dependent upon spelling method. His conclusions that "better spellers can be produced by the employment of a rational drill"; that "there is no other specific that will rank with a good drill as an effective remedy for spelling"; and that "teaching spelling by a well organized drill gives more satisfactory results than teaching it exclusively by the incidental method," need further investigation.

The lack of definiteness in the results of Rice, Cornman, and others, made clear the need of controlled conditions for investigation in order to obtain reliable conclusions in regard to the teaching of spelling. The technique of pedagogical experimentation in general has been gradually undergoing a refining process and has lately taken somewhat definite shape. It is now felt that experimentation must be made under approximately normal school-room conditions, yet under a control which insists upon a uniformity in everything save the point or points at issue; the study must be comparative; a preliminary test which is the same for the two sets of subjects must be given; the learning period must be of sufficient length to obtain the effect of learning; a final test must be given to both sets of subjects; lastly a comparative study of the learning processes and their results must be made.

Such a technique which has been rather inadequately described, was used by H. C. Pearson in testing the relative efficiency of two current methods of teaching homonyms. The third to the eighth grade inclusive, of the Horace Mann School were first given twenty sentences by means of sentence dictation to test their ability to spell the words. Two sections were then made of each grade. Section one was taught homonyms by the "together" method. In section two the same homonyms were taught separately. All other conditions were kept uniform. Ten days after the last lesson a final test was given to both divisions, the homonyms used being those of the preliminary test.

The results were very clearly in favor of the together method, save in the fifth grade, and even there the poorest spellers made

the greater gains by that method. Practically the same result was obtained with this experiment by Knight at Montclair, N. J. It should be tried in other places in order to fully establish the findings. In this connection it is interesting to note that in 1906 Burnham, commenting from the theoretic psychologic standpoint upon the simultaneous method of teaching homonyms, said that the very similarities which were supposed to aid the pupil became a source of confusion and resulted in interference of association; hence homonyms should be taught separately.

In the same number of the *Teachers College Record*, Pearson describes another experiment made to determine the relative efficiency of class and independent study in spelling. The first group of children learned the words under the direct supervision of the teacher; in the second group all study was independent of the teacher. Four different experiments were tried, the result of one suggesting a change in technique for the succeeding test. In the first two experiments the two groups compared were sections of the same grade; in the last two, the same pupils were given the class study test, and after an interval of time, the independent study test.

On the whole the conclusions are in favor of the class study method. Both the better and the poorer spellers profited by it; but the better made the larger gains. The results, however, are not very positive.

Only those studies which seem representative of the progress made in pedagogical experimentation in regard to spelling method, and those which seem to have contributed to our knowledge along that line have been reviewed in this article. In the light of an attempt to work out a method for the teaching of spelling upon a basis for which there is warrant given by pedagogical experimentation, the meagerness of what has been established becomes painfully apparent.

More and more we are learning to turn to psychology for our basic principles of teaching. The psychological experimentation upon imagery, association, memory, and the learning process in general, and the special psychology of reading have at least contributed a guidance for spelling method. However the body of material is too meager and too unstable yet to be organized into a psychology of spelling such as we have for reading and writing.

The following is a brief summary of some of the findings of psychological investigations which should guide any teaching of spelling or any pedagogical experimentation along that line.

The learning process is of utmost importance. While broadly speaking it is similar for all, there is a marked difference in the way individuals learn, both in character and rapidity. This fact has not been sufficiently emphasized in school work, nor has it received sufficient attention in experimental studies. There is no rational learning without focalization of attention, and no attention without motivation, i. e., some feeling of need, difficulty, interest, upon the part of the learner. There is a maximum time for sustaining attention upon material to be learned and beyond this any forcing of the attention results in positive waste. Learning is not so rapid when monotony or fatigue is present. Judd found that improvement is more rapid when the learner is kept informed in regard to his results. How far we are safe in generalizing from this is, however, a question. Suggestions concerning change or improvement in method should be given when need is greatest, for then their value will be felt. Confidence that follows successful learning increases ability. (Swift.)

Most individuals learn more easily through some one type of imagery, or combination of types. There is no guarantee that because material is presented through a particular sense or through several senses it will be learned or remembered in the corresponding imagery. The dominant imagery of an individual may differ at different ages.

The genetic order of association of imagery in spelling is auditory and motor, then visual and motor. Which is the most effective mode of presentation so far as imagery is concerned is unsettled. Most experimenters have found that an auditory presentation is better for younger children, while the effectiveness of visual presentation gradually increases, and with older children gives better results than the auditory. However, this cannot be entirely relied upon as other psychologists have found varying results. Again, according to the theory of multiple association it has been assumed and has been found by actual experiment that a visual-auditory presentation is more efficacious than either alone, but this also is disputed. The visual-auditory-motor (more particularly the articulatory) is held by some to be still more

efficient. Meumann says the best method is "to combine the sight of the new word with the analytical copying of it, plus at least the whispered pronunciation of its constituent elements." The correct pronunciation seems to aid even those who are visualizers to visualize more accurately. Other experimenters think the effect of the kinesthetic element is negligible.

It is probable that different classes of words should be learned through different senses and associations. Sound imagery may be a positive hindrance in the learning of irregular words. It would seem that words of this type should be learned as sensorimotor material, while with words belonging to phonetic classes, or classes according to origin, the rational element should dominate the learning.

The method that brings the best result in immediate recall is not necessarily the method which will insure permanency of memory. Attentive repetition aids memory. Less repetition is needed when motivation of the right kind is present.

After an incorrect association has been formed, the effort to break it and to establish the correct association is greater than the effort expended in the initial learning.

Shorn as the teacher is of her belief that the so-called "flash card" method, the phonic method, the incidental method, or any other "one idea" device however successful it may appear to be for a while, is the best method for teaching spelling, and bewildered as she must be by the disagreement in the results of the psychological studies, what course is to be pursued until something more conclusive is worked out?

An evaluation of the current practices in the teaching of spelling in the light of their development and of present psychological knowledge has recently been made by Henry Suzzallo. It is probably the best guide to the teaching of spelling that we now have. The author does not to my mind sufficiently stress the importance of knowing the individual mind and of adapting the instruction to suit its particular nature and needs. Theory recognizes mass teaching as uneconomical and inefficient but practice lags behind as usual. That all words cannot be taught in the same way because the learning process is not and cannot be made the same for all, does not receive adequate emphasis in Mr. Suzzallo's admirable discussion.

In the following statement of procedure based partly upon accepted data and largely upon what is still opinion, I have tried to emphasize the necessity of making instruction individual so far as the child is concerned, and of avoiding the mistake of treating all spelling as if it were homogeneous instead of heterogeneous matter in its relation to the learning process. The summary is all too brief to be considered in any sense adequate.

➤ In regard to the size and character of the vocabulary to be mastered by the elementary pupil, Suzzallo says we must study the vocabularies of adult life and must know what and how many words are misspelled by children. Kirkpatrick claims that a child of twelve is probably acquainted with from seven to ten thousand words: Johnson, not more than six thousand; Chancellor believes that six thousand words may be taught so that the child will at the end of the grammar period, spell four thousand freely and accurately. The latter authority advocates not more than two new words a day for children of eight years and not more than five for fourteen year old children.

Material for the spelling lesson should be determined by the present need of the child for certain words and by his need to become independent in spelling. The term "child" is not here used in its generic sense, it most decidedly means the individual. The spelling book cannot supply the right material. The modern curriculum is broad enough so that the words may be largely taken from the actual work of the school without fear of narrowing the vocabulary. Naturally the needs of written work furnish a large share of the spelling words. A grade list built up by the grade teacher, who from experience knows approximately what words are required in a particular year, makes a fairly safe guide or check. Lists of words frequently misspelled should be kept and drilled upon. The individual list is probably the most valuable source yet it is the one given the least attention. Each child should keep a list of words he misspells and of those for which he must consult the dictionary or the teacher. At certain times these words should be studied and made a part of his correctly spelled vocabulary.

The motive has been indicated in the consideration of the sources. It should primarily be that of a felt need for knowing how to spell certain words, or a desire to spell correctly. Extrin-

sic motives such as are supplied by spelling contests add zest and variety to the work and are harmless if they do not become dominating and permanent motives.

Shall spelling be taught incidentally or in isolation? Words should certainly be met in context first, whether it be in oral or in written form, that is, the meaning should be known before spelling is required. Some words require no especial attention, they are self taught, but incidental teaching cannot insure correct spelling in the case of irregularly spelled words, nor can it take sufficient advantage of the aids which phonograms, rules of spelling, and word structure furnish for teaching independence in spelling "class" words. It seems that a well balanced method ought to make use of both incidental and special period work.

The time to be devoted to spelling depends upon the needs of the particular children under consideration and cannot be arbitrarily determined. The time spent in incidental learning cannot be easily estimated, but probably no more than fifteen minutes a day is ever necessary for the regular period.

The order for teaching should be that of meaning, pronunciation, writing. A mere word definition is no guarantee that the meaning is understood. The idea which the word symbolizes must if necessary be gained through experience, or by having it built up in imagination.

Pronunciation comes first through imitation, but gradually the child gains independence of the teacher through work with phonograms, or other phonetic means, and through use of the dictionary. Because our language is not consistently phonetic, phonetic analysis cannot be relied upon at all times. Indeed it becomes a positive hindrance to pronunciation and to spelling in the case of irregularly spelled words. A visual presentation followed by pronunciation and copying, is probably best for such words. Much poor spelling may be traced directly to incorrect pronunciation, and much to inattentive linking of the pronunciation with the written form of the word. Classes of words are different and cannot be taught in the same way, and an individual word is sometimes so individual that it requires a treatment all its own.

Pending more reliable data in regard to imagery and association in spelling probably the best course to pursue is to make

oral presentation predominate in the lower grades and visual in the upper, yet an appeal to auditory-visual-motor (articulatory and graphic) imagery must be made from the first. This procedure seems reasonable for several reasons. In the first place there are many imagery types in a school room and we cannot know definitely to which an individual belongs. Moreover, although the presentation may be made through a particular sense we cannot be sure that the material is learned or remembered in the corresponding imagery. Neither are we sure that learning in terms of the pupil's natural imagery is the most efficient mode for him. We do know, however, that richness of meaning and of association make a word more valuable.

Smedley found that children with the best native memories, and normal sight and hearing are not always the best spellers, while some with poor native memory, or with sight and hearing defects ranked high. This he interprets as meaning that the rational element plays a part in spelling, hence clues to classification obtained through meaning, derivation, rules and phonics, are helpful. The child left to himself sometimes "hits" upon a good method, often however he continues to spend time in repetition which is uneconomical and unprofitable because it was not preceded by any rational analysis whatsoever. Too much cannot be said against the practice of using the spelling period exclusively for the purpose of testing and of leaving the child to study independently before he knows how to do so. If the method by which an individual learns is important, and we now believe it is, then the child must be taught how to study. This cannot be done unless the teacher studies with the child in order to find out his particular way of learning and to suggest improvement.

The customary plan of testing immediately after a few moments of hurried study evaluates the cleverness of the immediate memory and is useful if regarded as a mere preliminary examination through which errors may be analyzed and corrected. Too often, however, it is regarded as the final test for a particular list of words. To test the permanent memory an interval of time should intervene between the study and the spelling. Constant review is necessary, from week to week, and month to month, as Wallin suggests. Plenty of opportunities to use the words in written work should also be given.

Another factor neglected by the school is the careful analysis of each mistake with reference to the child making it. The child is told to correct his misspelled words, but that does not aid him in determining where his mental process was at fault nor in avoiding the same type error later. A teacher should decide as nearly as possible upon the nature of each error; was it made because of wrong pronunciation, because the visual image was not sufficiently clear, because there was not a conscious linking of pronunciation and visual image, because of defect in hearing or sight, because of indiscriminating dependence upon phonetic spelling, because of the so-called motor incoordination type of error? The cause of the error determined, the child should be instructed how to restudy, and if the error is typical he should be so guided in the learning of new words that it will not occur again.

Gradually the child should acquire some independence in ability to spell which extends not only to the correct calling of letters in a word, but to approximating the meaning and the pronunciation.

By the time the fifth grade is reached children should begin to cultivate the dictionary habit for meaning, pronunciation, and spelling of words. Suzzallo says, "Let the child become skeptical of his own usage every time he sees or hears a conflicting one, and the basis for self cultivation is laid. Then give him the persistent habit of appealing to the dictionary and he will learn the right form."

A few of the more general rules of spelling may prove helpful. They should be taught inductively. The child for instance has met many words following the rule for dropping the final e when a syllable beginning with a vowel is added. These words with their derived forms may be placed before the child so that he will see the working of the rule even though he may be unable to state it formally.

Word analysis inductively taught should prove of assistance in giving children ability to approximate the meanings of many new words. Children take great delight in finding that the same element exists in a number of words and that this element gives them a clue to the meaning of each of the words. Word analysis is not without its dangers, and used too literally leads to

naive interpretations, for example "artless" was defined as "unable to draw and paint." However the context in which the word is found may generally be depended upon to check this tendency sufficiently. The child has established a rather valuable habit when of his own initiative he consciously analyzes any new word.

The above summary is all too brief to be considered in any sense adequate or complete. No attempt has been made to differentiate the work of the different ages; to consider when and how spelling should be introduced; to discuss oral and written spelling, list and sentence tests, and other varying procedures. Only the more general and more widely applicable phases of spelling method have received attention.

Every phase of the teaching of spelling is in need of careful investigation. Mr. Suzzallo gives a large number of definite problems requiring the attention of experimenters. The following is a partial list of Suzzallo's questions:—

1. What should be the size and character of the vocabulary in the elementary school, and how should it be determined?
2. What should be the source of words taught?
3. What is the best motivation?
4. What principles shall determine grading and grouping of words; shall it be meaning, irregularity, rules of spelling, or phonic structure? Shall words be taught only as the child needs them? Will reformed spelling make spelling easier?
5. Should the initial presentation be experimental, oral, or visual? How shall the child get the meaning of the word; from objective experience, telling, word analysis, dictionary, in isolation, or in context? How and in what order shall the three factors of meaning, pronunciation, and spelling be associated?
6. Does contentful spelling decrease the need for drill?
7. Does ability to spell attained in isolated word or column drill give ability to spell in sentences and in composition?
8. Shall the child obtain the pronunciation of a word from another person, by phonetics, or by use of the dictionary?
9. What is the value of learning the order of the letters by sound, visualization, copying, or oral spelling? Should the initial learning be from script or print?
10. In the correction of spelling errors what is the best way to make the child aware of the error? How should he become

aware of the correct form? How far should the child be made independent in the detection of errors and in relearning?

11. When and in what way should the child become independent in his spelling? At what age should he be taught to use the dictionary? What is the value of word analysis and word synthesis? Do rules of spelling aid?

12. What is the most economical number of new words to be learned in each grade? What is the most economical assignment of time for spelling? Is the incidental teaching of spelling as effectual as systematic study during regular periods? With what grade should systematic study begin and end?

The results of the studies made by Wallin and Smedley suggest that perhaps there is a period in the elementary school when spelling can be most easily learned. Standardized tests such as have been worked out for writing and arithmetic are needed for spelling. A point most worthy of careful investigation is the relative value of mass and individual instruction.

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