

## Reversals: a response to frustrations?

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PERHAPS the most persistent and insidious problem facing the teacher of reading, be he in the classroom, clinic or remedial situation, is that of reversals. Generally included in this category of directional error, observable in most reading disabled people, are numerous variations of the phenomenon referred to variously as confused letters and/or sounds, rotations, inversions, mirrored images, etc. They manifest themselves in every avenue available to the disabled reader in the sensory reception and expression of graphic and auditory language symbols.

Because of confused responses to language, the learner is consistently subject to anxiety producing frustration resulting in distractibility, inattention, hyper-

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activity, avoidance, perseveration, etc. He is effectively inhibited from developing the essential linguistic generalizations needed to aid him in developing consistent organization and sequence in his thinking about language, and, as a consequence, cannot utilize his abilities to perform consistently at the functional level and reinforce what he has learned. The disabled reader is thus impeded at each of the cognitive, affective, and psychomotor levels of development.

The subject of reversals has been treated in myriad volumes by some of the best minds of the last century but as yet there is no definitive answer as to the essential cause or multiple variation in effect of reversals appearing during the early linguistic development of the child. It is often

considered that these confusions are a phenomenon limited to individuals suffering some form of language deficit. The problem, however, is universal, an integral part of the total developmental pattern of each person, manifest in infinite variation in all areas of linguistic functioning, which must be coped with and successfully resolved.

Eisenberg (1966) has written,

Many authorities have called our attention (as though such phenomena were diagnostic of specific reading disability), to reversals (*was* for *saw*, *gril* for *girl*), mirror writing, confusion of certain letters (*b*, *d*, *p*, *q*, *g*), omitted or added words, perseverations, skipped or repeated lines, and the like. These very same errors occur as the normal child learns to read; what distinguishes the dyslexic is the frequency and persistence of these errors well beyond the time at which they have become uncommon in the normal child.

Bryant (1965) confirms this opinion when he speaks of reversals as being among those "normally seen in children just beginning to read but they are rapidly overcome without special help."

As a consequence of this intense concern both with causes and remediation of concomitant problems associated with reversals, a considerable portion of the budget of most education publishers is devoted to the development and sale of methods and materials for the teacher to use in trying to prevent or alleviate the debilitating effects, sufficient in and of themselves to inhibit completely the reading development of the affected individual. However, there has been disappointing progress in the development of procedures or ma-

terials which can promise any but guarded and ambiguous offers of possible help.

### Suggestions for remediation

Working as a therapist with all gradations of disability for many years, the author has carried on a search for answers both as to the cause and cure of this malady, but with much the same limited success as most of the others in the field. There were occasions when the problem apparently disappeared as the result of one or another of the many approaches and materials suggested for use. However, far more often than not, cure or at least alleviation of the problem and its inhibitory effects came slowly and inconsistently, apparently not as the direct result of any specific therapeutic measures. Bryant (1965) has drawn a similar conclusion in his observations of the child with reading disability and states that he

persists in these characteristics (distractibility, directional confusion, temporal and spatial disorientation, etc.) as he grows older. Improvement with age in a dyslexic boy who has not been helped by years of remediation may reflect maturation. However, in addition, it may also reflect the fact that remedial procedures often confuse and obscure the very learning they are attempting to bring about.

Some time ago, this author concluded that success resulting from direct efforts at eradicating the effects of reversals was totally disproportionate to the inordinate amount of time spent in these efforts. And further, that since alleviation apparently resulted most frequently, not as the direct result

of specific teaching efforts but rather as a corollary or subsidiary effect of the overall development of improved language skills, a different approach to the problem was dictated.

A decision was made to cease direct efforts at remediation of specific reversal manifestations. In their place a course of action was followed which emphasized instead the improvement of the learner's overall directional orientation with regard to the spatial and temporal aspects of language symbols, in combination with intensive efforts designed to remove some of the anxiety associated with the reversal manifestations themselves. Several steps were followed in carrying out the latter part of this dual objective:

1. When a reversal response was made, the learner was immediately supplied with the correct response.
2. Exercises were carefully structured which included minimal opportunities for the elicitation of reversal responses.
3. The teacher was constantly alerted for opportunities to supply the correct form of previously reversed sounds, letters, word parts, or words, prior to their commission, thus inhibiting further development of confused responses and their subsequent repetition and reinforcement.

These efforts were carried out in such a manner as to indicate no displeasure or reprimand which might stimulate further anxiety; in short, they were removed as far as possible from the general arena of errors at all. The result was an immediately observable improvement in remedial efforts which, although not removing the

reversal manifestations at once, certainly contributed to a general increase in motivation toward the overall task of reading and a concomitant cessation of the almost constant anxiety called forth as a result of the learner's frequent and persistent reversal errors.

Observation of this apparent phenomenon of children making equal or greater progress toward elimination of seriously inhibiting responses to language in the absence of direct therapy, has spurred further efforts toward discovering an answer. It seems most clear that there must be more acceptable explanations why children react with behavior not in keeping with normal expectations of motivation behavior in which expression of such behavior is not significantly influenced or determined by the consequences of such behavior. There is an observable contradiction in the persistent failure of children to learn after: a) specific diagnosis has been made, b) high levels of motivation developed by either reward or punishment therapy, and c) expert therapy has been applied for months and even years. The continued presence, and at times intensification, of reversal errors after such procedures have been carefully applied indicates the distinct possibility of other factors or behavioral mechanisms still not understood.

#### **Frustration effects**

One promising avenue for study is suggested in the already large body of research available on the causes and effects of frustration in both human and animal subjects. Such study has been under consideration in the author's class-

room for more than a year. It is being conducted at the most practical levels. The work being done is based primarily upon the work of Maier (1961), who more than two decades ago conducted extensive experiments with an animal population to understand better the causes and effects of anxiety resulting from placement in persistently frustrating, no-escape situations.

In these experiments, Maier worked with a rat population previously conditioned successfully to make positive responses to a number of differing stimuli in a non-anxiety producing situation. He discovered that these animals, when placed in the same situation in which they had formerly performed satisfactorily, and then persistently frustrated, developed responses which eventually became extremely resistant to change, in some cases to the point of becoming stereotyped and fixated. Their behavior became such that it could no longer be explained in terms of normally accepted theories of learning based upon need fulfillment, for it could not be changed within the limits of the test situation either by reward or punishment once it had achieved its stereotypic characteristic. Maier concluded such behavior to be an abnormal response, developed as a result of direct, persistent and inescapable frustration and he termed this response to the learning situation, equally resistant to both reward and punishment, "abnormal fixation." He likened it to the behaviors noted in Pavlov's work (1928) with both animal and human subjects and referred to there as "experimental neurosis."

In the experimental situation

with his animal population, Maier established as a criterion for abnormal fixation, the persistence of an unadaptive response for 200 trials when the possibility of adaptive behavior was present, as indicating stereotypy. Thus, stereotypic behavior was defined as persistent maladaptive behavior despite the presence of more satisfying adaptive choices. He indicated his belief that this type of fixated response is contradictory for "learned behavior is subject to change when it ceases to be adequate for obtaining a goal, yet frustrated behavior shows resistance to change." He cited the occurrence of similar fixated responses in humans when presented with no-solution problems:

Human subjects were similarly caused to develop a degree of rigidity to change. This rigidity in behavior was measured by a greatly retarded ability to learn in a situation that previously had been frustrating. Thus after frustration human beings have difficulty in learning simple discrimination problems.

Maier viewed fixated frustration behavior as behavior dominated by anxiety in which the subject developed abnormal responses which, although not most suitable to the immediate stimuli or calculated to satisfy needs either positively or negatively in terms of the specific learning situation, were in effect a form of perceptual defense in the face of persistent and inescapable frustration. These fixated responses were a "something to do," an active response given to satisfy an imminent demand for action which, although bringing an undesired result, allow the subject to maintain some degree of stability by actively responding.

Eisenson (1968) has written of similar behavioral responses in discussing "developmental aphasia" and indicates this condition may well be a form of perceptual defense against impossible demands made upon the organism.

These defenses may well arise because the child is confronted with tasks which are beyond his coping ability at a given stage in his development. He may generalize his perceptual defenses against the speech signals which are meaningless to him to speech signals in general and to makers of the signals and possibly to all environmental sounds.

It seems eminently possible that certain kinds of persistent behavior evidenced by disabled readers, in this specific case, reversals, may be designated as being manifestations of frustration behavior ranging in severity from moderate (those cases most amenable to remediation by generally accepted methods)—to severe (those cases in which persistent frustration has resulted in the development of fixations as responses to stimuli involving those graphic symbols most liable to confusion).

### **Therapeutic possibilities**

Thus the dual objective of the experimentation being undertaken is to develop more adequate understandings of the possible relationship between frustration and reading disability in general and reversals specifically, and at the same time to develop techniques aimed at prevention of serious inhibition initially and the alleviation of effects in cases where problems already exist. Initial direction is provided by Maier who found, after considerable experimenta-

tion, that the most effective form of therapy for removal of "abnormal fixation" was a form of therapy he designated as "guidance" therapy. In developing his ideas he noted that it was possible to break the fixated response by a method requiring that "the animal be prevented from expressing its fixated response and induced to practice an alternative," even to the point of manually leading the animal or pushing it through the correct experimental problem.

Eisenson speaks of a similar therapeutic technique he has found useful in treating developmental aphasia, an approach he termed "enticement." He writes,

A child who has developed such defenses (perceptual defenses) needs to be enticed back to exposure to speech and to his involvement with speech and speakers. We have found operant conditioning and incremental teaching (programmed instruction) to be promising techniques for enticement.

Certainly such procedures have much in common, at least in essential intent, with those recommended by Maier, even if as in the case of the aphasic, the fixated response is a negative avoidance of environmental speech sounds and the alternative to be practiced is simply the allowance of these speech sounds to be once again permitted entry within the perceptual field.

In the case of Maier's rats, the most effective guidance procedure was one in which the animals were guided manually "through an alternate response that prevents the expression of the fixated response." Finding useful guidance procedures with human subjects is, of course, far more complex

because of the difficulty of contriving precisely controlled situations for their application and the unavoidable involvement and interactions of the cognitive, affective, and psychomotor areas of function upon the specific problems, thus adding an additional dimension to their solution. This author (1969) has written in an unpublished manuscript,

In the case of human subjects, the idea of guidance is closely related to the development of insight, for by assisting the subject through a problem which is soluble, the subject is able to perceive cause and effect relationships and thus find new direction in his responses. Finding means and methods of guiding human subjects through reading experiences in which the elicitation of incorrect responses is totally inhibited is a problem of great magnitude. It implies a return of the subject to a period when instruction did not bring forth undesired responses, and as can be inferred for children with severe problems, this means a return to the earliest stages of instruction, and the utilization of procedures which can be sufficiently controlled by the therapist to insure against the elicitation of incorrect responses and their subsequent reinforcement.

In breaking fixated responses, Maier found it necessary to go as far as providing the animal with the same stimulus that initially provoked the fixated response and then, while manually inhibiting the response, to lead or pull the animal through the correct experimental problem. This procedure in time led the animal to become responsive to more normal expression of motivated behavior since it helped "remove the compulsive

nature of the fixation and permits the rat to respond in terms of what it has learned."

Although Maier indicated that his experimental findings had been substantiated by numerous experiments with human subjects, he considered their exact replication not probable since it seemed neither possible nor licit to expose human subjects to the amount and concentrated degree of frustration permissible with nonhuman subjects, where the intent is to induce deliberately, manifestations of "abnormal fixation." However, he did indicate that in experiments with human subjects,

When the frustration threshold is exceeded, increments of frustration are produced that impose a degree of rigidity upon certain responses and so, interfere with learning that demands a response in terms of goals. Although these increments of fixation are not great enough to abolish the ability to form a new response, they are sufficiently great to clearly separate frustrated from nonfrustrated individuals.

Postman and Bruner (1948) have performed experiments with mature subjects which tend to support Maier substantially in his basic thesis concerning the similarity of effects between human and animal subjects when frustration is intense, persistent and inescapable.

Although the experiments by Pavlov mentioned earlier were conducted considerably before Maier's, the condition he described as "experimental neurosis" is strikingly similar to Maier's "abnormal fixation," both as to cause, effects and cure. In Pavlov's laboratory, human and animal subjects were observed to develop "experimental

neurosis" incidentally, while part of experiments which unintentionally created amounts of intense and persistent anxiety apparently beyond their coping capacity. Alleviation was accomplished by reconditioning procedures conducted in an anxiety-free environment in which the subject was inhibited from making the undesired response and returned to an earlier level of successful achievement, and retrained.

### Conclusion

Thus the behaviors described by Maier and Pavlov are remarkably similar in many ways to behaviors long noted in children suffering from the problem of reversals in that they do not positively respond to traditional procedures designed for their removal. Rather, it frequently can be demonstrated that prolonged instruction serves only to intensify the problem even to the point of developing behaviors, with regard to graphic symbols, comparable to those described by Maier as "abnormal fixation" and by Pavlov as "experimental neurosis."

As a result of the research and conclusions already mentioned and my own occasional observation of spontaneous alleviation of the problem of reversals and its associated anxiety when the opportunity for making these confused and possibly fixated responses is completely inhibited and the opportunity for making a new response is substituted, a new perception of the problem seems indicated.

It becomes possible not only to take a new view of the developmental causes of reversals themselves and their role in the total problem of reading disability, but

also to attempt the development of newer and perhaps more effective methods aimed at the prevention and alleviation of reversals as inhibitors of adequate reading ability. The developing awareness of a possible relationship between the existence of a predisposition for the making of linguistic reversals, frequently in the absence of any significant causation usually associated with the problem such as minimal cerebral dysfunction, specific brain injury, mixed laterality, visual perceptual deficit, etc., and the research on the effects of frustration in both animals and humans, have led to efforts to develop guidance procedures, similar to those cited by Maier and Eisenberg, applicable to the remedial reading situation. As yet no empirical evidence as to the specific value of such procedures has been collected and analyzed. However, it can be reported at this time that several procedures are presently under consideration for future controlled experimentation with extremely encouraging early results.

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Note from Internet Publisher: Donald L. Potter  
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I should like to thank Mr. Raymond E. Laurita for permission to publish this essay, "Reversals: a response to frustrations?" Ray sent me a package of essays on July 17, 2003. I would like to invite the reader of this essay to pursue Mr. Laurita's other essays on my web site: [www.donpotter.net](http://www.donpotter.net). You will also want to visit his web site: [www.spellingdoctor.com](http://www.spellingdoctor.com).

Ray's thesis that reversals can actually be caused by frustration caused by improper instruction (whole-word instruction) during a young student's early experience with print is most original and intriguing. He his proposed solution, based on this thesis, has proven highly effective in his many years of helping struggling readers.

It was my first reading of his magnum opus, *Orthographic Structuralism: The New Spelling*, that was a turning point in my understanding of English spelling and how best to teach reading.

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