CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

STUDENT SELF-CORRECTION OF PRACTICE EXERCISES--ITS EFFECT ON LEARNING READING SKILLS

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Arts in Education Secondary Reading

by

Evelyn Esther Stecher

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The thesis of Evelyn Esther Stecher is approved:

California State University, Northridge
May, 1975
ABSTRACT

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Two balanced groups, each containing nineteen seventh grade reading improvement students were compared for achievement when exposed to differing feedback techniques. In the control group the teacher corrected study materials, while students in the experimental group corrected their own work. It was hypothesized that students would achieve more if allowed to correct their own practice exercises. No significant difference was found in the number of objectives passed on tests of the materials studied.

Two balanced subgroups of internally- and externally-motivated students were compared for the effect of the two feedback methods. It was expected that internally-motivated students would perform best when permitted greater self-direction while externally-motivated students would achieve more with teacher direction. No significant difference was
found. Difficulties with the organization of materials, length of the study, and test of motivation suggest replication would be necessary for clear results.
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Chapter 1

INTRODUCTION

The effect of teacher control upon student motivation to succeed was the object of this study. Two learning situations were established. In one the teacher corrected all study exercises and administered tests. In the other, students corrected their own study exercises and took tests when they judged themselves ready. The student's achievement in each case was measured. The relationship between the learner's belief in his own ability to control his environment and his achievement in each situation was also studied.

Background of the Problem

Increasing emphasis upon individualization of instruction has necessitated greater use of self study materials. This places students in the position of assuming a larger share of responsibility for their own learning. This change in classroom organization has been accepted by many without serious examination of its values. It has come to be regarded as having a positive value, fostering independence and self-direction. Materials designed to be used independently usually assert that motivation is achieved by the student's immediate knowledge of results.
These results are typically arranged to be successful in order to provide positive feedback.

In the conventional classroom situation, however, motivation has been presumed to be aroused by frequent contact with the teacher in the role of director and evaluator. He has been traditionally considered the most crucial agent in the learning situation as the avenue through which positive reinforcement and information feedback reaches the child.

Typically the effect of shift in responsibility from teacher to learner has been examined by comparing a programmed instructional approach with a teacher-directed approach in which both the materials and the teaching method differ. The present study, on the contrary, used identical materials and tests. The single variable was the method of correcting practice exercises. Consequently, either the teacher or the student controlled the day-to-day work of the student. The effect of change in variable is the object of this study.

Delineation of the Research Problem

The study was designed to examine the effectiveness of two types of reinforcement in promoting student achievement. The first type was correction of practice exercises by the student. Thereby, feedback was self-initiated, immediate, and private. This type was compared
with teacher correction of practice exercises. Hence, feedback was teacher-initiated, delayed, and public. The effectiveness of each method was judged by the number of items achieved in reading skills materials, as determined by criterion referenced tests. Also studied was the relationship between number of objectives learned and the degree to which each student believed himself in control of his environment.

Personality traits interact with environmental factors to determine the degree to which a teaching technique will be perceived as motivating to any one individual. The trait examined in this study was internal versus external locus of control of motivation as measured by the Nowicki-Strickland Scale (1971). The student who believed the events of his life were decided by outside forces was expected to be more dependent upon teacher-provided motivation to learn. On the other hand, the student who saw his own actions as leading to predictable outcomes should achieve more than the dependent student when in a situation where he had to make many decisions for himself.

Research Questions

The study dealt with three basic questions. One, do students learn more when allowed to make more of their own decisions during classroom study sessions? Two, do students with a higher degree of internal control achieve more than students who are externally controlled when in a
situation requiring more decision making? Three, do externally-controlled students achieve more than internals in a teacher-directed situation?

Research Hypotheses

The intent of the study was to test and analyze the following null hypotheses:

**Hypothesis 1**: There will be no significant difference between the number of objectives achieved by students who correct their own practice exercises and students whose exercises are corrected by the teacher.

**Hypothesis 2**: There will be no significant difference between the achievement of the externally-controlled student in either the student-corrected or the teacher-corrected situation.

**Hypothesis 3**: There will be no significant difference between the achievement of the internally-controlled student in either the student-corrected or the teacher-corrected situation.

Definition of Terms

The Developmental Reading Program, Fundamental Stage, Advanced (DRPA) is a set of materials developed by the Los Angeles Board of Education Reading Task Force. It breaks down reading skills into specific, measurable behaviors in the form of practice exercises. The materials include placement test, pretest, and posttest for each step.
of the program.

Reading skill refers to any specific item of phonic, structural, or comprehension information which has been isolated for instruction in the materials used.

The Gates McGinitie Reading Test is a standardized group test of speed and accuracy, vocabulary, and comprehension in reading. It yields a grade level score.

Self-correction is an organizational technique. It involves the student in using an answer key to evaluate his own performance to determine possible need for further study. The emphasis places responsibility on the student for learning and on deciding personal readiness for the posttest.

Teacher correction is the conventional technique. The teacher evaluates the student's performance on practice exercises. It leaves the responsibility in the teacher's hands for deciding what additional study is necessary, when posttest should be given, and how to motivate the student to succeed.

Limitations

This study was limited to two groups of individuals, balanced for scholastic capability and reading level, from two seventh grade reading improvement classes at Millikan Junior High School. The work on which their achievement was compared was the DRPA. The results of this study can only be related to objectively evaluative learnings of
specific measureable skills, with a similar population.

The study lasted fifteen weeks. This period was unavoidable shortened from the projected twenty-five weeks because of the unexpected transfer of a number of subjects between classes.

**Procedures**

The DRPA was the learning material for the two groups of students. Students were pretested for each group of skills. They were then given practice exercises covering the particular skills which they missed on the pretest. After completing the work they were posttested for achievement of those skills.

After pretesting, the control group was given results and assigned pages to study covering the objectives missed. Papers were graded by the teacher and returned daily for correction of errors with an explanation included where necessary. When work had been completed to the teacher's satisfaction the posttest was administered.

After pretesting, the experimental group was given information as to objectives missed, study materials, access to answer keys, teacher help on request, and time to prepare for posttest. Posttest was given when student declared himself ready.

For both groups records were kept of the objectives which each pretest revealed students did not know. After
posttesting, the number of objectives successfully achieved was calculated. Groups were compared for number of objectives completed.

All students were tested with the Nowicki-Strickland Scale. This yields a score indicating the degree to which each believed himself in control of his environment. These results were examined for relationship between learner characteristic and achievement in each learning situation.
Chapter 2

REVIEW OF RELATED LITERATURE

This study is concerned with motivation as determined by type of feedback. Previous studies of achievement as related to type of feedback will be examined. Feedback, however, is only meaningful if it is perceived as reinforcing by the student. Therefore, also relevant to the discussion of this question are studies exploring differing learner characteristics. Of particular importance is the dimension of belief in external or internal control of one’s fate. While not directly analogous to the present study, the following works parallel the questions under study in certain dimensions. The first group bear on the efficacy of various types of feedback. The second group deals with differing learner characteristics, particularly the work on development of a scale for delineating the trait of internal/external locus of control.

Studies of Types of Feedback

As learning theory developed from the single-stage model to the multi-stage model, the primacy of the role of the teacher was reconsidered (Gagné, 1965)

In the single-stage model, closely related to the stimulus-response theory of Pavlov (1931), the behaviorist
theory of Skinner (1954), and developed in the field of education by Thorndike (1931) and Skinner (1954), the teacher provided stimulus and determined its proper sequencing and timing. He also was responsible for spacing reinforcement and repetition, together with the other aspects of the learning situation. This view elevated the teacher to the main active agent in the educational process.

The more current view of learning as a multi-stage action (Hunter, 1924; Underwood & Shultz, 1960) introduced the inferred process of "mediation." This was presumed to occur in the learner between stimulus and response. Weisgerber (1971) states that:

The basic event of learning is conceived as the generation by the learner, presumably by means of a search of his memory, of a mediational process which successfully leads to the desired performance [p. 179].

This indicates that the important act is not the stimulus or the response, but the events which take place within the learner, making him the only essential presence. This view suggests a change in the function of the teacher which may outmode many strongly held beliefs. Weisgerber does not propose that the teacher no longer has important functions, but that no one function can be assumed as essential.

One function of the teacher studied was his role as provider of feedback. Schwartz and Friedman (1957) consider teacher evaluation and correction of student work with appropriate comments an important determinant of motivation.
Critical of previous work on the effects of praise and blame in education as contrived and unrelated to actual classroom conditions, Page (1958) designed a study to test effects in the classroom of teacher comment on student papers. "No Comment," "Specified Comment," and "Free Comment" were measured for their effects on student's subsequent achievement. "Free Comment," consisting of whatever the teacher felt appropriate to the work, had the most beneficial effect. "Specified Comment," which were uniform phrases assigned according to the grade earned but always of an encouraging nature, had better effects than "No Comment," grade only, on student's papers. There was no indication that higher achieving students were more responsive to teacher comment as teachers had predicted. He concludes that;

When the average secondary teacher takes the time and trouble to write comments (believed to be "encouraging") on student's papers, these apparently have a measurable and potent effect upon student effort, or attention, or attitude, or whatever it is which causes learning to improve, and this effect does not appear to be dependent upon school building, school years, or student ability [p. 180].

Hackett (1971), on the other hand, presents evidence for greater student accomplishment resulting from a much less directive role for the teacher. He describes a California study of 1968 in which significant gains in reading were made in a school-wide change to a performance-based system. This school changed from teacher-oriented techniques to student-centered learning. He attributes this
success to new teacher-student relationships in a non-authoritarian setting.

Bivens (1964) found, in a study involving eighty-four eighth graders, that complex feedback designed to be more involving, did little to increase achievement. Motivation due to the intrinsic interest of the work was felt necessary for productive use of the complex feedback system by the students. Self-evaluation increased learning and retention (Hershberger, 1964) with both high and low ability students in a study involving one hundred and sixty-fifth graders.

Experiences of success and failure were generally found to affect future performance. Failure appeared to increase stress which resulted in increased speed and decreased accuracy, according to Lazarus, Diese, and Osler (1952). The public or private nature of the experience did not alter performance (Balwin and Levin, 1958). These results were questionable because of the design of the study which allowed subjects to understand that their private performance would shortly become public. This study did give strong support to the hypothesis that experience of success or failure affected achievement. Failure increased amount of work completed but accuracy suffered. However, Lundgren (1968) found no significant difference in effect of grades on level of aspiration.

In discussing three views of control in educational settings, Forward (1973) described typical arrangements.
The first was the traditional setting in which the teacher exercises control throughout the process. The second was the progressive setting where minimal teacher control was used from an early age on. The third was the transfer-of-control model which Forward viewed as a process of gradual shifting of responsibility from teacher to student. In reporting three studies investigating problems in transfer of control from teacher to student, he found teacher-control styles had a strong effect on student's educational decisions. The high teacher-control group made more decisions favoring efficiency in education. The low teacher-control group made more choices leading to personal and social growth.

Studies of Learner Characteristics

While the above results commonly occur, it would appear that some subjects react atypically. This phenomenon may be related to individual characteristics of the learner. Atkinson and Feather (1966) following the earlier work of McClelland (1961), have explored the role of achievement motivation in education. From this work, a theory of two personality types has been developed; one, the achievement-oriented personality, and two, the failure-threatened personality. These types are more conveniently designated by Feather (1961) as "constructives" and "defensives." Constructives are characterized as confidant and realistic, defensives as irrational, rigid, and with weak association
of behavior to desired goal (Atkinson and Feather, 1966). These profiles strongly suggest the personality types differentiated by scales of internal/external control (Nowicki and Strickland, 1971). The internally controlled appear to have many of the attributes of the constructives and the externals show a similarity to the behavior of defensives.

Weisgerber (1971), reviewing studies relating personality type to teaching method, finds most support the hypothesis that defensives achieve best with short-term goals, much guidance, frequent feedback, and close supervision. These techniques, however, combine to keep these students in a dependent role. He finds that constructives learn best with tasks of moderate difficulty. They can handle longer-range goals, and feedback would be related to teaching them to judge themselves, rather than for motivation. He warns that it is not a good teaching practice to permit students to remain defensive and techniques which encourage self-reliance should be used with them.

Amidon and Flanders (1961) also speculate that dependent students make compliance their goal in a highly directive situation, with learning less important than following teacher directions. The implication here is that closer supervision may be more harmful than helpful to these students.

With better than average students in fourth, fifth, and sixth grades, a relationship was found between internality and performance. The correlation was stronger with
boys than with girls, topping correlation between I.Q. and performance (Clifford, 1971). The scale used was the Academic Achievement Accountability Measure. This is based on Rotter's Internal/External Scale, but emphasizes belief in luck and chance rather than "others" as in control of student's fate. Using the Nowicki-Strickland Locus of Control Scale, Nowicki (1973) reports similar inconsistent results with females. This scale is also based on the Rotter Internal/External Scale dimensions, designed to be used with children in an educational setting. Nowicki speculates that social desirability may be a mediating variable for females due to the culturally-expected role of passivity for their sex. He used a social desirability scale and found that this factor affects the achievement/locus of control relationship for females. Achievement in males was found to be highly predictable through use of the scales in Nowicki's review of a group of studies.

Cain (1971) found that regardless of anxiety proneness, individuals reacted to threatening stimuli more strongly if they perceived the threat as directed at their egos. Also supported was the hypothesis that self-perceived coping ability (internality) was inversely related to appraisal of degree of threat in a situation.

Two hundred and six college students were given Rotter's Internal/External Scale to test the hypothesis that internals would be more satisfied in an unstructured setting. No relationship was found. Both groups preferred
the unstructured situation. Internals expressed greater satisfaction than externals in both programs (Koop, 1969). Forward (1973) using the same scale found students high in personal control performed better with a low-control teacher. Those students who scored low on personal control performed better with high-teacher control.

In a programmed instructional situation success was positively related by Woodruff, Faltz, and Wagner (1966) to need to achieve, cautiousness, original thinking, personal relations, vigor, and I.Q. Success was negatively related to need for autonomy, succorance, and grade average. Doty (1964) found success in programmed instruction related to high need to achieve and low social need. The materials used in the present study share many characteristics of programmed instruction as they are individualized, self-pacing, diagnostic-prescriptive, and offer immediate feedback.

Levenson (1973) discusses development of a new locus of control scale to reflect a multidimensional view of externally-controlled individuals. She separates externals into those who believe in control by chance and those who believe in control by powerful others. Belief in chance indicates a view of the world as unpredictable. This would yield a very different pattern of behavior from those who believe the world is controlled by powerful others, and so orderly. Such externals would still expect reinforcement through purposeful action. Responding to questions of factor analysis of locus-of-control scales, Nowicki (1973)
suggests further investigation to establish dimensions of locus of control in children. He believes research indicates age and sex are the logical factors. Differential scoring and subtests are needed to reflect these factors, he suggests.

In the field of education there appears to be a need for further study of the effects of feedback techniques on specific learner characteristics. Nowicki and Strickland (1971) suggest that reinforcement is only effective to the extent that the learner perceives a causal relationship between his behavior and the reward. The dimension of internal/external locus of control of reinforcement would seem an accessible and productive area of personality to correlate with directive and non-directive feedback techniques in the effort to achieve true individualization of teaching.

These studies generally indicate an unclear relationship between type of feedback and achievement. Some consensus is shown in the personality studies as to the existence of internally- and externally-controlled learner types.
Chapter 3

PROCEDURES

This chapter presents a description of the study design. It includes a statement of the null hypotheses which were investigated. The instruments used, the selection of subjects, and the classroom procedures employed are also described here.

Design of the Study

The method used to correct practice exercises served as the independent variable in this study. In the control group the teacher assigned and corrected all work and administered pretests and posttests. In the experimental group students corrected their own work and took posttests when they felt prepared. The number of objectives students successfully mastered as determined by comparison of pretests and posttests constituted the dependent variable.

Each student was also scored on the Nowicki-Strickland Scale of Locus of Control. This measure is a forty-question paper and pencil instrument designed to determine the subject's perception of his degree of control over his environment (Norwicki, 1971). This scale is an adaptation for school children of an earlier scale for adults by
Rotter (1966). Rotter describes the dimensions to be studied in the following manner:

When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as a result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control [p. 1].

Each correct answer on the Nowicki Scale indicates an externally-motivated response. Therefore, a drop in the mean scores as grade level advances displays growing internality with age. Tests of this scale with 1017 children, grades three through twelve, found that students did become more internal with age. They also found a clear negative relationship between locus-of-control scores and achievement scores. Nowicki found the mean for sixty-five seventh grade males to be 13.15 with a standard deviation of 4.67, and for fifty-two females to be 13.94 with a standard deviation of 4.23.

In the present study students who scored above the mean were considered to be externals. Those who scored below the mean were designated internals. The achievement scores of externals and internals were then compared in each setting to determine if differing educational techniques interacted with personality characteristics to affect number of objectives mastered.
Null Hypotheses Investigated

1. Students who correct their own practice exercises will not learn significantly more reading skill objectives than students whose exercises are corrected by the teacher.

2. Students classified as internal will not learn significantly more objectives in the experimental than in the control situation.

3. Students classified as external will not learn significantly more objectives in the control than in the experimental situation.

Subjects

Individuals from two seventh grade classes in reading improvement were used in this study. Twenty students from each class were selected to form an experimental and a control group. The selection was made to create groups balanced for scholastic capability, reading level, and socioeconomic class. While all students in each class received the same treatment, only data from the selected individuals was used in the study.

Instruments

The Otis-Lennon Scholastic Capability Test was used to balance the groups in a test administered to the whole seventh grade in October 1974.
The Gates McGinitie Reading Test was used to determine the reading level of the subjects at the beginning of the study. This test is a standardized group test of speed and accuracy, vocabulary, and comprehension in reading which yields a grade-level score.

Cumulative records of students were used to determine socioeconomic class from parent's occupations.

The Nowicki-Strickland Locus of Control Scale was used to group subjects as internals or externals. This is a group-administered, paper-and-pencil instrument of forty questions marked either yes or no. It is designed to measure generalized locus of control of reinforcement in children. Each yes answer indicates an externally-controlled response. The test was read to the subjects as they followed and marked responses on their own copies.

The study materials used were from the Developmental Reading Program, Fundamental Stage, Advanced (DRPA). This is a set of materials developed by the Los Angeles Board of Education Reading Task Force which breaks down reading skills into specific, measurable behaviors in the form of practice exercises. The DRPA includes steps nineteen through thirty. It is recommended for the learner who has not attained literacy and is nine years of age or older. Each step has its own pretest and posttest. Study materials for each step are contained in a separate booklet. There are between nine and twelve objectives included in each step booklet. The learner completes the work on the
whole stop before taking the posttest to demonstrate mastery. If he is successful, he then takes the pretest for the next step.

**Classroom Procedures**

In the control class the teacher administered all testing and assigned work. After pretesting, each student's errors were recorded on forms which indicated which objectives the student needed to study. The students had their own record folders and were taught how to find the appropriate pages in the step booklets which corresponded to the objectives missed on the test.

The teacher corrected all practice work with explanations where indicated and returned papers to students to have errors corrected. When the exercises were completed to the teacher's satisfaction, the fact was recorded. When the exercises for all objectives missed by the student on that step of the program were completed, the teacher gave the student the posttest for that step. If the student was successful in passing the test, all objectives he had undertaken on that step were recorded as completed. He was then permitted to take the pretest for the next step.

If the posttest was not passed, that fact was recorded and the student was directed to redo the pages for the missed objectives. The teacher also discussed the
problem area with him to be sure he benefited from the second attempt. He was not allowed to take the posttest again until the teacher decided he was sufficiently prepared.

The positive factors stressed in presenting these materials in the control class were that each student only had to do the work he really needed. He could go at his own pace and would not be forced to study things he already knew. He could advance through the steps as rapidly as he was willing to work. All papers were returned within one day, often on the same day they were done. Reinforcement was given by comments on the papers or by a word or two when they were returned.

In the experimental class the materials were presented as very special. Not only could students advance at their own rate, doing only exercises they needed, but also they were in control of all decisions connected with the work. They decided when they were ready to take posttests. They had access to the answer keys for correcting their own work.

As in the control group, the teacher administered the first pretest. He then gave out the record cards indicating which objectives each student had missed on his step. Students were shown how to locate pages pertaining to each objective. Then they were shown how to check out the answer key when they were ready. When they felt they had mastered all objectives at their step, they asked for the
posttest. If they passed the test, the number of objectives attempted was recorded as achieved. If they failed, they returned to restudy as they saw fit. They were advised to ask for help if any lesson was unclear as a second failure would bring the teacher into the procedure. At the point of a second failure the materials were examined together and decisions reached jointly as to how the student could best master the task, with the teacher assuming a more directive role. The tendency of a few students to misuse the answer keys was ignored. If such a student failed the posttest, the suggestion was made that using practice exercises as a means of self-testing would avoid such problems in the future.
Chapter 4

PRESENTATION AND ANALYSIS OF THE DATA

This chapter presents the data collected in the study and analyzes the results. The t test of significance was used to compare the means in all three hypotheses tested, because of the small size of the sample.

Findings Regarding Relationship of Feedback Technique to Achievement

Hypothesis 1 stated that there would be no significant difference between the number of objectives achieved by students who corrected their own practice exercises (S1) and students whose exercises were corrected by the teacher (S2). The statistical data in Table 1 show the results of the t test on the means of the two samples.

Table 1
Comparison of Objectives Achieved by Experimental and Control Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Var.</th>
<th>SD</th>
<th>SE</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>19</td>
<td>4.0</td>
<td>23.44</td>
<td>4.84</td>
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<td></td>
<td>0.15</td>
</tr>
<tr>
<td>S₂</td>
<td>19</td>
<td>3.8</td>
<td>10.47</td>
<td>3.24</td>
<td></td>
<td></td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Table 1 indicates no significant difference between objectives achieved by students in the experimental
group and students in the control group. Therefore, the first null hypothesis cannot be rejected. This did not suggest that varying feedback method by permitting students to correct their own practice exercises affected learner performance.

Findings Regarding Performance of Externals

The second null hypothesis stated that there would be no significant difference between externals in either the student-correction situation (Ex₁) or in the teacher-correction situation (Ex₂). Seven students in the experimental group qualified as externals by scoring above the combined mean of both groups on the Nowicki-Strickland Scale. Therefore, seven of the eleven externals in the control group were selected to form balanced groups. The students chosen were those whose scores most closely approximated the scores of the experimental externals on the Nowicki-Strickland Scale. The means of the two groups were compared using the t test of significance. The results of the test are shown in Table 2.

Table 2
Comparison of Achievement of Externals in Experimental and Control Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Var.</th>
<th>SD</th>
<th>SE</th>
<th>df</th>
<th>t</th>
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<tbody>
<tr>
<td>Ex₁</td>
<td>7</td>
<td>4.3</td>
<td>18.90</td>
<td>4.35</td>
<td></td>
<td>1.79</td>
<td>12</td>
</tr>
<tr>
<td>Ex₂</td>
<td>7</td>
<td>5.3</td>
<td>3.57</td>
<td>1.89</td>
<td></td>
<td></td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Although the raw scores varied in the expected direction, the t test showed no significant difference in the means.

**Findings Regarding Performance of Internals**

The third null hypothesis stated that there would be no significant difference between internals in either the student-correction situation ($I_1$) or in the teacher-correction situation ($I_2$). Eight individuals in the control group and twelve in the experimental group were classified as internals. Two groups of eight, balanced for internality, were chosen for comparison. The t test was used to determine the significance of the difference of the means of the two groups.

**Table 3**

Comparison of Achievement of Internals in Experimental and Control Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Var.</th>
<th>SD</th>
<th>SE</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_1$</td>
<td>8</td>
<td>6.1</td>
<td>35.14</td>
<td>5.93</td>
<td></td>
<td>2.7</td>
<td>14</td>
</tr>
<tr>
<td>$I_2$</td>
<td>8</td>
<td>4.1</td>
<td>15.81</td>
<td>3.98</td>
<td></td>
<td></td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Raw scores varied in the expected direction but were not shown to be significantly different by the t test.
Discussion of Findings

The study indicated no effective difference in student performance related to variation of the feedback technique used during study sessions. Gains made by students in both groups were very similar. The self-directive routines used by students in the experimental group were not shown to be superior to traditional teacher direction as was hypothesized. However, such results do suggest that loss of motivation furnished by teacher feedback can be compensated for by other feedback approaches. The success of alternate feedback techniques does not appear to be significantly affected by the learner characteristic of internal/external locus of control of motivation.
Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Two methods of providing reinforcement were examined for their effect on student achievement. These methods were also related to specific subgroups of students found to differ in degree of internal versus external locus of control of motivation.

Differing learning situations were established. In the control class the teacher retained responsibility for providing motivation through correcting and closely following student's daily work, giving encouragement, administering tests, and controlling all class routines. In the experimental class students corrected their own work and were assumed to obtain motivation through rapid knowledge of results and the satisfaction of controlling their own routines, pace, and test taking.

Nineteen individuals in each class were selected for inclusion in the respective samples on the basis of their balance for scholastic aptitude, reading level, and socioeconomic status. Each group was then divided into internals and externals based on their scores on the Nowicki-Strickland Scale. Matching for degree of externality provided subgroups of seven internals in each class,
and eight externals in each class. These groups could be compared for achievement in the differing learning situations. Achievement was measured by number of objectives mastered on the DRPA criterion-referenced test in a fifteen week period. The t test was applied to determine the significance of the difference in the mean achievement of the groups studied.

It was hypothesized that students would complete more objectives when motivated by the opportunity for self-direction. This was not verified by the data collected. Feedback technique had little effect on student performance in general.

In considering the factor of student personality characteristic interaction with teaching style, it was hypothesized that externals in the control group would outperform externals in the experimental group, while internals would achieve best in the experimental class. The means of these groups did indicate some difference in the expected direction, but not of significant degree. This measurement involved a very small sample.

**Conclusions**

It is unwarranted to draw firm conclusions from the results of this study because of several problems which became apparent while it was in progress. What can be said is that lack of teacher's personal attention to practice exercises did not lower the performance of the students.
It would appear that this activity is not an essential part of the teacher's role in the learning of reading skills materials.

Difficulties with the study arose in three areas. The organization of the materials created unforeseen mechanical and psychological problems. In addition, shortening the length of the experiment affected the outcome seriously. Finally, the results of the Nowicki-Strickland Scale led the writer to question the validity of the instrument for this population.

Problems Relating to Materials

Four students in the control group and seven students in the experimental group showed no objectives mastered in the analysis of the data. There is a possibility that this does not reflect a completely accurate picture of their achievement. Each had done the exercises for some objectives and may have mastered some. One cause of this result lies in the arrangement of the materials. Each step and its tests covered ten to twelve objectives. The student who made errors on many objectives in his pretest was forced to complete the study materials for all objectives missed before he could take the posttest to demonstrate his understanding of any of them. This had a discouraging effect on the slower learner. It also prevented his mastery of some objectives from being counted because he was unable to prepare for testing on all in time. The student who
failed fewer objectives on his pretest could prepare for posttesting sooner and with fewer new items to remember. He was also stimulated by his sense of rapid progress through the steps. Learning ten objectives in one step appeared to be a qualitatively different experience than learning one objective in each of ten steps.

Problems Related to the Time Factor

The duration of this experiment was unexpectedly shortened by transfer of students between classes. Although the study had run fifteen weeks, this early termination affected the results in two significant ways.

First, as noted above, eleven students failed to show completion of any objectives as they were unable to complete the amount of work necessary to take their first posttest. The number of items which they may have actually mastered was impossible to include in the data.

Second, the student self-direction necessary to make the experimental group successful is a quality which is only gradually developed in the learner who is accustomed to the traditional organization of the classroom. The transfer-of-control model of learning (Forward, 1973) involves a difficult and lengthy process. Most students failed at least some objectives in their first posttest. Observation suggested that it was only as the idea of their control and responsibility slowly evolved in their minds that they began to approach their work seriously as self-
teaching. These failures taught some to use the teacher as a resource and to consider their readiness seriously before demanding a retest.

Others, unwilling to accept the responsibility, wished to try repeatedly to pass without adequate preparation. It is possible that these students required more time for the process of learning to take place. Many were conditioned to expect the teacher's role to be that of director and judge. The response to this role among many remedial students has often been to resist and to evade. They appeared to find the task of self-judgment difficult and unpleasant. Time for many more opportunities to experiment with the new role would be necessary to fully test its effectiveness with these students.

Problems Related to the Nowicki-Strickland Scale

Wide diversity observed in attitude among individuals designated as internals or externals by the N-S Scale led to questions about these categories.

The unity of the trait of externality has been questioned by Levenson (1973). The N-S Scale combines in the category of externals, people who consider their lives directed by chance, with those who believe events are determined by powerful others. These two views would lead to radically differing behavior, as one type sees the world as chaotic and the other as orderly. A young student could be relatively realistic in his assessment of his life as
directed by powerful others. He might still be highly motivated to succeed as he could expect reinforcement for correct acts. In the present sample notably self-directive foreign students ranked high on the scale as externals leading to the suggestion of cultural bias in the test.

The group designated as internals was less subject to question. It included both conscientious students and individuals highly rejecting of the school's values. Both traits are congruent with the notion of providing one's own motivation.

Recommendations

This study suggests that teachers can safely leave grading of routine study assignments in the hands of students if followed by testing. Use of this technique could free the teacher for work on higher level thinking skills. It seems clear that students need much more experience with taking responsibility for their own learning. Using this procedure could be a first step in transferring control from teacher to student. Further study with individual tasks of uniform length would help to clarify the question.
REFERENCES


Nowicki, S. Predicting academic achievement of females from a locus of control orientation; Some problems and some solutions. Paper presented at the American Psychological Association Convention, Montreal, Canada, Aug., 1973.


APPENDIXES
Appendix A

NOWICKI-STRICKLAND LOCUS OF CONTROL SCALE*

Item

(Y) 1. Do you believe that most problems will solve themselves if you just don't fool with them?
(N) 2. Do you believe that you can stop yourself from catching a cold?
(Y) 3. Are some kids just born lucky?
(N) 4. Most of the time do you feel that getting good grades means a great deal to you?
(Y) 5. Are you often blamed for things that just aren't your fault?
(N) 6. Do you believe that if somebody studies hard enough he or she can pass any subject?
(Y) 7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?
(Y) 8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?
(N) 9. Do you feel that most of the time parents listen to what their children have to say?
(Y) 10. Do you believe that wishing can make good things happen?
(Y) 11. When you get punished does it usually seem its for no good reason at all?
(Y) 12. Most of the time do you find it hard to change a friend's (mind) opinion?
(N) 13. Do you think that cheering more than luck helps a team to win?
(Y) 14. Do you feel that it's nearly impossible to change your parent's mind about anything?
(N) 15. Do you believe that your parents should allow you to make most of your own decisions?
(Y) 16. Do you feel that when you do something wrong there's very little you can do to make it right?
(Y) 17. Do you believe that most kids are just born good at sports?
(Y) 18. Are most of the other kids your age stronger than you are?
(Y) 19. Do you feel that one of the best ways to handle most problems is just not to think about them?
(N) 20. Do you feel that you have a lot of choice in deciding who your friends are?

*[S. Nowicki, Jr., & B. R. A. Strickland, A locus of control scale for children.]*
21. If you find a four leaf clover do you believe that it might bring you good luck?

22. Do you often feel that whether you do your homework has much to do with what kind of grades you get?

23. Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her?

24. Have you ever had a good luck charm?

25. Do you believe that whether or not people like you depends on how you act?

26. Will your parents usually help you if you ask them to?

27. Have you felt that when people were mean to you, it was usually for no reason at all?

28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today?

29. Do you believe that when bad things are going to happen, they just are going to happen no matter what you try to do to stop them?

30. Do you think that kids can get their own way if they just keep trying?

31. Most of the time do you find it useless to try to get your own way at home?

32. Do you feel that when good things happen they happen because of hard work?

33. Do you feel that when somebody your age wants to be your enemy, there's little you can do to change matters?

34. Do you feel that it's easy to get friends to do what you want them to?

35. Do you usually feel that you have little to say about what you get to eat at home?

36. Do you feel that when someone doesn't like you there's little you can do about it?

37. Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?

38. Are you the kind of person who believes that planning ahead makes things turn out better?

39. Most of the time, do you feel that you have little to say about what your family decides to do?

40. Do you think it's better to be smart than to be lucky?
Appendix B

TERMINAL OBJECTIVES FOR FUNDAMENTAL STAGE:
ADVANCED*

ALPHABETIC MASTERY LEVEL

The learner will be able to:
- Select graphemic representation of CVC words
- Identify CVC label word for key picture
- Identify relevant sight words
- Select singular or plural "s" form CVC noun for picture
- Read sentence using decodable and sight word vocabulary
- Select sentence to correspond with main idea of picture
- Select picture opposite in concept to key
- Select picture preceding or following stated story or event
- Answer question related to cause or effect

REGULAR SPELLING PATTERNS

The learner will be able to:
- Select graphemes for phonemes in words of regular spelling patterns
- Select appropriate form for plural possessives
- Identify given sight words
- Identify compound words
- Select correct syllabicated form for two-syllable words
- Select synonym or antonym for key word
- Select phrase answering detail question
- Select sentence as possible conclusion for paragraph
- Identify letter omitted from alphabetic sequence
- Select appropriate punctuation mark for sentences
- Select word answering question related to comparison or contrast of paragraph content
- Sequence story events

VARIANT SPELLING PATTERNS

The learner will be able to:
- Select grapheme for phoneme in words of variant spelling patterns
- Select appropriate contracted forms of word
- Select the root word spelling pattern of a word containing affixial forms
- Select words to complete sentence in context
- Select appropriate meaning of decodable word in sentence
- Select appropriate meaning of homonym
- Select phrases or clauses in paragraph showing possible cause of stated effects
- Select possible emotional reaction
- Select sentence that is invalid in paragraph content

**PHONIC GENERALIZATIONS**

The learner will be able to:
- Select word from word set that appears first in the dictionary (third letter)
- Select the word syllabicated appropriately
- Select the appropriate plural form for the given noun
- Select sentence relating to paragraph detail
- Select from paragraph phrases or clauses which can be classified under major categories
- Select possible conclusion to a story paragraph
- Select sentences stating possible inference of a paragraph
- Select the abbreviation for the given word
- Select appropriate meaning of figurative phrase
- Select appropriate meaning of figurative phrase
- Match book title to appropriate library card catalog drawer

*[Los Angeles Unified School District Reading Task Force, Terminal objectives for the developmental reading program]*.