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ABSTRACT

This document presents descriptions of 11 experimental, descriptive, and naturalistic research designs created by classroom teachers about questions that they had and that they investigated within the context of teaching dynamics unique to their classrooms. An action research approach was utilized, emphasizing immediate application of a method and not development of more theory. An introductory chapter explains characteristics of educational research and suggests how it may be connected to school improvement and change. The research projects are then presented. Experimental designs focus on teaching vocabulary, computer programming, water color painting, life science, writing, and social studies. Descriptive research studies focus on placement recommendations, reading class, and writing. A naturalistic research design deals with secondary level science classes. For each research project, information generally includes a statement of the question to be researched, description of the sample or population, specific procedural steps followed, description of data collected, conclusions, and a statement of how the research helped the teacher and the students. (Contains 10 references.) (JDD)

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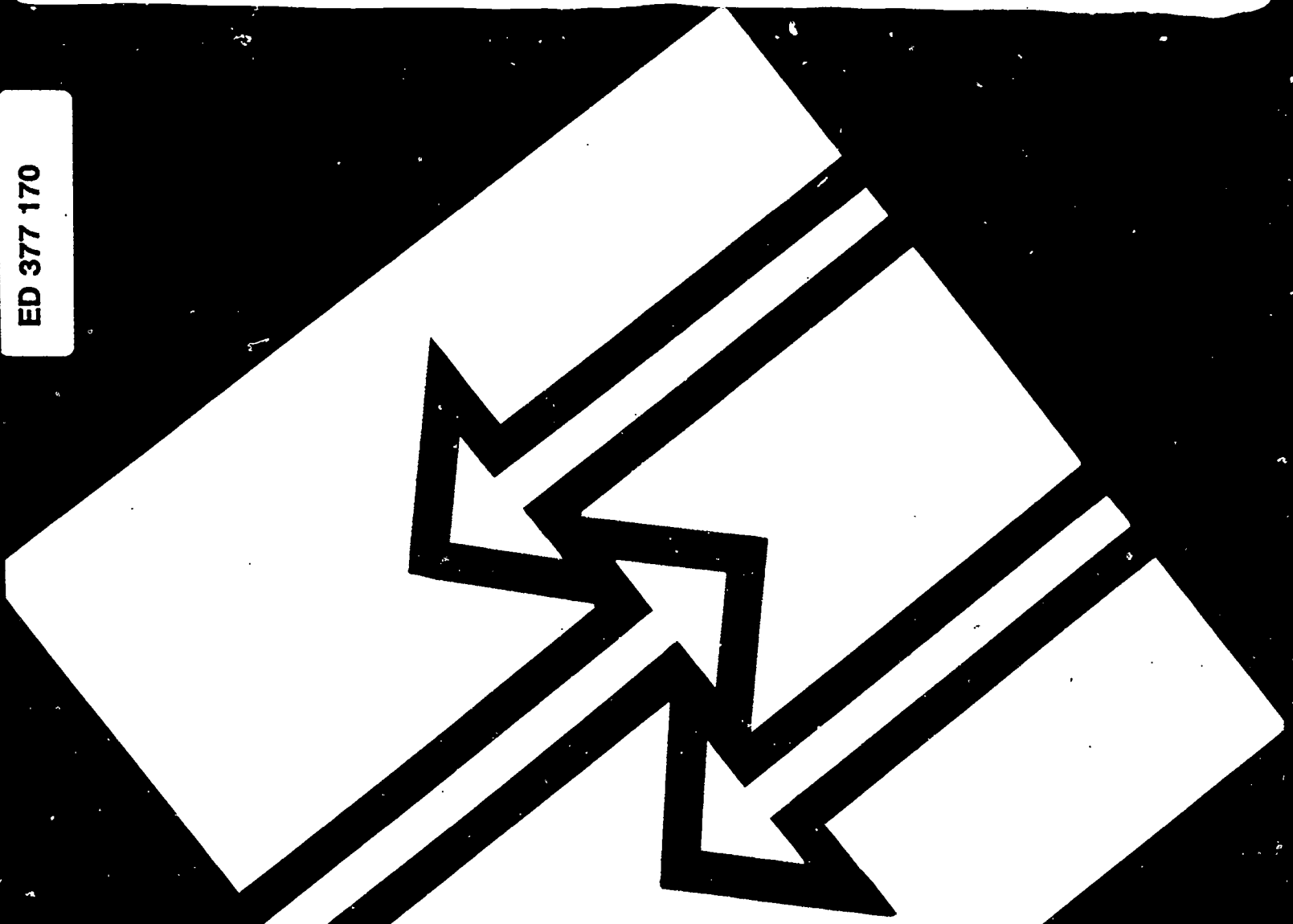

classroom research

by classroom teachers

volume one

dr. michael tanner, editor

center for excellence in education
northern arizona university

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Preface

Effective teaching and introspection occur together, but not by chance. The effective teacher thinks about what he or she does and observes. Action research encourages teachers to add rigor to their observations as they teach. The teachers in this volume created research designs about a question they had and investigated teaching dynamics unique to their classrooms. I think you will find their enthusiasm refreshing and their results interesting. Most of all, Dr. Danzig and I hope you will be inspired to conduct your own research on questions you have.

Why should you read Classroom Research By Classroom Teachers? Because teachers aren't usually considered as producers of research. Many think teachers don't use the formal research literature available now! This volume contains demonstrations that teachers can apply scientific method to classroom problems and enjoy the process. Action research emphasizes immediate application of a method, or idea, and not development of more theory. Its purpose is to improve school practice and, at the same time, to improve the practitioners. Unlike collections of formal research, this volume mirrors a collegiality among teachers who are initiating, conducting and disseminating ideas from the inside. These teachers are growing professionally by improving their methodology.

Please note that the professional address of each researcher is printed across the top of each study. I encourage you to contact anyone whose study is of interest to you and exchange detailed results and teaching materials used in the study. The eight studies follow suggested steps for conducting classroom research and reflecting upon the results. These steps are an aid to you as readers and provide a model to guide you if you want to embark on your own investigation. Although action research is purposely approachable and nonintimidating in design, it is not undertaken lightly. Sincere effort and large amounts of thinking time lie behind each step. Engaging in this reflection about classroom dynamics appears to be the addicting factor to the researchers. It produces insight and enthusiasm. It usually changes the researcher as an educator. Are you prepared for that? We hope so.

This volume also acts as an invitation. Action research is effective when a group examines questions as well as when individuals do. Volume II will have a theme of "teaching reading comprehension." It is hoped you will develop personal questions about teaching and requiring this cognitive process in your class and design a study around a hypothesis you have. Send your results to me by May 1st, 1986 and I will consider your study for publication in the next volume. If you desire encouragement and guidance during the designing and implementing stages, send me a proposal to react to before you begin.

According to John Goodlad in The Dynamics of Educational Change (p. 152), "Ultimately, educational research must serve to improve educational practice. It is useful and valid when it derives conclusions about the nature of aspects of the educational enterprize or when it aids the decision-making process." I am confident you will see, as you read Classroom Research By Classroom Teachers, that each researcher accomplished useful and valid personal outcomes. We invite you to join us in the gratifying process of classroom research.

Dr. Michael L. Tanner
Center for Excellence in Education
Box 5774
Northern Arizona University
Flagstaff, Arizona 86011
(602) 523-2641

Introduction

"All great discoveries are products as much of doubt as of certainty, and the two in opposition clear the air for marvelous accidents."
From Winter's Tale by Mark Helprin

The Potential for Practitioner Produced Educational Research

The need for new models of educational research is at hand. Since Campbell and Stanley (1963), a generation of educational researchers have attempted to apply scientific models of knowing to the understanding of schools. Unfortunately, educational research in general, has not significantly changed school practice.

The purpose of this introductory chapter is to explain some of the characteristics of educational research and to suggest which parts may be connected to school improvement and change. Secondarily, it is to stake out a new territory in which educational practitioners can be contributors to educational research. Teachers, administrators, and special services personnel already make important contributions, for they deliver the essential services. However, the insights and innovations that practitioners work with on a daily basis do not often reach the research literature. Perhaps, if these insights can be tapped, the impact of research will be enhanced. In a sense, Dr. Tanner's monograph is the tap into this well and provides a method of sharing information.

Models of Educational Research

Educational research has relied on methodologies and approaches derived largely from other disciplines. Educational psychology, employing quantitative methods, stands out in this regard. Research is based on the scientific method. The adequacy of the design is classified on the basis of the researcher's ability to control for threats to interpretation. True-experimental designs always have randomization and a control group. Quasi-experiments make allowances based on the nature of the field setting in which the research takes place.

Experimental studies involve the gathering of evidence so as to permit the researcher to make inferences about the causal nature of a hypothesis. The hypothesis takes the general form of "X's who get Y do better on Z than those X's who get a different Y (or not Y at all)." Some examples of experimental studies might be:

-- Children (X) who watch violent television shows (Y_1) will have more aggressive behavior (Z) than children (X) who do not watch violent television shows (Y_2).

-- Students (X) given training in skimming and scanning (Y_1) will have better recall (Z) than students (X) given no training (Y_2).

The researcher's ability to rule out rival explanations will determine the merit of the study. For example, in the first study the researcher would need to rule out the hypothesis that more aggressive children watch violent television shows to begin with. A pretest measure of aggressiveness might do the trick. The care with which variables are defined, treatment conditions controlled, population sampled, and many other issues, will determine the extent of interpretability of results. All experimental studies take this general form.

A second category of educational research, dating back to the ancient Egyptians' assessment of the country's population and wealth, is the **descriptive study.** Rather than manipulating some treatment or condition, the descriptive study attempts to describe certain characteristics and associations within a particular group or population. These studies are concerned with the assessment of attitudes, opinions, demographics, conditions, or procedures. The major, though not exclusive, methodology of descriptive research has been the survey and interview. Examples of descriptive studies might include:

-- A survey of high school principals' attitudes towards and practices concerning administrative evaluation.

-- A ten year follow-up which compares high school graduates and high school dropouts.

Design issues are as important in descriptive studies as they are for experimental ones. Issues concerning formulation of objectives, appropriate data collection procedures, sample selection, instrument validation, all help determine the quality of research and usefulness of findings.

A third model for research, and one that has been gaining popularity in the past ten years, is the **naturalistic approach.** Terms such as qualitative design, ethnography, case study and fieldwork fit this general category. Ethnographic research best answers the question "What's going on here?" The data tend to be generated by a researcher called a "participant-observer" who, through field notes, attempts to understand the research setting. Unlike previously discussed models of research in which research questions/hypotheses are planned before the study begins, ethnographic research continually formulates hypotheses and questions to be tested as an ongoing part of the research. Examples of naturalistic studies might be:

-- A study of the culture of school and the problem of change.

-- A study of cross-ethnic friendship patterns in classrooms, at lunch, and on the playground of a newly organized magnet or desegreated school.

The vocabulary of qualitative research design is no less sophisticated or technical than that of other research models. Terms such as "thick description," grounded theory, participant observation, key informant and triangulation have specific meaning to the researcher. The quality of the study is realized in how well the researcher has captured the observed "reality" and portrayed underlying patterns accurately. Rather than viewing reality as one dimensionable in which we can understand the whole by looking at one part, the view is that reality is multidimensional, like an onion. To understand the whole is to understand each layer and its relationship to other layers.

The three methodologies are compared in chart form below:

Experimental	Descriptive	Naturalistic
Problem	Problem	Problem
Review of Literature	Review of Literature	Review of Literature
Hypothesis	Question	Entry into Field Site
Pretest	Population/Sample	Data Collection Strategies
Treatment	Instrumentation	Hypotheses Formulation
Posttest	Data Analysis	Data Analysis
Data Analysis	Conclusion	Interpretation
Conclusion		

The reader should note a number of things about this discussion of research methodologies. First, there is a lot of overlap among the three approaches described above. All start with a problem of some sort for which the researcher attempts to find some answer. All research tries to stand on the shoulders of research findings that have come before (review of literature). Where experimental research attempts to manipulate some variable, descriptive research attempts to describe some characteristic of a defined population. Naturalistic studies also describe, but tend to work on-site and generate questions and hypotheses along the way.

The second point is that what distinguishes each approach is not only method, but the subject of the study. To illustrate, experimental studies draw heavily on the work of psychology. The example concerning recall of students taught skimming and scanning is based on one of the central concerns of psychology--cognition. Descriptive research draws heavily on concerns taken from sociology. The ten year follow-up study example would probably focus in part on the sociologist's conception of status and community life. Similarly, the study of school culture and change example uses not only the methods of the anthropologist (participant-observation) but also relies on the anthropological construct of culture.

Third, every discipline seems to have five or six critical constructs that separate it from other fields of study. Psychology, sociology, and anthropology have the longest history of contributing to the study of education. More recently historians, philosophers, political scientists, and economists have looked more carefully at the schools. Each discipline brings its own perspective and a methodology.

Fourth, it is our belief that naturalistic methods may have the greatest potential for the practitioner. Its on-site approach, which draws heavily on participant observation, may allow practitioners to share their experiences in a more careful way.

What can be said about education? In recent years the problem has been that the most prestigious (and rigorous) educational research has been accomplished by those trained in other disciplines. The challenge will be for educators to develop a unique research perspective through which insights of educational practitioners can be brought out.

Education, as it is practiced in the United States, is an applied discipline. Practice, though informed by theory, is largely dominated by the daily demand of the school day. Somehow, the insights and experiences of educational practice must be brought to the surface and used as a basis for growth and change. This monograph is one attempt at providing a vehicle for practitioners to think more carefully about practice, and to share these insights with others. The hope is that a grass roots approach to education research will bring about innovation and change and provide vitality to the profession by rewarding the ideas and efforts of practitioners.

Advantages and Disadvantages of Practitioner Research

Little has been done to assist educators to develop ideas that come from their experiences as teachers and administrators within elementary and secondary education and to communicate those ideas to others. This monograph atempts to encourage action research as one aid. As with all research efforts, there are trade-offs that must be made in order to accomplish this goal. The disadvantages of practitioner research include:

-- Lack of objectivity
-- Lack of expertise in the methodology of research
-- Lack of time
-- Lack of other resources

These are not crippling limitations though, because with few exceptions all of these shortcomings can be applied to "professional" researchers, too. There are some advantages that practitioners have over those who are not already on site:

-- Practitioners are physically present at research site.
-- Researcher intrusiveness may be minimized.
-- Problem selection will be based on perceived needs of those on the job.
-- Jargon will be reduced.
-- Reflections and insights of a career in education inform the research questions.

The most important advantage of practitioner research is that it includes the perspective of those who are on site every single day. We take the view that "being there" is a distinct advantage when attempting research endeavors and the advantages outweigh the disadvantages.

Learning From Practice

Dr. Tanner's monograph attempts to search out and support the efforts of creative practitioners as they develop, test and communicate their ideas. His view is that practitioners need time to:

-- reflect upon and synthesize insights and data that come with experience;
-- use perspectives gained from practical experience to look at new problems and practices;
-- communicate the results of this reflection, analysis and synthesis to others.

The hope is that by supporting the research of educational practitioners a number of positive benefits will accrue to the profession. Such research may:

-- vitalize and recharge individuals working as teachers and administrators;
-- provide alternative career paths for teachers wishing to stay in the profession and not necessarily head to administration;
-- provide more clearly marked paths and better opportunities for movement between school and university;
-- provide impetus for practitioners to try new things;
-- provide greater value to the notion of practice;
-- allow for grass roots change and innovation;
-- provide part of the job definition of the "master teacher;"
-- provide an alternative to change forces being imposed from outside.

Action research will lead to practitioners being given a larger part of the decision making process. If educational change is to be successful, those who do the lion's share of the work must be included in the debate over what directions to take.

Dr. Arnold Danzig
Center for Excellence in Education
Box 5774
Northern Arizona University
Flagstaff, AZ 86011

Acknowledgements

This volume was nurtured by a mini-grant from the Division of Research of Northern Arizona University's Center for Excellence in Education. I thank Dr. Philip R. Rulon, the Director, for his understanding and support of classroom research. His attitude and concern expedited this project from inception to publication.

My friend and colleague, Dr. Arnie Danzig, volunteered to write the introduction for this volume with only minimal coercion. For this effort I am forever grateful and I appreciate his concise explanation of the three research models guiding educational research efforts.

A colleague, Dr. Peggy Ver Velde, also supported the action research model and offered constant supportive comments. Several studies in this volume were instigated through her classroom contact with teachers.

Mr. Sam Levy made a creative contribution by designing the appealing cover for this volume. I produced a crude pencil sketch and he fashioned the very professional cover with his unique and hard earned expertise.

A special thank you is sent to Dr. Phyllis Brazee at the University of Maine. She introduced me to action research many years ago and provided an important model of enthusiasm and procedure for me to build upon.

Thank you Gayle Tyler for your word processing and willingness to help complete this project. Offering to change your vacation date to aid me was beyond the call of duty though!

Producing this volume with the help I have described above leaves a wonderful professional legacy for me. I eagerly look forward to continued association with these professionals.

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An Experimental Study at the Secondary Level by:

B. Randolf Martin
Fourth Avenue J.H.S.
450 S. Fourth Avenue
Yuma, AZ 85364

1. The Question

It has been demonstrated that students learn more and retain that learning longer when the content is meaningful and useful to them. My problem was finding a way to make general vocabulary instruction more meaningful to my students. Previously, I had inflicted on my students the method that had been imposed on me: get a list of words, which might or might not be related in some way, have my students look them up in the dictionary and write the definitions. At the end of the week they would take a matching test to demonstrate that they had (or had not) learned the definitions of the words.

I knew this might be a crude method, but I justified it by saying to myself that Miss Lee, the English teacher from whom I had learned this technique, could not possibly have done anything so inelegant that it might be described as crude. (I confess that my judgement might be clouded. Miss Lee was stunningly beautiful, and she liked me; the weight of my massive crush left me nearly breathless each time I entered her room. The years have not dimmed my memory's vision of her beauty.) How can I present vocabulary so that it is both meaningful and less than deadly dull?

2. Procedure

While I was looking for something else, I stumbled onto something called a modified cloze procedure. This procedure involvs leaving spaces in written passages, and having students fill in the blanks with the correct words from a list below the passage. Cloze procedures can be created with enough context clues to figure out the missing word. I have included an example following this report.

Since stealing good ideas and modifying them for my own use is my methodological specialty, I came up with the idea of writing short passages of descriptive prose around my lists of general vocabulary words. These words would be selected from a class brainstorming session on a given subject (business, school, judicial system, etc.). I sometimes had to lead the discussion and do some creative suggestion when my students failed to include words I already had put on my worksheet.

I reasoned that my students could read through the passage, fill in the blanks with the correct word, and would, as a result of this exercise, learn the meaning of the word. They would not learn it in isolation, as from a dictionary definition, but in the context where the word would normally be found. Further, I reasoned that it might be that students would learn vocabulary by this method better than by the traditional one, and might retain that learning longer.

A. More concisely stated, my research project examined whether students who have been taught vocabulary using a modified cloze procedure would comprehend and retain vocabulary better than students who use the traditional method of learning general vocabulary.

B. My sample consisted of my two eighth grade Language Arts classes at Fourth Avenue J.H.S. in Yuma. Classes are grouped by ability as measured by achievement

test scores in reading. I have two classes of students who work at or near grade level. The range of scores in the control group was from grade level 5.6 to 10.5, with the average being 7.45. The range in the experimental group was 5.4 to 10.6, with the average grade level being 7.61. Their ages ranged from 13-15 in both classes. The control group had 25 students (12 boys and 13 girls). The experimental group had 27 students (14 boys and 13 girls).

C. Here is a description of the procedural steps I followed. I didn't tell either group what I was doing until after the testing was complete, then I shared the results with them.

Control Group	Experimental Group
1. On Monday, give pretest on words. (The same matching test was used all three times.)	1. On Monday, give pretest on words. (The same matching test was used all three times.)
2. Check test.	2. Check test.
3. Students follow traditional method, i.e., look up words in a dictionary and copy definition.	3. Students complete a modified cloze passage (both groups had received instruction and practice with cloze procedures). These students checked their answers, then looked up and wrote the definitions of the words they had missed.
4. On Friday, students take another version of the matching test. (The words are rearranged.)	4. On Friday, students take another version of the matching test. (The words are rearranged).
5. After two weeks, repeat test to measure retention rate.	5. After two weeks, repeat test to measure retention rate.
6. Repeat this process with two more word groups to get a more valid picture of what the results are.	6. Repeat this process with two more word groups to get a more valid picture of what the results are.

3. Data

Now the exciting part for all you number crunchers out there. Description of the data collected:

FIRST Group of Words
% ANSWERED CORRECTLY

	Pre	Post	2nd Post
Control	59%	79%	69%
Experimental	67%	87%	78%

SECOND Group of Words
% ANSWERED CORRECTLY

	Pre	Post	2nd Post
Control	44%	74%	62%
Experimental	55%	82%	74%

THIRD Group of Words
% ANSWERED CORRECTLY

	Pre	Post	2nd Post
Control	58%	88%	72%
Experimental	55%	83%	78%

AVERAGE OF THREE GROUPS
% ANSWERED CORRECTLY

	Pre	Post	2nd Post
Control	54%	79%	66%
Experimental	59%	85%	77%

4. Conclusions

I believe that the most clearly demonstrated finding is that there appears to be a slight positive difference between the control and experimental group in the results of the first posttest. The experimental group has a larger percent. That would lead me to conclude that the modified cloze procedure is slightly more effective than the traditional method for teaching general vocabulary.

The second conclusion I would draw from these data is that the modified cloze procedure may help students retain their vocabulary longer. The difference between the average pretests for the two groups is five percentage points, while the difference between the average second posttest is eleven percentage points.

Even if I am not able to demonstrate that the experimental procedure is more effective than the traditional method, I believe that I will use it to teach vocabulary when it is possible for me to do so. The comments from the experimental group were unanimously positive. They loudly expressed their displeasure when I reverted to the traditional method. (I had no other cloze procedures prepared for them to do.) When the control group found out that the other group was doing what appeared to be less work, I received quite a few hostile questions along the line of "Why do we have to do more work? I'm going to write to my congressman!" (I told that kid that he would get extra credit if he did.)

5. Implications

All things considered, the experiment was successful. I expect to revamp my vocabulary teaching style--I hope to have a new set of lessons ready to go next fall.

Example

Unit 10 Modified Cloze Worksheet

Each of us is a . . . That simply means that each of us uses products and materials just to survive. We all need food, clothing, and shelter. In order to get these products, we usually have to . . . them, with money we have earned or have been given.

When we buy . . ., we often try to save money by buying at . . . stores, which offer goods at less than . . . prices. These stores sell their goods at a little above their . . . cost, so they can attract more customers.

An Experimental Study at the Secondary Level by:

Tony Meli
2580 N. Palo Verde
Lake Havasu City, AZ 86403

1. Statement of the Question to be Researched

Will students in a beginning Computer Programming class using "structured" programming techniques design and write better computer programs than those students who use the more traditional "experimental" approach?

2. Brief Description of Sample Used

Two Beginning Computer Programming classes were used in this research. Both classes have approximately the same grade, sex, and ability distribution. The fourth period class has 17 students, whereas the fifth period class has 18 students. I would be teaching both classes in order to minimize the possibility that final differences in the two groups might be attributed to teacher differences and not treatment differences.

3. Specific Procedural Steps Followed

The fourth period class served as the control group and the fifth period class as the experimental group. The research was carried out over a four-week period. Both groups received the same materials, were given the same assignments, and the same tests. At the end of the research period, both groups were given eight problems for which to write programs (see attached worksheet). These eight programs were evaluated for both groups in determining if any differences existed in the two groups. There was no pretest administered.

The only treatment difference between the two groups was that the experimental group was shown a structured approach that they would have to follow before they wrote up the final computer programs. This structure emphasized the design of the computer program by first writing a flowchart (a pictorial sequence of steps in a logical order) and then writing the program based on the flowchart.

The control group, on the other hand, was not required to submit flowcharts for their programs. This group wrote computer programs for given problems by relying on experimentation (trial and error). The emphasis for the control group was to try different methods of writing programs as long as the problem was solved. Flowcharts were not discussed as a possible code for which to write programs.

The desired result for both groups was to learn the BASIC computer language and to write computer programs in BASIC to solve given problems. The emphasis of the research was to determine if there were any measurable and observable differences between the computer programs written by the two groups.

4. Description of Data Collected

Upon completion of the IF-THEN and FOR-NEXT unit, both groups were given problems such as these:

A. Directions: Write and run a program that will do what is specified in each of the exercises. If the program has several possible outcomes, the DATA or INPUT must

produce each outcome at least once. Label the output with appropriate messages. The programs are to be saved on disk.

1. Write a program that will ask the user to guess a number in the computer's memory and will then tell the user whether his or her guess was high, low, or whether he or she guessed the number. Let the number that must be guessed be 53.

2. Write and run a program that can be used to do a class survey of the number of black-, brown-, blond-, and red-haired students in your class. Display as your output the number of students having each of the above hair colors.

To answer the research question, the written programs were analyzed in terms of the number of lines for each program, whether or not the output was given with an appropriate message, and whether the output was correct for all possible data values.

Posttest results:

Control group (17 students)

Problem	Average no. of lines	Labeled output for class	Correct output for class
		(number of students)	
1	10	17	16
2	15	15	15
3	18	12	13
4	8	10	16
5	20	16	13
6	10	9	17
7	20	7	14
8	17	10	12
Average	14.8	12.0 70.6%	14.5 85.3%

Experimental group (18 students)

Problem	Average no. of lines	Labeled output for class	Correct output for class
		(number of students)	
1	9	16	18
2	14	18	18
3	15	17	16
4	8	15	18
5	16	17	16
6	10	14	18
7	16	10	17
8	12	15	15
Average	12.5	15.3 86.1%	17.0 94.4%

5. Conclusions

In terms of the average number of lines per program, the experimental group showed an advantage over the control group. The fewer the number of lines in a program, the more organized the program. The other two areas also showed that the experimental group did better in terms of output representation and solution correctness. The data, overall, show that the experimental group has simpler and more correct computer programs. This indicates that the experimental group has better designed and written programs than the control group. Thus, it appears that modeling flowchart techniques, and also requiring students to draw flowcharts of programs before the programs are written leads to good program design and coding of programs to solve given problems.

6. Statement of How This Research Helped Me and My Students

This research helped me to better understand what "Action Research" is all about. I have come to realize that one need not have to perform hard statistical research in order to arrive at conclusions as to what does and does not work in a classroom.

Another important way that this research has helped me is in demonstrating how modeling (in this case of how to write flowcharts) can be used as a very effective learning technique, as opposed to telling or questioning.

My students have also gained from this experience by realizing that writing flowcharts is a very involved process, even for solving a simple program. The end result of learning the flowchart method is to produce programs that are easier to read, understand, modify, and apply.

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An Experimental Study at the Secondary Level by:

Lacey Fortune
Mohave High School
1414 Hancock Road
Riviera, AZ 86442
(602) 758-3916

1. Statement of Question to be Research

Will students have more creative, descriptive and technically correct watercolor paintings that depict a particular landscape after they have read a detailed description of a landscape by a watercolorist?

2. Description of the Sample Population

Two art classes of 11th and 12th grade students of comparable artistic backgrounds will be studied. Also, similar number/ratios of male and female are in each class.

A. Experimental group: First hour studio art class consists of 8 girls (5 are 12th grade, 3 are 11th grade), and 12 boys (7 are 12th grade, 5 are 11th grade). Six girls have had watercolor training, and seven boys have had watercolor training.

B. Control group: Fourth hour painting art class consists of 11 girls (8 are 11th grade, 3 are 12th grade), and 12 boys (8 are 11th gade and 4 are 12th grade). Eight girls have had watercolor training, and nine boys have had watercolor training.

3. Specific Procedural Steps Followed in the Watercolor Lesson

A. All students were assigned a 55 minute pretest. The pretest was a fence post landscape incorporating both the wet wash and drybrush techniques in watercoloring. Painting size was 10" x 12".

B. The experimental group was then given instructions on how to paint a wet wash sky and background. I also covered the drybrush technique of the foreground (objects that one wants to stand out). Each student was told that they would be painting their own interpretation of a mountain aspen landscape after reading Ed Jagman's descriptive and technical passage about a mountain aspen landscape painting he has done. The passage is from 40 Watercolorists and How They Work. The mountain landscape is described visually. Technique is covered step by step on how to achieve certain effects. The passage is easy to understand. Organization is sequential, written in a step-by-step format. Time allowed was 55 minutes and painting size was 10" x 12".

C. In the control group, I gave students instructions on how to paint a wet wash sky and background. I also covered the drybrush technique of the foreground. I described Ed Jagman's mountain aspen landscape and told students to paint their interpretation of a mountain aspen landscape. They weren't given a passage to read. The time allowed was 55 minutes and painting size was 10" x 12".

D. After both the experimental group and the control group finished their paintings, I classified them into three groups:

1. Excellent, creative, descriptive paintings
2. Good, somewhat creative, fairly descriptive paintings
3. Average paintings

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(Note: classifications range from excellent to average due to the fact that the class paintings were above average in artistic ability.) Excellent paintings would have most elements of art: good color, design, texture, good use of perspective, interesting composition, good line work. Good paintings would include some elements of art, some use of perspective, texture, good color, fair line work, fiarly good composition. Average paintings would have limited perspective, average composition, some texture, design, some interesting line qualities, and some color effects.

E. I compared students' improvement in their pretest and posttest results. I used the elements of art described above in D to compare students' pretest paintings to their posttest paintings. The pretest painting of a fence post landscape tested students on the same techniques used in the posttest painting--the wet wash and drybrush technique.

F. I compared the experimental group's (studio art) results with the control group's (painting) results. I compared studio art to the painting class in their use of the lements of art, design, color texture, perspective, composition and line quality. I also compared both classes in drybrush technique and wet wash techniques.

G. I analyzed comments made in both the studio (experimental group) and the painting (control group). See comments for results.

4. Description of Data Collected

Experimental Group

First Hour PRETEST PAINTINGS		First Hour POSTTEST PAINTINGS	
Excellent, creative, descriptive paintings	1 of 20	4 of 20	(+3)
Good, somewhat descriptive, creative paintings	7 of 20	10 of 20	(+3)
Average paintings	12 of 20	6 of 20	(-6)

Control Group

Fourth Hour PRETEST PAINTINGS		Fourth Hour POSTTEST PAINTINGS	
Excellent, creative, descriptive paintings	2 of 23	5 of 23	(+3)
Good, somewhat descriptive, creative paintings	8 of 23	15 of 23	(+7)
Average paintings	13 of 23	3 of 23	(-10)

In comparison to the painting class (control group), the studio (experimental group) had slightly better success. More students moved up from "average" to "good" in the experimental group.

A. Comments during the posttest painting first hour studio (experimental group)

1. "Could we see the painting we are reading about?"
2. "I need more than one class hour to complete this painting."
3. "How do you paint aspen trees, how about putting in some cactus?"
4. "This really looks like crap, I can't make trees. . .Fortune, would you help me?"

B. Comments from four hour (control group)

1. "This is worse than a test in U.S. History, we can't cheat."
2. "I messed up with the white snow in the mountains."
3. "What do aspen trees look like. . .Fortune, could you help me?"
4. "Should I put in a mountain stream?"
5. "Can't we have more than 55 minutes?"

5. Conclusions

My students' comments were amusing as well as informative. Some students felt they couldn't complete their "mountain aspen landscape" painting in 55 minutes. I feel the assignment could have been a little longer--possibly 10 or 15 minutes. My students' comments also showed me how much students rely on feedback from me. The only problem both classes had was the interpretation of an aspen tree. Many students had not seen an aspen tree, therefore they left it out. Most students had seen pinetrees, but some students had difficulty in representing a pinetree. I would not describe Ed Jagman's mountain aspen landscape to the control group to keep the treatment for the experimental group unique.

6. Statement of How This Research Helped Me and My Students

I believe students benefited from reading a descriptive passage about a landscape, it set a mood and helped their visualization. The passage was written in powerful, descriptive words that helped students visualize the scene. The experimental group included most colors described by Ed Jagman in his mountain aspen landscape; but they also added their own colors to the landscape. Even though both the experimental group and control group had about the same success, I will continue to give students a written passage to read before they complete an art project because of the results seen in my action research report. My students also took interest in seeing the variety that was produced by different students from the same descriptive passage.

An Experimental Study at the Secondary Level by:

Heidi Lewis
Kingman Junior High School
1969 Detroit
Kingman, Arizona 86401
(602) 753-3588

1. Statement of the Question Researched

Will seventh grade Life Science students increase participation and improve their test results if I use visual aids during my lectures?

2. Brief Description of Sample Used

Control Group: My seventh period Life Science class consists of twelve boys and twelve girls. These students also are either age thirteen or about to become thirteen years old. None of these students have had an extensive scientific background, although one of the girls has demonstrated a real aptitude for science.

Experimental Group: My fifth period Life Science class consists of twelve boys and thirteen girls. All of these students are either age thirteen or about to become thirteen years old. One female student attended a sixth grade junior high school last year and seems well prepared for science. The remaining twenty four students have had little or no substantial scientific background.

3. Specific Procedural Steps Followed

Control Group

A. Administer protozoan pretest
B. Lecture on amoeba day #1
C. Lecture on flagellates day #2
D. Lecture on ciliates day #3
E. Lecture on sporozoan day #4
F. Lab on day #5 using slides of protozoans, also pond water to view live protozoans under the microscope
G. Administer protozoan test

Experimental Group

A. Administer protozoan pretest
B. Graphic illustrations on the amoeba are used in conjunction with the lecture on the amoeba on day #1
C. Lecture with overhead illustration of flagellates are used on day #2
D. Lecture with overhead illustrations of ciliates are used on day #3
E. Lecture with overhead illustrations of sporozoans are used on day #4
F. Lab on day #5 using slides of protozoans, also pond water to view live protozoans under the microscope
G. Protozoan posttest

(Note the addition of illustrations in steps B-E)

4. Description of Data Collected

Statistics:

Control Group	Pretest	Posttest
Number of A's	0	3
Number of B's	0	6
Number of C's	1	10
Number of D's	5	4
Number of F's	18	7
Experimental Group		
Number of A's	0	7
Number of B's	0	8
Number of C's	0	7
Number of D's	2	2
Number of F's	23	1

5. Conclusion

A. Both groups learned what I set out to teach them; however, the experimental group did better than the control group on the protozoan posttest.

B. The use of the overhead projector appeared to capture the interest of the experimental group. It helped them to see the concepts visually while I talked and questioned them about the protozoans.

C. To conclude, I believe that the usé of the overhead projector did improve my students' results on their protozoan exam.

6. Teacher Comments

Students in my experimental group participated more frequently during my protozoan lecture than normal. They responded with an increased number of relevant questions, and they seemed more willing to do outside school projects with the protozoans (collecting pond water samples to view under the microscope). My control group responded also to my lectures and subsequent discussion, nevertheless, the experimental group's grades and interest level were significantly better. The students enjoyed this unit. They really expressed their needs and concerns more clearly on what they did not understand. My experimental group enjoyed the overhead presentation and benefited so much that I plan to use this media in all of my science classes.

An Experimental Study at the Secondary Level by:

Anna Biasiucci
1990 Rainbow Ave.
Lake Havasu City, AZ 86403

1. Statement of the Question to be Researched

   Would the complete elimination of English in teaching a foreign language at the high school level improve student attitudes towards a foreign language as well as improve their retention of the foreign language?

2. Brief Description of Sample Used

   Two beginning French I classes will be used. These two classes are comparable in number, sex distribution and ability to speak French. I teach both sections.

3. Specific Procedural Steps Followed

   A. I taught the same material to both classes.

   B. Five lessons in a specific unit were taught completely in French to the experimental group. I gave all directions in French using as many cognates as possible to facilitate comprehension. I used many visual aids in order to avoid the use of English in teaching nouns/vocabulary.

   C. The control group received all directions and explanations in English. When vocabulary was taught, the English equivalent was given first, and limited visual aids were used.

   D. After the completion of the unit (five weeks), I obtained my results by comparing the written test results (comprehension and mastery of grammatical structures and vocabulary), oral test results (oral mastery), and general attitude towards French, of the two groups.

4. Description of Data Collected

   A. The students in the control group felt at ease from the beginning of the five week period. They asked questions if they were confused about the material introduced. However, the students in the experimental group, especially during the first two weeks, were very rebellious to the change and class participation was very limited. In the first two weeks of the experiment, the majority of the students in the experimental group came in after school for exra help.

   B. After two weeks, the experimental group students felt better about participating in French. However, the students who had been having problems all year long still needed extra help with structure.

   C. After the completion of the unit, I analyzed all written and oral test scores obtained from the control group. The scores averaged from 58% to 100% in the written tests, and from 60% to 95% in the oral tests. This particular pattern was constant throughout the five weeks.

D. After the completion of the unit, the experimental group showed a positive change in the test scores. On the first two written tests given the scores averaged from 52% to 100%, and the oral tests averaged from 47% to 98% (a big change from their usual average prior to this experiment). However, on the third test given, the results showed improvement (which correlated with the change in attitude that occurred around the third week). The scores averaged (for the remainder of the three weeks) from 67% to 100% in written tests, and 71% to 99% in oral tests. I was truly pleased with the results.

5. Conclusions

It is very evident that the complete elimination of English in teaching a foreign language will improve student's retention (mastery) of the foreign language, as well as improve the student's attitudes towards the foreign language. However, I believe that it is crucial for the teacher to carefuly plan the administering of such a program, especially at the high school level. It is very important that such a program be implemented at the beginning of the school year, and especially being careful not to give in to student's oppositions.

6. How This Research Helped My Students

The elimination of English in my instruction has helped my students think more in the foreign language, and improved their ability to communicate in the foreign language. This method of instruction has also helped them to be more attentive in class, and to improve their attitude about learning a foreign language.

An Experimental Study at the Elementary Level by:

Sheri Thompson
Christensen School
4000 N. Cummings Dr.
Flagstaff, AZ 86001
(602) 779-6445

1. Purpose

The purpose of this study was to see if Affective Domain activities such as music, movement, and visualization through relaxation affect writing. Does pre-writing activity have an effect on writing?

2. Research Description

Research was done at Christensen Elementary School which was designed for open clasroom situations. This year Dave McKay, our principal, began an innovative creative writing program to challenge teachers to include writing weekly in their lessons and recognize an exceptional student's writing each week on the school bulletin board. The best writing was selected per grade level each month for Writer of the Month. Writing is considered an integral part of the learning process at Christensen.

The pre-writing activity consisted of a story script, "The Kids from Outer Space," from Psychophysical Frolic by Marilyn N. Fiedler which began with relaxation to set the scene. Sequencing, or story plan, was established through visualization. Music by Tomita was used to set the mood. Kinesthetic movement was used to help students feel their "space body" of multiple arms, legs, ears, and heads. Music, movement, and relaxation variables were manipulated to see what effect they had on writing.

Five classes participated in this study, four fifth grades and one fourth grade. The classes at Christensen are organized so that the majority of students are at grade level with a few students above grade level and a few below grade level. This is done so that the classroom population will resemble the bell shaped curve of normal distribution as much as possible. Placement is based on CAT scores and performance during the previous year. The writing programs were markedly different for each teacher.

3. Population and Procedure

A. Combined Reading Class

This class was a reading group composed of fourteen students above grade level, seven students at grade level, and seven students below grade level which was team taught. English and Reading were taught by myself. Writing was done each week. Pre-writing activities were done to stimulate writing while editing and grammar were emphasized. Writing was developed from one word notes to phrases, sentences, paragraphs, outlining, sequencing, introduction, body, conclusion, and stories. Daily journal writing was also done. Seven of the above grade level students were at Band when this writing sample was taken.

The procedure for the Combined Reading Class was as described above in the pre-writing activity, but no one word notes were asked for from students since they use these all the time. One word notes is a strategy by which students write down all the important words after listening to a description. This took about 35 minutes.

B. Developmental Style Class

Writing in this fifth grade class was done weekly through a developmental progression beginning with sentences to descriptions, classification, paragraphing, organizing ideas, sequencing, and stories. Peer editing was an important part of this writing program.

The Developmental Style Class included relaxation and movement. One word notes were used to write down thoughts immediately following pre-writing. There was no use of music or discussion. The entire activity took 30 minutes.

C. Structured Pre-writing Class

In this fourth grade class, writing was done weekly on Mondays. Students were given a variety of assignments ranging from specific topics to shaped poems. These assignments were due on Friday. Writing was done in class. Each assignment was graded on a specific area such as spelling, punctuation, sentence structure, organization, and capitals.

Discussion was included in the Structured Pre-writing Class along with all other descriptors mentioned before to bring out the opinion or feelings related to the Affective Domain. One word notes were also used. This took 30 minutes. Some students finished later.

D. Continuing Story Class

The writing in this fifth grade class was done once a week in the form of "Astro and Maggie" stories. Astro and Maggie are two Lab dogs, one of which is owned by the teacher. The class has a picture of them to which to refer. A word length is given for each assignment.

Relaxation, music, and movement were excluded from the Continuing Story Class. Only the story plan and one word notes were used.

E. Strategy English Class

This was my fifth grade English class. The procedure for teaching writing was the same as the Combined Reading Class. Specific strategies for dealing with grammar and pre-writing activities were given before writing was assigned.

The Strategy English Class was timed for 20 minutes and simply asked to write on any topic.

4. Post Data

Student's writing samples were analyzed using M-Units and grading the story on content and idea. An M-Unit is a rating given to a story according to its quality and structure. M-Units range from 2A, simple subject-predicate, to a 4B which is a complex story involving plot, author's opinioins, feelings, good beginning, middle, and end, with use of more comlex sentence structure. T-Units are simply the number of subject-predicate phrases counted in the story. The Mean T-Unit is the average length in words in the T-Unit.

Graphs were made for each class sample. Each figure shows all the data gathered. The Mean T-Unit is in black at the top. The number of T-Units are shown in checks and M-Units are illustrated by the bar graph.

5. Results

The Combined Reading Class showed a normal distribution of M-Units. There did not seem to be a significant relationship between length and number of T-Units and quality of writing, M-Unit.

The Developmental Class showed that the majority of stories were of a simple sentence structure and design. There didn't seem to be a connection between length of phrase development of the story and writing quality.

The results of the Structured Pre-writing Class were the most significant. The majority of the papers were in the higher range of complexity of story development. The length of the T-Unit correlated well with the development of the story.

The Continuing Story Class like the Developmental Class showed a majority of papers in the lower range of complexity. There did not seem to be a correlation between length and number of T-Units and M-Unit rank.

The Strategy English Class showed a large number of papers in the middle and lower M-Unit range. There also seem to be correlations between the T-Unit and the M-Unit.

6. Conclusions

A. The results seem to suuport the idea that pre-writing activities using all the senses and the Affective Domain produce the most meaningful and developed writing. I was surprised that the Strategy English class did as well as they did when just asked to write for 20 minutes.

B. The majority of their writings in the Structured Pre-writing Class did have a high correlation between length and complexity. This does not mean that a shorter story length cannot also have a complex story development.

C. The classes in which pre-writing was done seemed to produce more complex writing.

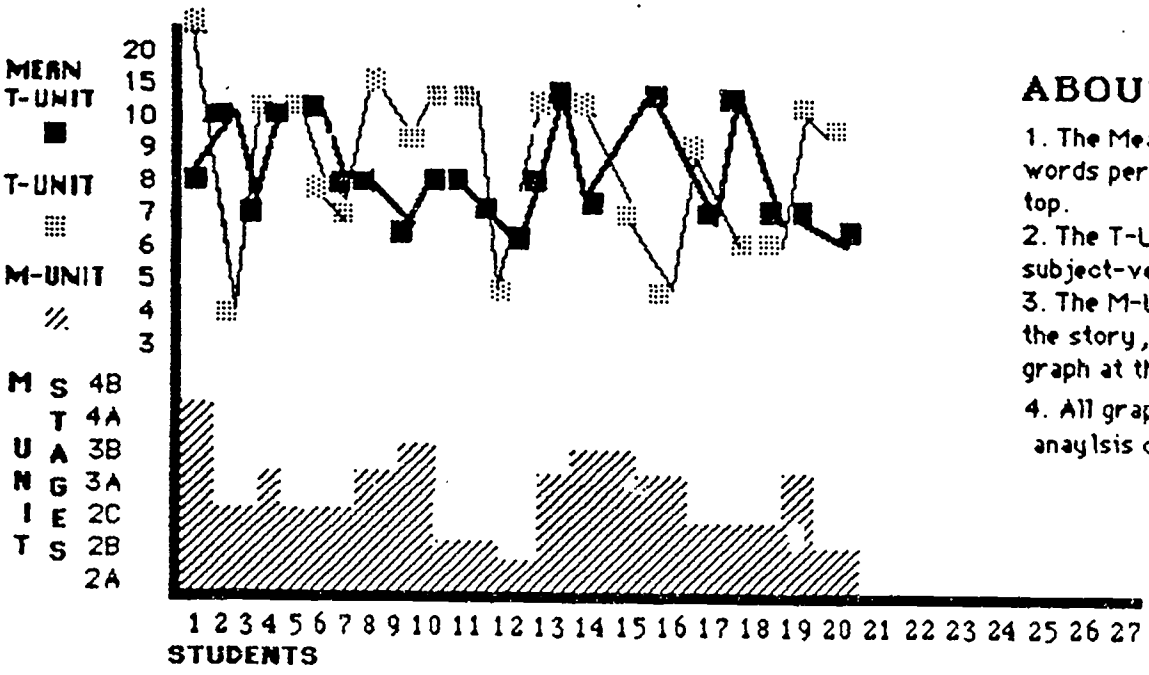
D. Providing a pre-writing activity for each creative writing assignment thoughout the year seemed to produce better writing.

E. A structured pre-writing activity including the Affective Domain seems to produce a larger quantity of better developed writing.

7. Personal

I will continue to use pre-writing activities utilizing the Affective Domain in a structured way. I would like to do more research in this area in schools where creative writing is not an integral part of the curriculum to see if pre-writing activities affect the writing process. I feel that strategies that help students organize their thought as well as their writing and grammar usage are an important part of pre-writing. Pre-writing activities which utilize visualization, sound, and movement stimulate the writing process. I am going to combine strategies and Affective Domain stimuli in my pre-writing activities next year.

COMBINED READING CLASS

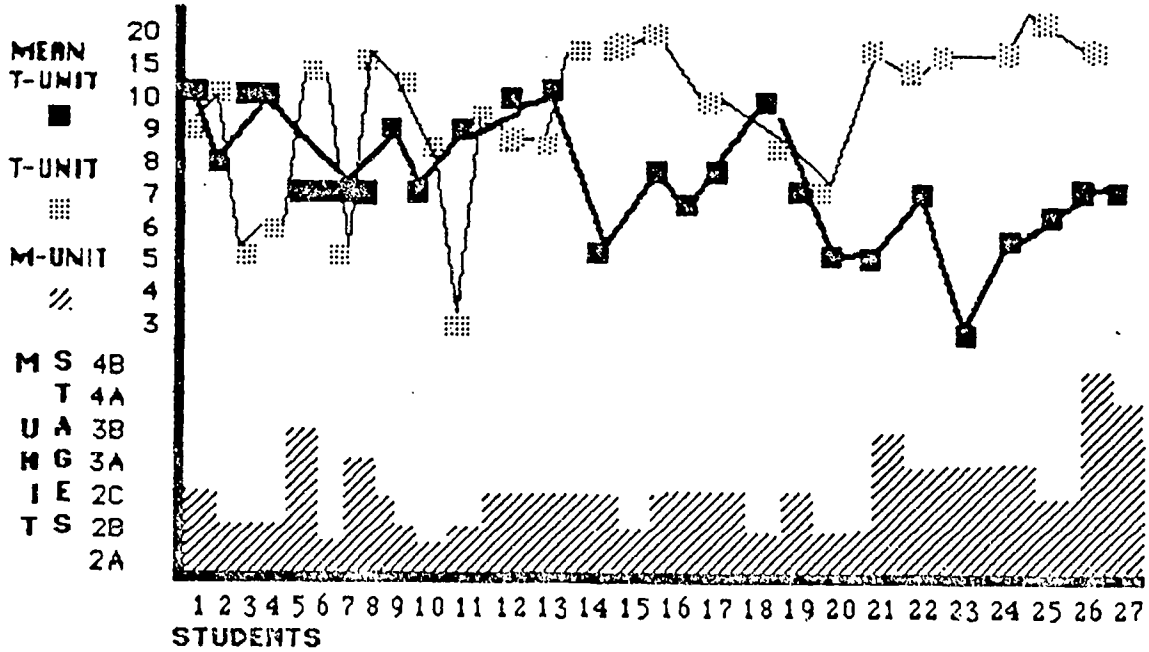


ABOUT THE GRAPHS

1. The Mean T-Unit, average number of words per phrase, is in black at the top.
2. The T-Unit is the number of the subject-verb phrases per story.
3. The M-Unit, quality and structure of the story, is represented by the bar graph at the bottom.
4. All graphs contain post data, actual anaylsis of stories.

In the Combined Reading Class, the M-Units and T-Units seem to correlate well. As the T-Unit goes up, the M-Unit goes up and as the T-Unit decreases so does the M-Unit. The length of the T-Unit doesn't affect the M-Unit.

DEVELOPMENTAL STYLE CLASS



In the Developmental Class, the length of the T-Units did not correlate well with the M-Unit's quality. For example, students 1,2,9-6,and 22-25 all have high T-Units, but do not have the high quality M-Units like those in the Combined Class.

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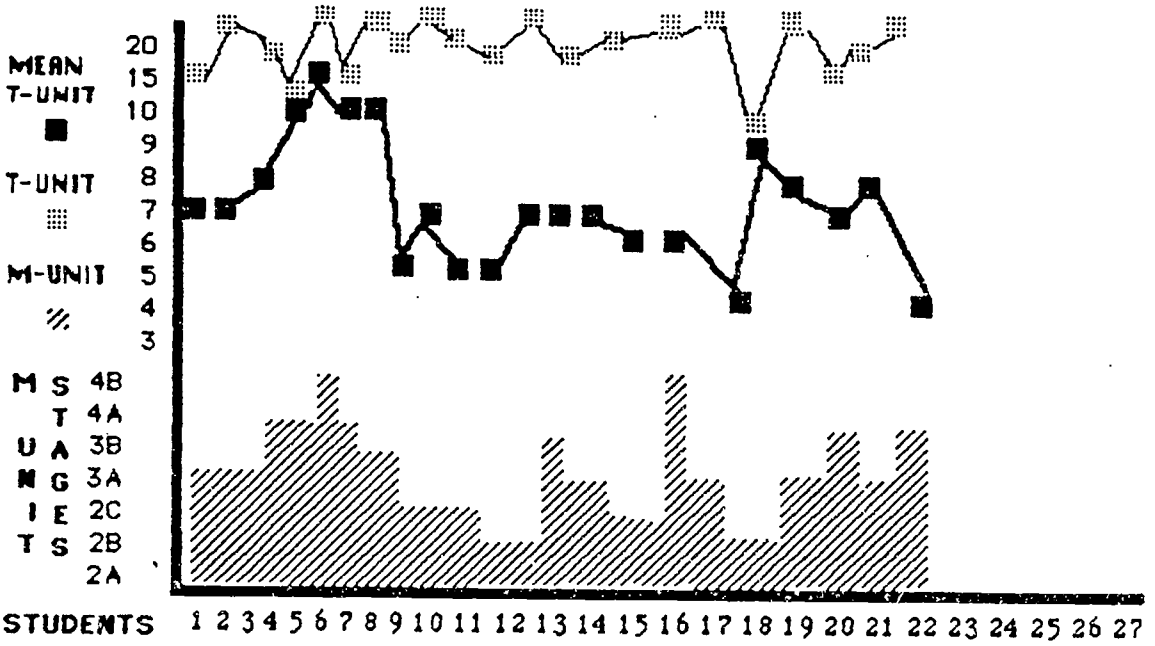
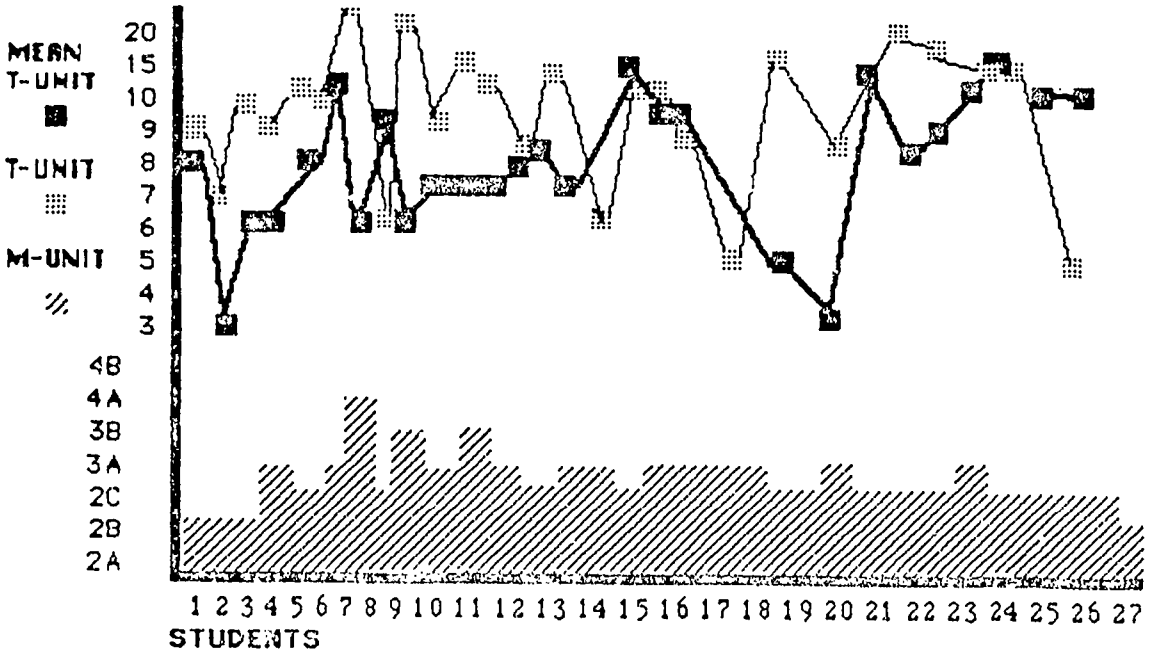
STRUCTURED PRE-WRITING CLASS



The fourth grade Structured Pre-Writing class shows the most dramatic relationship between the length of the T-Unit and increased quality of the story, M-Unit classification. The average T-Unit length is also greater.

CONTINUING STORY CLASS



The majority of students in the Continuing Story Class had M-Units in the 2C and 3A range. The stories used ect-predicate phrases with a unifying idea and beginning, middle, and end. The number of T-Units or th of the T-Unit didn't seem to affect the quality of the M-Unit.

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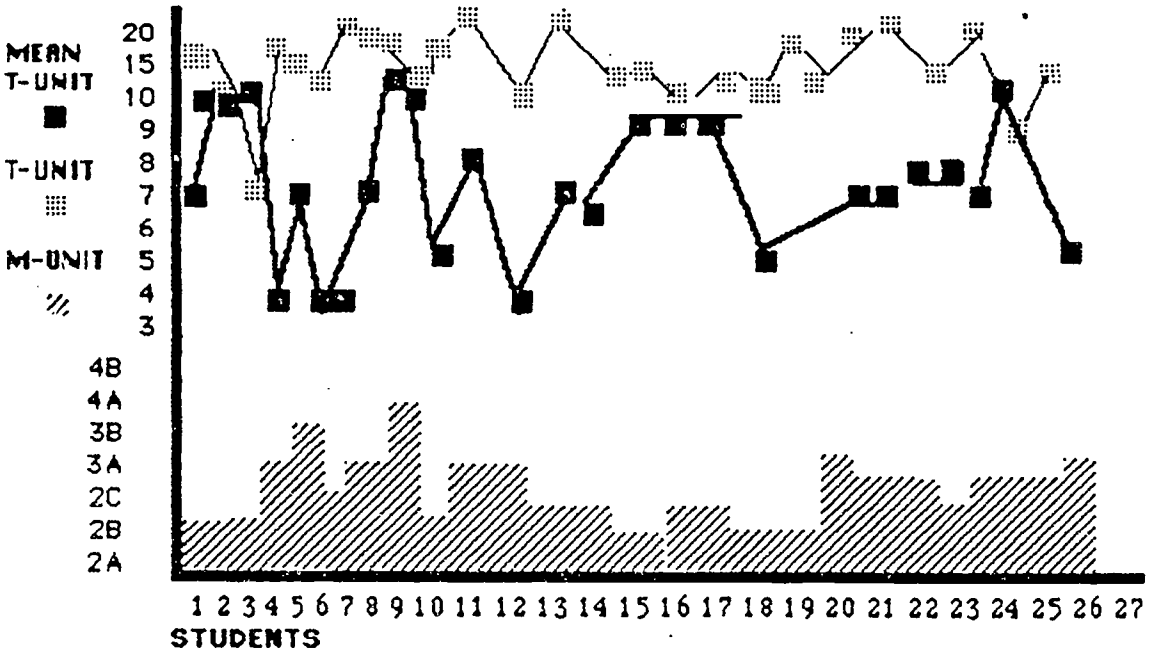
STRATEGY ENGLISH CLASS



The Strategy English Class shows a high correlation between the number of T-Units and the length of the T-Units. The higher number of T-Units usually indicated longer subject-verb phrases. Like the Pre-Writing class, the number of T-Units seem to relate to the quality of the story.

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An Experimental Study at the Elementary Level by:

Sue Gabosch
Bullhead Intermediate School
1004 East Hancock Road
Riviera, AZ (602) 758-6606

1. Statement of Question

Will my students increase their social studies vocabulary retention with daily oral review of meanings?

2. Description of Sample Used

Control Group: Mrs. D's third grade class has 21 students: 12 boys and 9 girls. Three of her children go to resource daily for special help in reading and phonics for an hour and a half. One of her children is repeating the third grade.

Experimental Group: Mrs. G's third grade class has 21 students: 13 boys and 8 girls. Two of the students go to resource for special help in reading and phonics for an hour and a half daily. None of her students are repeating the third grade.

3. Procedures Followed

A. Control Group

1. Class period--thirty minutes.
2. The students read orally out of their social studies books and then the teacher asks the students literal questions about the material.
3. The teacher discusses the vocabulary words as the students encounter each orally. She asks them what the vocabulary word means and corrects any wrong definition. She repeats this method with all of the vocabulary words.
4. Total time was 5 days of half hour sessions.

B. Experimental Group

1. Class period--thirty minutes.
2. The students read orally and then the teacher asked the students literal questions about the material.
3. The students spend 10 to 15 minutes reviewing vocabulary daily in the following ways:

Day 1 The students will look up the meaning of their vocabulary words in their glossary when the teacher gives a word. Then a student will be selected to read the meaning aloud to the class.

Day 2 The teacher will give a vocabulary definition aloud. Then a student will be called on to recite the word. The teacher will give the vocabulary meanings several times so that each child will be able to recite a word.

Day 3 The students will play Password using the vocabulary words. The class will be divided into two teams. The words will be written on separate scraps of paper. Each member on the side that is up will pick a word to look up in their glossary. After the children have looked up their words they will give a member of the opposing team a clue. If the opposing team member guesses the wrong word, the person gives another

clue or the same clue to another opposing team member. If they miss it also, the team giving the clue will get the point. If the second person gives the correct response, they wil get one point for their team. The opposing team will have thirty seconds to recite the meaning. The team giving the clues will be up until everyone has given a clue on their team. Then all scraps of paper are collected for the oposing team to pick their vocabulary word. The game will continue until each child has a turn to give a meaning. The team with the highest number of points wins.

Day 4 The class will play Around the World with their vocabulary words. The teacher will give the meaning to the word. The student that says the word first will go on to the next person.

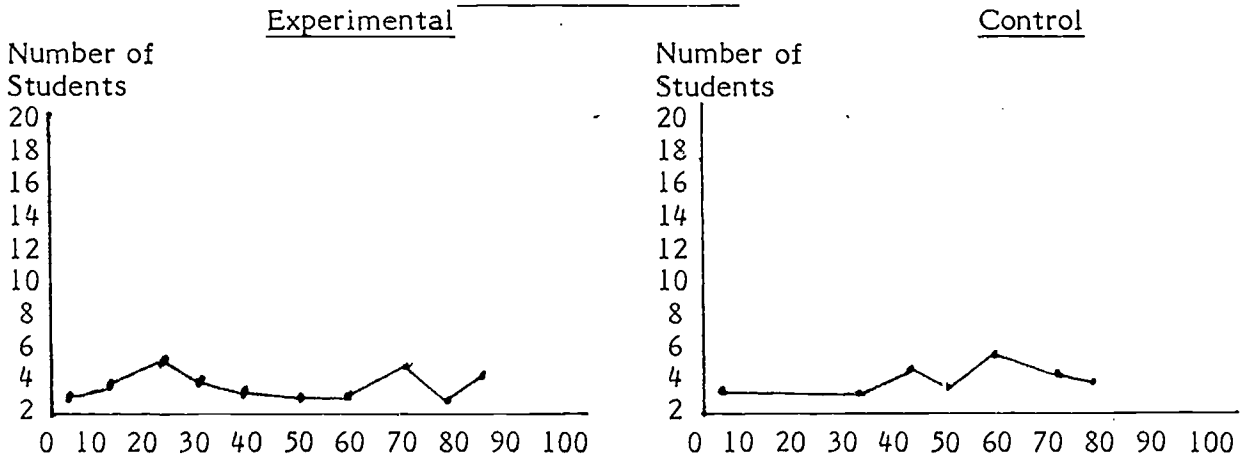
Day 5 The class will play Baseball using the vocabulary words. The class is divided into two groups. The team up will be given a vocabulary word and they have to recite the meaning. The game is played the same as baseball. There would have to be four right answers before a team could score a point and each team would get three outs.

4. Total time was 5 days of half hour sessions.

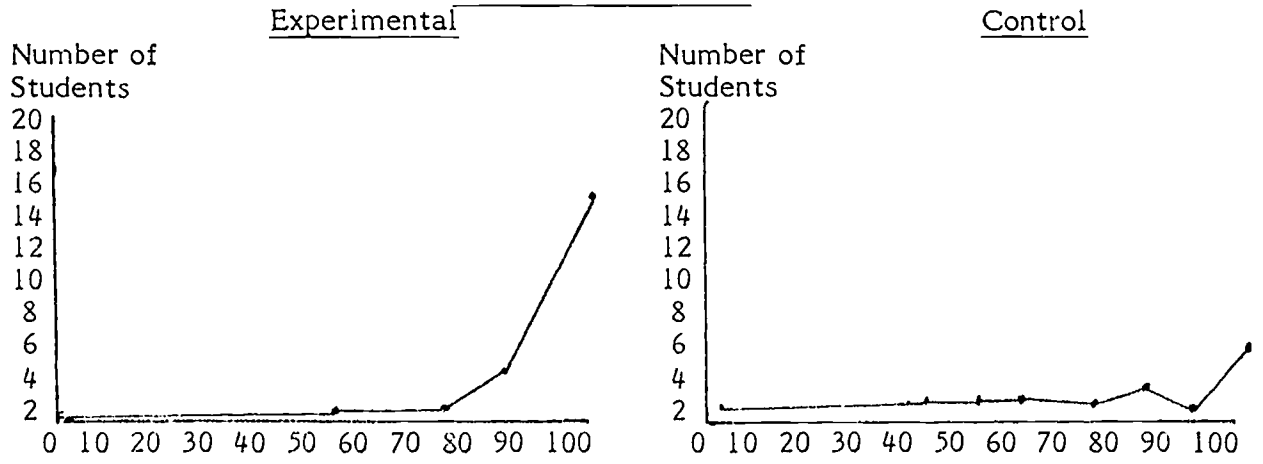
4. Data

The pretest and posttest were the same. The test consisted of matching the vocabulary word to the meaning. See charts below for results.

PRETEST RESULTS



POSTTEST RESULTS



Students' comments in experimental group:

Student 1 - "Can we play this again tomorrow?"
Student 2 - "Awe, do we have to stop?"
Student 3 - "This is fun."
Student 4 - "I hope we can do this again."

5. Conclusion

Mrs. G's class (experimental group) had fifteen students score 100 percent on the vocabulary posttest. Mrs. D's class (control group) had six students score 100 percent. The experimental group had only one student score below 60 percent on the posttest. The control group had seven students score below 60 percent. After comparing the results from both classes, I can conclude that it was worth spending the extra amount of time daily on vocabulary. The experimental group scored higher on the vocabulary test than the control group.

The experimental group did much better than the control group because of the activities used for vocabulary review. The experimental group had fun learning the words, therefore their retention of the vocabulary words was greater than the control group.

I feel that this research project helped me to realize that when children are having fun while learning, they retain more information. I will continue to play vocabulary games when teaching new vocabulary to my students. I found it interesting to compare the two classes. I was surprised that the control group scored as high as they did when all they did was read the material. I think it was because the words were encountered and defined in text. The most effective way to teach vocabulary may be to combine the methods: define the words in context and then drill with games.

Insights 1

The studies in this section have followed procedures for experimental designs. The purpose of these studies was to compare and contrast the effect of two or more teaching methods on two similar populations.

Ideally, a preassessment is conducted to compare post results to. Lack of a pretest, however, should not prevent a teacher from analyzing the results of the methods examined. Valuable results can still be detected.

Notice how each researcher quantified results by using statistics that counted "something" that would be a part of instruction anyway. Intricate statistical designs that search for significance are not part of action research.

Reread the last paragraph of each report. There is definite behavioral change by the researcher indicated in each, due to the research process.

A Descriptive Study at the Secondary Level by:

Sandra S. Bandes, Assistant Principal
Fourth Avenue Junior High School
450 South Fourth Avenue
Yuma, Arizona 85364
(602) 783-2193

1. Statement of the Question Researched

High school course selections for graduating eighth grade students are made on the basis of teacher and staff recommendations following a review of indicators of academic performance in junior high school (i.e., class grades, performance on district mandated exams in mathematics and language arts, standardized test scores). Procedures for monitoring the progress of these students to determine whether or not the recommendations have met the individual needs of the students in their transition to the high school program have not been established. This research has been conducted to review and evaluate the effectiveness of the junior high school recommendation policies and practices as they relate to three separate and unique sample groups of students.

2. Specific Procedural Steps Followed

A. Three sample groups of last year's junior high school graduates were identified.

Group I. Ten students who were identified as learning disabled and who were served in the junior high school special education program on a resource basis (one period per day). All students met the mainstream requirements for graduation and successfully completed the district eighth grade mandated tests in mathematics and language arts. All were recommended for placement in general mathematics and remedial English at the high school level.

Group II. Eleven students who were recommended by the junior high advanced language arts teacher for placement in the freshman Honors English program at the high school.

Group III. Eight students who elected to enroll in the freshman Honors English program at the high school against recommendation.

B. A computer search of this year's high school records was conducted to obtain the first semester (1984-1985) grades of the students in the three sample groups.

C. English, mathematics, and social studies grades for Group I were recorded. Honors English grades for Group II and Group III were recorded.

D. The high school Honors English instructor was contacted to determine the number of Group II and Group III who were to be recommended for a second year of Honors English.

3. Description of Data Collected

A. Group I. Two of ten students from the learning disabled sample did not attend the high school for any part of the first semester 1984-1985.

Two of ten students from the sample were dropped from school during the first semester and grades were unavailable.

Six of ten learning disabled students from the sample enrolled in the courses recommended by the junior high school staff.

These students earned the following semester grades in remedial English, general mathematics and social studies.

	A or B	C or D	F
Mathematics	0	6	0
English	1	5	0
Social Studies	0	1	5

Six Students from the sample succeeded in their attempt to earn credit in English and mathematics.

One student from the sample succeeded in his attempt to earn credit in social studies.

Five students from the sample failed in their attempt to earn credit in social studies.

Group II. One student from the honors sample did not attend the high school for any part of the first semester (1984-1985).

Ten students from the sample enrolled in the high school Honors English program and earned the following first semester grades in that program.

	A or B	C or D	F
Honors English	9	1	0

Ten students from the sample succeeded in their attempt to earn credit in Honors English.

Nine students from the sample succeeded in earning a grade of B or better in Honors English.

One student from the sample did not succeed in earning a grade of B or better in Honors English.

Nine students were recommended for continued placement in the high school English Honors Program.

Group III. Eight students from the unrecommended sample enrolled in the high school honors English program and earned the following first semester grades in that program.

	A or B	C or D	F
Honors English	1	7	0

Eight students from the sample succeeded in their attempt to earn credit in Honors English.

One student from the sample succeeded in earning a grade of B or better in Honors English.

Seven students from the sample did not succeed in earning a grade of B or better in Honors English.

One student from the sample was recommended for continued placement in the high school Honors English program for a second year.

4. Conclusions

A. Group I. The procedures utilized in the determination of mathematics and English placement recommendations for learning disabled students served in a one period per day resource program are effective in meeting the needs of these students.

The recommendation for placement of learning disabled students in social studies during their freshman year seems to be inappropriate.

Group II. The procedures utilized in the determination of a placement recommendation for the Honors English program are effective in meeting the needs of these students. Additionally, students recommended through this process are demonstrating the ability and direction to remain in the honors program beyond the freshman year.

Group III. The procedures utilized in the decision to withhold recommendation for placement in the Honors English program are effective in meeting the needs of these students. Although all of the students in the sample successfully completed the program, only one student was successful in earning a grade of B or better. Since grades in the honors programs are weighted, grades below B affect the cumulative grade point average appreciably in a negative direction.

5. Utilization of Research Results

A. The results of the research were shared with personnel involved in the decision making process for each of the three sample groups.

B. The procedures utilized in the determination of recommendations for English and mathematics placement of resource learning disabled students will remain unchanged.

C. Resource learning disabled students will be recommended for placement in social studies during the freshman year only if stanine scores in reading comprehension and vocabulary are in the average range.

D. The procedures utilized in the determination of recommendations for placement in Honors English, or the withholding of same, will remain unchanged.

E. Students wishing to enroll in the Honors English program against recommendation will be advised of the results of the research.

F. Research results will be utilized to defend placement recommendations at the request of students and/or their parents.

G. Additional research will be conducted at the conclusion of the first semester of the 1985-1986 school year. This research will include:

1. Replication of this study involving sample groups of a similar nature.

2. Follow-up studies to ascertain the appropriateness of placement recommendations for mainstream students in mathematics (general mathematics, pre-algebra, algebra, algebra honors).

3. Follow-up studies to ascertain the appropriateness of placement recommendations for biology honors and advanced introduction to science.

4. Follow-up studies to ascertain the appropriateness of placement recommendations for special education students in mainstream as opposed to self-contained academic programs.

6. Insights

The study revealed both positive and negative information about several aspects of the recommendation procedures. All teachers and administrators involved were both surprised and pleased to learn of their success in placing advanced language arts students. The choices are made carefully and the results demonstrate this care. I believe we are held in higher esteem by the secondary English staff because of these results in that we have demonstrated that our recommendations are neither random nor capricious, but rather are based on expertise. Hopefully we will be able to demonstrate continued success in this area and in the placement of regular and remedial language arts students.

The relative success of our learning disabled graduates is encouraging; however, the fact that two were unable to complete the first semester cannot be ignored. This fact indicates that students might benefit from a more complete communication of individual student behavior characteristics as well as academic potential to those who might be most able to monitor these students during their freshman year. It appears that attendance might have been a problem in both cases. The lack of success of these students in the completion of the freshman social studies program deserves more careful investigation. It would be interesting to obtain data relevant to mainstream student success in this area and perhaps to prepare an appropriate selection criteria (i.e., reading comprehension, resource skill, vocabulary test levels).

It is difficult to facilitate transition from elementary to secondary school in a split district environment. There is little attempt to coordinate curriculum, policies and procedures. The research conducted in this study is another step in the direction of coordinating inter-district student movement.

Awareness of the future successes of our students seems of interest to our staff. Attention to such information alerts the staff that the administration is concerned with the effectiveness of our recommendations. Teachers involved in the placement of control group students have expressed pleasure in the availability of the information gathered.

Conducting the research has opened the inevitable "can of worms" for this administrator. Each time the study comes to mind a whole new series of possible research areas emerge and it is tempting to bite off more than can possibly be chewed.

A Descriptive Study at the Elementary Level by:

Deborah Tanner
Killip Elementary School
2300 6th Ave.
Flagstaff, AZ 86001
(602) 779-6450

1. Statement of Problem

A current theme in elementary education is writing across the daily curriculum. Recent research indicates that children who write learn to read better. As a Chapter I reading teacher of first graders, I wanted to incorporate writing in my classes. I asked myself: How can the children write when their reading level is only on a preprimer level?

2. Research Question

My question was: Will preparing simple breakfasts each day in class and writing about the process increase each student's knowledge of key words, motivation to write and length of sentences?

3. Description of the Environment

My Chapter I Reading Center is in a school of approximately 600 students. I service three first grade reading groups for 30 minutes everyday. Each group has an average of seven students. About 1/3 of my students are Hispanic, 1/3 caucasian, and 1/3 Indian.

4. Steps Followed

I developed what proved to be a highly motivational, week long breakfast unit to stimulate writing. I did a descriptive study because I examined each student's growth in the area of vocabulary, length of sentences, and enthusiasm for writing. I attempted to write an individual profile for each student as a preassessment. It included a reading knowledge of breakfast words, an attitude check towards writing, and a summary of their breakfast eating habits. The preassessment included:

A. The student's knowledge of breakfast words which were usually one or two words (such as: milk, orange). The students knew none of the breakfast words for this unit which were:

tortillas	oatmeal	honey
refried beans	orange juice	raisins
cheese	Cheerios	milk
toast	peanut butter	

B. When students were asked to write sentences, their writing consisted of only single words.

C. After a discussion of breakfast habits, I learned that many of my students ate no breakfast at all.

5. Treatment Activities

A. Giving each student an empty, five page "Breakfast Diary."

B. Serving a different, simple breakfast for five days that the students helped me prepare at the beginning of each class period. (Example: Cheerios and raisins or cheese toast.) I supplied a toaster and hot plate when needed.

C. Discussing the types of foods we were eating: the tastes, smells, whether we liked it or not, and how the foods could be fixed at home by the children themselves.

D. Writing key words about our discussion on the chalkboard as students said them.

E. After the students finished eating, they wrote about what they ate and their reactions in their diaries.

6. Results

I was pleased to note both quantifiable and observable growth in most students. At the end of the week, the majority of students were able to read a list of breakfast key words. The sentence length in their writing diaries increased from one word to four or five words. Some examples of their post writing:

I like cheese on toast.
I mixed honey and peanut butter.
Oatmeal and milk tastes yuk.

As the weeks progressed, several students commented on how they fixed their own breakfasts, which included a handful of cereal or melted cheese on toast.

I believe the results occurred because of several dynamics. First, children are always hungry. Helping to prepare and eat breakfast at school was extremely motivational. Second, the "hands on" experience allowed the students to become personally involved. Third, surrounding the students with breakfast words the class discussed aided their retention of them. The students used the words in their writing because they had become familiar with them.

7. Conclusion

By conducting this research I proved the professional literature to myself. I became a believer in children's writing as an instructional device. Students, regardless of reading level, are capable of writing personal passages about immediate events given the motivational experience, opportunity, and models.

In conclusion, I believe effective teaching methods are a product of hypothesis formation, data gathering, and introspection. The way I teach is a personal decision. However, these decisions should be made in a context of professional reading and personal research studies such as this one.

A Descriptive Study at the elementary Level by:

M.E. Allen
c/o Weitzel Elementary School
3401 N. Fourth St.
Flagstaff, AZ 86001
(602) 779-6480

1. Purpose

The purpose of this study was to note and describe the effect of writing activities on a student's reading and writing fluency.

2. Procedure

A. The teacher attempted to create an environment in the reading classroom that would stimulate reading and writing fluency with six second-grade students. To encourage this fluency, students completed science discovery activities and retold their experience as a group to the instructor, who wrote down what was said. These language experience activities prepared students for the writing process when the teacher included appropriate and correct punctuation and spelling rules while writing each of the student's contributions. As appropriate and aside, the teacher would point out common second grade phonetic rules while she wrote.

B. In addition to the group stories, which related directly to the children's experiences, the teacher read stories aloud to the group. After the stories, the students discussed plot, vocabulary, characters and their motives, and the author's purpose in writing the story.

C. As the students grew more fluent in their discussions of the science activities and the oral stories, they began contributing to group stories. Correct punctuation, spelling, grammar and sentence structure were all stressed as needed.

D. A supplementary project to the language experience based reading and writing program was the keeping of a journal by each of the students. Student entries were not corrected and no pressure was put on them to follow writing rules. The teacher emphasized written fluency and encouraged the students not to worry about spelling and punctuation. This journal was kept specifically in the reading room. It was through the journal entries that the teacher was able to see the most gain in written as well as reading fluency.

3. Data

The following case study of just the journal portion of the class activities describes one student's progress during a seven month period.

Jennifer is an eight year old, second grade student who had showed an eagerness to learn and participate in the classroom activities. She was not a traditional learner. Jennifer had been unable to read phonetically and in her oral reading she had a tendency to stutter and become quite nervous. It was thought that Jennifer could be taught letter sound relations through the whole language approach, thus allowing her to be more fluent and relaxed when reading new material.

Printed below are excerpts from Jennifer's journal. Her writing style shows a progression from the more comfortable, but stilted language of sight words to stories developed around complex and fluent sentences.

ENTRY I

Weitzel* Holloween Christmas
*(the school's name)

ENTRY II

I like you. I like halloween I love you I will love you

ENTRY III

I love to rit my bike, I love to make some time. I like to pale

ENTRY IV

I went to conntwood. I have a good time becouse I was wiht my cuscn. But I havd a bad time because the beat cuscn have the finuo. I am mooing to coontwood I will git to see and pay wiht my cuscn a lot. I will sped the not wiht her. We will have foun.

4. Conclusions

As can be seen, this last entry shows a considerable improvement in Jennifer's written fluency. As Jennifer became involved in the writing process, she began to attend more to the structure of sentences. In group discussions and oral reading Jennifer became more confident. She was able to volunteer information concerning the author's intent to inform and to relay a message. Her oral reading was smoother and more concise. She applied her newly acquired phonetic skills to her writing as well as her reading.

5. Implications

This case study shows that the use of a whole language approach to writing can develop reading and writing fluency. Informal and formal discussion group activities, assigned work and free style writing all help to build confident readers and writers.

Insights 2

The studies in this section have followed the procedures for descriptive research. Their purpose was to ask questions about what occurs and try to describe or define an answer through data collecting.

Each researcher drew conclusions about what occurred by examining the data for a trend or description of what happened.

When developing a descriptive study, a great amount of time is devoted to hypothesizing what type of data needs to be collected and selecting tools to collect it. A teacher's observations are compared to evidence such as student interviews, surveys, tests, or classwork.

The three researchers imply that something was proven by the results of their research efforts.

A Naturalistic Study at the Secondary Level by:

Louis Montiel
Coconino High School
Flagstaff, Arizona 86001

1. Statement of the Question Asked

Teaching effectiveness is increased by knowing your audience as you teach. I had been exposed to several instruments for collecting data in a reading class I took, so I decided to administer as many as I needed to learn as much about two classes I teach as I could. I asked: What are the differences between my entry level biology class and my earth science class?

2. Description of Population

Classes were composed of sophomores and very similar on criteria of age, gender and past experience in science.

Earth Science	7 males	11 females	16 years old
Biology	9 males	5 females	15 years old

The classes seem to be similar in terms of diversity of abilities and socio-economic backgrounds; however, a major divergence seems to exist concerning the motivation levels between the two classes. Students in the biology class appeared to be highly motivaeted, while those in the earth science class seem to have low motivation. A correlation between high class grades and high motivation appears to exist as there is a high percentage of A's and B's in the biology class, whereas there is a high percentage of D's and F's in the earch science class.

3. Instruments Used

I decided to examine three components of learning I might influence: student interests and abilities, difficulty of reading materials and teaching practices. I created an instrument to collect data for each as described below:

Student Interests:	Student Interest Inventory Student Ability Assessment Reading Behavior Checklist Student Needs Inventory
Reading Material Appropriateness:	A Cloze Procedure
Teaching Practices:	Learning Preference Survey

I have included sample items from each and would be glad to share the complete battery with interested readers.

4. Steps Followed

I administered each instrument whenever I could fit them into daily activities over a six week period. I remained in the room and answered questions and goaded students to finish each instrument. Average completion time was 45 minutes.

5. Analysis of Data

In general, the diagnostic package illustrates that:

A. Student Interests and Abilities

1. Students like almost all sports and outdoor activities, especially football and swimming.
2. Students have a good attitude toward reading those things that interest them, but a bad attitude toward reading textbooks.
3. 26 out of 32 students have a positive self-concept (3/32 not sure, 3/32 negative).
4. 21 out of 32 students think the learning environment is o.k. (i.e. neither like it nor dislike it).
5. English is the most common language--28/32 English, 2/32 Spanish, 2/32 Navajo.
6. The texts are NOT suitable for these students.
7. Only seven students responded that they would like mor lp using the library--they probably avoid the place like the plague!
8. Students would not only use outside reading materials--they would prefer it! Anything from T.V. Guide to Creem Magazine could be used with these kids!
9. At least 50 percent of the students know how to locate information in a textbook.
10. WOW! Only 31 percent of the students are at the instructional level with their textbooks: the rest are frustrational level readers!
11. Slightly more than 50 percent of the students can predict outcomes (18/32) at least some of the time.
12. 20 out of 32 students need more help extrapolating and interpolating.
13. Fifty percent of the students skip words they don't know or can't pronounce while only ten percent use a dictionary for help.
14. 28 out of 32 students can follow directions at least sometimes.
15. Only half of the students know how to vary their rate of reading (16/32).
16. 20 out of 32 students formulate questions as they read.
17. Students spend more time listening to music than anything else--60 hours per week. They spend about 52 hours per week watching T.V. and (get this) only 4½ hours per week reading!

When asked if they thought everyone should study Life Science, Physical Science and Earth Science, 90 percent of the Earth Science students replied "No" across the board, while 90 percent of the biology students replied "Yes" across the board. An interesting difference in values at work here!

B. Reading Materials

The Cloze Test indicates without a doubt that the students are engaged in a losing battle with their texts. No wonder there is such a poor motivational level among these students--they are faced with impending doom every time they open their books!

1. Reading sources at the 7th to 8th grade level would be most appropriate for these students.
2. The texts are NOT suitable for these students.
3. Only seven students responded that they would like more help using the library.

4. Students prefer magazines over other reading sources.
5. When viewing films, 18 out 24 students who responded just watch and listen.
6. 14 of 32 students feel they are average readers.
   12 of 32 think they are good readers.
   6 of 32 think they are very good readers.
   2 of 33 think they are poor readers.

Every single type of reading behavior I had listed was checked at least once. This tells me that I'm teaching studetns that use an incredible and diversified array of reading behaviors.

C. Teaching Practices

1. In order of importance, students need more help with motivation to read, using graphs, tables, charts, and learning how to take notes.
2. Effective learning activities involve the use of printed sources, films and T.V., and any active participation exercises involving hands-on manipulation of objects.
3. Students prefer to answer questions from other studetns, from the book and from the teacher in that order.
4. 23 of 32 students prefer to be evaluated by a combination of tests, reports, and projects.
5. Students prefer to have short lectures everyday.

6. Implications

A. Instructional

The obvious motivational problem is of primary concern to me. This battery of surveys has told me that:

1. I will have to supplement the textbooks in both classes quite a bit
2. I will have to develop a resource center that is both relevant (motivational) and readable
3. I will have to use class time to get students to do the reading--they aren't going to do it as homework
4. I will have to concentrate on students' individual strengths and work toward abolishing their weaknesses.

A second area of concern to me is the general lack of note-taking skills. I will have to:

1. use lots of structural overviews
2. use various forms of note-taking guides
3. use three level guides
4. periodically check on notebooks.

Using graphs, tables, charts and maps is another trouble area I will deal with. I can:

1. show students how to use these illustrations by modeling and demonstrating their proper use
2. tell students how much time they will save by using these illustrations
3. give them exercises in using simple graphs, charts, etc. and then gradually bring them to the point where they can use more complicated forms with similar ease.

Other instructional implications are:

1. the use of humor and comedy to make the class fun
2. using music as a reward for good performance or proper behavior
3. use the success factor as a motivational technique; concentrate on success, not failure
4. teach students how to learn as well as what to learn
5. develop a grading system that allows every student some measure of success.

B. Personal Preconceptions

As noted on page one of the assignment, I had some preconceptions concerning these two classes before administration of the IAT. It is time to lay these preconceptions to rest. The IAT has revealed the following information:

1. Eleven students replied they like Earth Science not at all, 2 students replied they like it a little, and 1 student replied they like it a lot. Compare this with the same question for students in the Biology section, where 3 replied not at all, 8 replied a little, and 7 replied a lot.
2. When asked if they think everone should have to study Life Science, Physical Science, Earth Science, 90 percent of the Earch Science students said "No" to all three, whereas 90 percent of the Biology students said "Yes" for all three. These two items are enough to confirm my suspicion that the Earth Science students are in Earth Science because they dislike science in general and Earth Science seemed to be the least of the four evils (Chemistry, Physics and Biology being their other choices).
3. The Biology students appear to have a more positive attitude about both their class and science in general; hence, more motivation.

7. Conclusion

Developing, administering and analyzing this battery of instruments has been a useful learning experience for me. I am now intimately familiar with the various forms that diagnostic tools come in, how to administer these tools, and the endless hours that are involved in a thorough analysis of each tool. Most important, perhaps, is the fact that I now know my audience better than ever before. I feel the time spent administering these instruments early in the year is more than justified by an increase in my effectiveness. More students are still learning with me later in the year! I am now armed with the right equipment and ammunition, wearing my finest battle fatigues and ready to launch an all out assault on the cognitive, affective and psycho-motor processes of these little devils!!

Sample Items From the Instruments

A. Student Interest Inventory

1. How much time per week night do you spend reading? Av = 45 min. (B) Av = 45 min. (ES)

2. How much time per weekend do you spend reading? Av = 1 hr. (B) Av = 30 min. (ES)

3. How much time per week night do you spend watching TV? Av = 5 hrs. (B) Av = 3 hrs. (ES)

4. How much time per weekend do you spend watching TV? Av = 7 hrs. (B) Av = 5 hrs. (ES)

5. Things I like to collect:

B	ES	
1	2	Rocks - Minerals
0	1	Butterflies
1	2	Postcards
2	2	Coins
2	1	Stamps
2	3	Shells
0	0	Seeds
0	0	Leaves
2	0	Flowers
		Others: Baseball cards, Posters

Places I like to go:

B	ES	
4	5	Zoo
12	4	Movies
3	1	School
4	6	Concerts
4	4	Mall
0	3	Theatre
2	3	Park
1	0	Museum
1	0	Planetarium
		Others: Friends' houses, Parties

B. Student Ability Assessment

Directions: Check the box that best describes your ability to perform the indicated operations.

	Always		Some-times		Seldom		Never	
	ES	B	ES	B	ES	B	ES	B
1. I can finish a reading assignment in the book.	1	4	9	9	2	2	2	3
2. I fully understand what I read.	1	4	8	10	3	2	2	2
3. I can predict a story's outcome without finishing the story.	1	3	7	11	3	3	3	1
4. I can find information in tables, charts, graphs, maps.	1	3	6	4	6	4	1	2

		Always		Some-times		Seldom		Never	
		ES	B	ES	B	ES	B	ES	B
5.	I understand the vocabulary used in my reading assignments.	3	2	8	8	2	6	1	2
6.	I can understand and follow directions.	4	6	4	4	1	2	0	1
7.	I can scan material to find answers to questions.	2	4	7	10	3	2	2	2
8.	I can skim material to find answers to questions.	2	4	7	10	3	2	2	2
9.	I know how to vary my reading rate for different material.	2	4	6	6	6	6	0	2
10.	I formulate questions as I read.	4	4	6	6	3	7	1	1

C. Reading Behavior Checklist

		B	ES
1.	I form questions about what I read.	6	2
2.	I remember the main ideas of what I read.	8	4
3.	I remember the details of what I read.	5	4
4.	If I can't pronounce a word, I		
	a. skip it	6	7
	b. break the word into parts and try to pronounce it	6	2
	c. ask someone to pronounce it for me	8	7
	d. look up the phonetic pronunciation in the dictionary	2	1
5.	When I watch a film, I		
	a. just watch casually	8	10
	b. pay attention and take notes	2	1
	c. don't pay attention and sometimes doze off	2	0
	d. relate the film to class lectures or discussions	1	0
6.	When I see illustrations, pictures, graphs and tables, I		
	a. ignore them	2	10
	b. look at them briefly	5	4
	c. study them carefully	2	0
	d. study them and read the captions on associated reading in the chapter	3	0

D. Student Needs Inventory

	B	ES
1. I need help getting motivated to read.	17	14
2. I need help to learn how to take notes from my reading or from a lecture.	10	6
3. I need help understanding graphs, tables, charts and maps.	14	11
4. I need help answering questions over reading assignments.	7	3

C. Learning Preference Survey

1. Do you think you could learn vocabulary words best by		
a. writing out the words and their definitions on flash cards	8	2
b. doing a crossword or word search puzzle using the words	5	3
c. putting the words and definitions on a tape and listening to them	5	9
2. If you were going on a space mission, would you rather be in charge of		
a. collecting plant samples	5	4
b. collecting animal samples	10	4
c. collecting mineral samples	3	6
3. Would you rather		
a. read an article and then be asked questions about it	6	2
b. be asked questions and then read an article	2	3
c. answer questions asked by the teacher	1	1
d. answer questions asked in the book	3	2
e. answer questions asked by other students	6	5

Insights 3

Naturalistic Research is a term Dr. Danzig suggests is synonymous with: field work, ethnography, case study and qualitative design.

A purpose of naturalistic research is to collect and analyze data with as little hypothesizing as possible. Sort through the data and look for trends, questions, answers, dynamics and insights. The preresearch activities would emphasize selecting data gathering tools that are appropriate to profile the learning environment.

Louis Montiel selected and/or created six instruments to examine reading and learning behavior in his classroom. Note the enthusiasm in his conclusion.

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