Journal of Precision Teaching and Celeration

Volume XIV Fall 1996 Number 1

The Secret Celeration Society: An Alternative Way to Promote Standard Celeration Charting

Do Times Two, Then Go For Four, Or More: Precision Teaching Aims for the 21st Century

Immediate Retelling of Current Events from Channel One by Students with Developmental Disabilities and Its Effect on Their Delayed Retelling

The Effects of Using Direct Instruction Reading and a Re-Reading Contingency, Coupled with a Reward and Praise Contingency, with a High School Sophomore

An Eleven-Year Old Girl's Use of Repeated Readings, SAFMEDS, and See/Write/Think/Write Practice to Develop Fluent Reading in Hebrew

Learning Russian

The Effects of Direct Instruction on Early Reading Skills of a Kindergarten Student

Use of Precision Teaching and a Choke Chain and Verbal Prompt to Teach a Yellow Labrador Puppy to Heel: A Brief Report

The Effects of Precision Teaching on the Acquisition of the Prevocational Skill of Cross Stitching: A Case Study

Chart Shares

Brave New Worlds: A Comparison of Utopias & Dystopias

Measuring Creative Writing

Success with Precision Teaching

A Publication of The Standard Celeration Society
The *Journal of Precision Teaching and Celeration* (ISSN 0271-8200) is a multidisciplinary journal that is dedicated to a science of human behavior which includes direct, continuous and standard measurement. This measurement includes a standard unit of behavior, *frequency*; a standard scale on which successive frequencies are displayed, the *Standard Celeration Chart*; a standard measure of behavior change between two frequencies, *frequency multiplier*, and a standard, straight-line measure of behavior change across seven or more frequencies, *celeration*. Frequencies, frequency multipliers, and celerations displayed on the Standard Celeration Chart form the basis for Chart-based decision-making and for evaluating the effects of independent variables.

The purpose of the *Journal of Precision Teaching and Celeration* is to accelerate the sharing of scientific and practical information among its readers. To this end, both formal manuscripts and informal, Chart-sharing articles are to be considered for publication. Materials submitted for publication should meet the following criteria:

* be written in plain English
* contain a narrative that is brief, to the point, and easy to read
* use the *Journal of Precision Teaching* Standard Glossary and Charting Conventions (See Volume X, Number 2, Spring, 1993, pp. 79 - 82.)
* format references according to the *Publication Manual of the American Psychological Association*
* contain data displayed or displayable on the Standard Celeration Chart to justify conclusions made
* direct data points may be submitted, so the Charting Macro program (Slocum, 1990) may produce an electronic version of the Chart
* original charts may also be submitted.

Articles which are not data-based and do not include data displayed on Standard Celeration Charts may be included. These articles should substantially contribute to the development or dissemination of Precision Teaching/Learning. “About PT” is a column for shorter notes.

The *Journal of Precision Teaching and Celeration* staff:
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A Publication of
The Standard Celeration Society
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Editor’s Comments

Claudia E. McDade

Ogden Lindsley’s keynote addresses from the 1996 International Precision Teaching Conference headline this issue of the *Journal of Precision Teaching and Celeration*, as he challenges us to increase our aims for the next century. He also presents a highly efficient method of training Chart-based concepts of frequency, performance differences, and celerations which gets all participants involved quickly. While the International Precision Teaching Conference in Seattle in October, 1996 was a huge success, highlighted by visits to and live demonstrations from Momingside Academy, the next conference promises to be very exciting as well. Details are included in this issue for the 1997, Thirteenth Annual International Precision Teaching Conference to be held in Hartford, CT, which will include visits to Ben Bronz Academy.

This first issue of our fourteenth volume demonstrates rather creative and varied uses of our fluency-based technology. Articles include the use of Precision Teaching to improve cross-stitching skills, second language skills (in both Hebrew and Russian), and creative writing skills in humans, as well as heeling skills in a puppy. Reading skills enhancement in both kindergarten and high school subjects are also described. An evaluation of elementary students’ comprehension of Channel One after precision retelling is one of the first systematic assessments of this widely used elementary school tool. Additionally, we have several enlightening Chart shares in this issue.

All of us in Precision Teaching are so busy improving and applying our technology that we are often criticized for our inadequate publishing record. This office receives at least three requests per week for information and assistance. With e-mail and behavior analytic bulletin boards, the requests are accelerating. For example, I have a Master’s student who wants to use PT to increase the verbalizations of an autistic adolescent, while Libby Street has one who wants to improve comprehension of statistics with PT within a groups design. Has anyone out there had any experience in these areas? Submit your manuscripts or Chart Shares! The world is desperate for our superior measurement technology; we must share it!
Thirteenth International Precision Teaching Conference
West Hartford, Connecticut
October 30 through November 1, 1997

Precision Teaching:
Yesterday, Today, and Tomorrow

There has been a recent increase in start ups of Learning Centers and Private Schools using Precision Teaching technology from pre-school through higher education.

Master teachers will share their experiences and the data supporting student progress.

Spend a full day at BEN BRONZ ACADEMY. Sit in on classes: talk to students and faculty.

HEAR AND SHARE
Expert Panels
Workshops
Poster Session
Chart Share
Cracker Barrel Session

For additional information, call or write:

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or

Alleen 'Stan' Spence, Ph.D.
Program Coordinator
Ben Bronz Academy
139 North Main Street
West Hartford, CT 06107
Phone: (860) 236-5807
Fax: (860) 233-9945
Now, in its 32nd year, PRECISION TEACHING has had a bumpy ride:

YESTERDAY:
We made many important discoveries about rate and learning; our successes and failures taught us much and led us to where we are.....

TODAY:
The current proliferation of Precision Teaching based Learning Centers, Private Schools, and University and Business Training Sites, continues the work of developing the technology which will lead us into.....

TOMORROW:
When we will fulfill our commitment to deliver quality education to all children.

Come to the PT Conference;
participate, celebrate, and share with other Precision Teachers, your:
• early discoveries
• current activities
• future developments

Invited panelists will introduce each time frame: PT \{Yesterday, Today & Tomorrow\}

In your Conference proposal: share your teaching/learning methods, discoveries, and celebrations!

* See attached proposal guidelines
Submit all proposals by March 1, 1997 to: (Note: Poster session proposals will be accepted until Aug. 31, 97)
Aileen Stan-Spence, Ph.D.
1997 Conference Coordinator
Ben Bronz Academy
139 North Main Street
West Hartford, CT 06107
FAX (860) 233-9945 PHONE (860)236-5807
CRITERIA FOR ACCEPTANCE:
All proposals are competitively reviewed through a careful and systematic peer review process. They are evaluated on the relevance, scope, clarity, and practicality of their content, and the specificity, and clarity of their objectives. This includes the possibility for audience participation, and the use of audio-visual materials, handouts and references.

The following criteria for acceptance MUST be met to be considered:
- The form must be accurately completed.
- The form SHOULD be either typed, or printed from a computer.
- The name of the PRIMARY SPEAKER must appear on the form.
- The form should present concise objectives.

ABSTRACT CONTENT:
Your abstract paragraph should be a summary of the objectives in your presentation. Do not list your objectives here. Please elaborate. The paragraph should contain pertinent details of your presentation.

OBJECTIVE:
At least three objectives should be listed which describe the learning outcomes, such as “At the end of the session, participants will be able to demonstrate, identify, complete, etc...”

PROGRAM DESCRIPTION (Please type all information):

Program Title: ________________________________________________________________

List in one clear sentence the goal of the session and list up to 3 objectives:

Goal: _______________________________________________________________________

Objectives: 1. ___________________________________________________________________
2. ____________________________________________________________________________
3. ____________________________________________________________________________

Program Abstract: a) Provide a short description of the program, and b) include a description (or charts) of Standard Celeration Charted data or other data that you plan to share supporting your conclusions or demonstrations.

Conference Program Copy: Provide no more than a 3-sentence description to be used in the final conference program, subject to editing.

SPEAKER INFORMATION (Please print or type)
Primary Speaker Name __________________________ Title __________________________
Organization __________________________ Address __________________________
City __________________________ State _______ Zip __________________________
Telephone: Office ________________ Home ________________ E-Mail: ________________
Have you presented a session on this topic before? Yes No
If so, when and where? ______________________________________________________

Note: All additional speakers should be contacted by you prior to submitting this proposal. The Program Committee will only correspond with the primary speaker. All other participants should be informed of program status by the primary speaker.

ADDITIONAL SPEAKERS (Use additional pages if necessary):

Name __________________________ Title __________________________
Organization __________________________ Address __________________________
City __________________________ State _______ Zip __________________________
Telephone: Office ________________ Home ________________ E-Mail: ________________

PRESENTATION:

Your program should relate to one of the following program educational tracks. Please check the track which is most closely related to your program. Check one category only.

- 1. Precision Teaching: Yesterday
- 2. Precision Teaching: Today
- 3. Precision Teaching: Tomorrow

PRESENTATION FORMATS:

- Full session: 50-minute presentations, mini-workshops, demonstrations, etc.
- Poster session: This provides an opportunity to share data and a written summary text on track boards, with others. Posters will be on continuous display, with specific times assigned for presenters to be present for informal discussion.

AUDIO-VISUAL EQUIPMENT:

Meeting rooms will be set theatre style with a lectern, head table, overhead projectors and screens. Speakers are responsible for other audio-visual equipment.
Sad E-Mails: Notices of Leading Behavior Analysts' Deaths

Tom Lovitt
<Lovitt@u.washington.edu>

Dear Folks:
As many of you probably know, William Schoenfeld died last Saturday, August 3. There was a nice obituary in the Thursday, August 8 New York Times, page A15. He wrote Principles of Psychology in 1950 with Fred Keller.

Ogden Lindsley
<Olindsley@aol.com>

Dear Folks:
This is getting to be quite a year!

In 1944 in the 98th bomb group we used to sing our own lyrics to the music of "That Old Gang of Mine." They went:

Only seven crews at briefing,
That's a pretty certain sign.
Those SS's are breaking up
That old gang of mine.

Now it looks like I might have to change the words a little to:

Only seven old friends at ABA,
That's a pretty certain sign.
Those aging cells are breaking up
That old gang of mine.

(Second time through you can sing "cancer cells" in place of "aging cells" for variety and a dash of accuracy where appropriate. We used to substitute "109's" for "88's" in WW2 lyrics to add a dash of accuracy where appropriate.)

First Tom, then Fred, now Don.

Don was one of Fred Keller's Columbia Ph.D's. Brilliant guy, courageous, great sense of humor. Intolerant of mediocrity in himself and others. One of the first into programmed instruction, one of the first into PSI, and also one of the first into computers. He was working at the Cambridge Center on a great book about the history of behavior analytic applications in education. I saw a few parts of it. It was beautifully written, as was his recent memorial to Fred Keller.

This blasts me into even more action in trying to get one or two of my books written before I am awarded the posthumous purple heart.

Here's a copy of a note from Michael Cook in the e-mail message that I received:

Michael Cook

I am very sorry to inform you that Donald passed away this morning at 10:45. His whole family was with him, and he died in Dawn's arms, peacefully. There will be a memorial service sometime in the fall. If you wish to send a note to Dawn, the address is: 36 Burroughs Street, Jamaica Plain, MA 02130.

As Ever,
Og
The Secret Celeration Society

Stephen A. Graf and Malcolm D. Neely

An Alternative Way to Promote Standard Celeration Charting

Introduction

Many of us have tried to promote charting for many years with little or limited success as measured by use within either the general population or the scientific community. How might we diversify our attempts beyond conventional teaching/learning models?

Low frequencies of interest

Charts and graphs represent "turn-offs" for many. Most individuals would readily label themselves as "Chart Challenged" if not "Chart Phobic." This may stem from:
- the undue complexity stemming from stretch-to-fill charts
- the lack of understanding of the different number worlds

High frequencies of interest

Some topics generate rather high degrees of interest. Conspiracy theories provide one example. Examples include:
- assassinations of President Kennedy and Lee Harvey Oswald
- cover-ups of UFO sightings and crashes, such as the 1947 Roswell incident

Strategy

What we try to promote, people resist. What we try to hide, people find enticing. How might we try to increase interest in a valuable low frequency topic? Incorporate high interest elements or redefine the low frequency topic within a high frequency of interest framework. Example: cast Standard Celeration Charting or the Standard Celeration Society as a secret society with an agenda aimed at transforming society by enhanced understanding of information and change. Select societal pinpoints, chart them, and call the resulting charts "secret."

Tactic 1993

Demonstrate the speed and effectiveness of a standard view. At the IPTL Conference in Salt Lake City, five of us "conspired" to share our collections of yearly national charts in the hotel's sub-basement. While attendees at the conference were given the time of the presentation, the location was available only through requests made at a designated spot. The presentation consisted of three overhead transparencies presented simultaneously with the pinpoints announced sequentially without comment. The next set of three quickly initiated a recycling of the process, with some 75 charts presented in about 15 minutes.
Demonstrate the ease of chart reading and sharing. We displayed this tactic at the Internation Precision Teaching International Conference in Seattle, WA, using data from the Worldwatch Institute's 1996 collection. 57 yearly per year Standard Celeration Charts were created from templates on StatView®, a software program. Session attendees picked up a transparency off the stack, presented the Chart on an overhead and provided celeration readings of the data, aided by the use of Ogden Lindsley's celeration fan. As in 1993, three overheads were used.

After reading this article and viewing the sample Chart, tear the page from the Journal and destroy, leaving only a few bits and pieces to trace.

Dr. Stephen Graf is a Professor of Psychology at Youngstown University, Youngstown, OH 44555. Dr. Malcolm Neely retired from the Washington State Public School System in 1993.
World Geothermal Capacity

Sample chart from "The Secret Celeration Society" presentation
World Disasters in $ Damage

Overall Celeration: x² every 5 years
Bounce = x10
No Jumps No Turns
Outlier; Peak 1995; one-fourth of a bounce below course

Source: Worldwatch Institute
Worldwatch Database Disk 1996
Charted by: Steve Gral, Standard Celeration Society
Chart Program: StatView® 4.5
Celeration Fan is a trade mark of Ogden Lindsley
Do Times Two, Then Go for Four, Or More: 
Precision Teaching Aims for the 21st Century.

Ogden R. Lindsley

An outline of our 20th and 21st century challenges
Here follows a brief historical outline of our major 20th century discoveries and the even more exciting challenges facing us in the first part of the 21st century. We have the knowledge, the energy and the tools to accomplish amazing progress in learning in the next 25 years.

We are poised on the threshold of amazing progress. Our knowledge, skills, position and timing are excellent... LET'S GO!

20th century discoveries
We started with rate of response and "pinpoint, record, and consequate," which Nancy Johnson put to music in 1967.

We proved all behaviors multiply with the Behavior Bank.

We proved corrects and errors, positive and negative feelings, and feelings and their related behaviors accelerate and decelerate independently. This required counting and charting accelerate/decelerate pairs from then on.

We designed and tested in practice a full line of daily, weekly, monthly, and yearly Standard Celeration Charts, covering weekly, monthly, 6 monthly, and 5 yearly celerations.

We developed a system of plain English words to describe changes in frequencies and celeration, along with graphical descriptive and interpretive statistics.

We developed practical, inexpensive classroom Precision Teaching and saw it multiply and then be ignored by the educational establishment.

We established private schools (Ben Bronz Academy, and Morningside Academy) and private learning centers (Quinte Learning Center, Haughton Learning Center, and Cache Valley Learning Center) beyond the reach of public school control.

We joined with our brethren in Direct Instruction and combined our effective educational procedures.

We built and grew to understand fluency, and its producers, blockers and products.

One of our popular workshop songs was "Are you charting," written by Hank Pennypacker in 1975 to the tune of Frere Jacques.

Our slogans were "The child knows best," and "Care enough to chart!"

Keynote Address, International Precision Teaching and Celeration Conference, Seattle, WA - 10 October 1996
Sprints
1974 Eric Haughton and Mary Kovacs used 30 and then 15 second practice sessions working with Dominick at St. Catherine’s Developmental Center, Hamilton, Ontario.

1979 Harold Kunzelmann and Carl Koenig used 15 second practice and 20 second screening for referral of preschool and kindergarten children in REFER.

1990 10 second sprints (8 to 10 per day) used for establishing new skills at Morningside Academy by Kent Johnson, Hollind Kevo, and James Peters.

Performance (frequency) ladder
200 per min fluent
2 dimensions:
number
20 per min fast Multiply scale
ever
per minute
slow x

The performance (frequency) ladder has one direction with fluency at its top. It has 2 dimension and is on a multiply scale.

Celeration fans
1938 The diagram calibrating the slope of cumulative records was called “coordinates” by Skinner, and by Ferster and Skinner 1957.

1953 to 1993 I called them “grids” and put them on my cumulative records.

1993 I renamed them “fans” and put them on journal published Standard Celeration Charts (Lindsley, 1996).

1996 Behavior Research Company first put celeration fans on paper SCCs. The fans are a trademark of Ogden R. Lindsley.

It has taken us decades to directly use, describe, and be comfortable with our unique product - celeration. No one else has it.
The learning (celeration) fan has two directions. Celeration has 3 dimensions and is on a power (times self) scale.

An agile person will be able to change direction - learning new skills and unlearning old skills rapidly adjusting to the more and more rapid information age changes.

1972 Lindsley describes the celeration aim star. The arms of the star were tipped at the celeration aim angle. (Frequency aim star had horizontal arms).

1975 x1.25 Kathleen Liberty took middle aim from 600 projects. (53% greater than x1.25 and 66% less than x1.25).

1976 x1.25 White and Haring suggested 6 different celeration aim methods.
1. Set aim date and aim rate.
2. Catch up slope to join peers.
3. Child can do 75% of the time from prior celerations.
4. Similar movement, similar slope. best can do for similar movement.
5. Teacher can do slope for amount of progress that teacher can provide for.
6. x 1.25 Standard Celeration taken from Kathleen Liberty's median.

1979 x1.9 ±2.5 Marilyn Chapel leapt her class of 15 second graders from add to multiply facts without instruction and accomplished x2 celerations. Ever since then I urged precision teachers to set x2 high celeration aims.

1984 x2 slopes on gold and silver rings made and distributed by Eric Haughton but he did not demand x2 aims from his students and teachers.

1991 x2 per week aims for all daily practice at Morningside Academy.
### Daily sprint celeration aims

1992 (Summer) x2 aims set for ten sprints within one day at Morningside Academy by Kent Johnson, Hollind Kevo, and James Peters.

1992 (Fall and Spring, 1993) x2 per day aims for sprints and x2 per week aims for daily practice repeated with success at Malcolm X College by Joe Layng, Angela Boone, and Hubert Dure.

### The Morningside curriculum

The power of the Morningside curriculum is attributed to its fluency generating. No doubt this is important, but I feel that Morningside's real power is that it is the first program to set and demand realistically high celeration (x2) aims for both repeated 10 second sprints on one day and weekly x2 aims for one minute daily practice sessions.

In published articles, the effect and the need for these celeration aims is not mentioned. The whole effect is attributed to fluency with no mention of Morningside's even more powerful and unique use of distinguished (x2) daily and weekly celeration aims (Johnson and Layng, 1992).

### 21st century challenges

We will build and grow to understand agility, and its producers, blockers and products.

We will focus on and add knowledge and experience of celeration. Just as we learned the products of aiming at high fluency, we will learn the benefits of aiming at high agility.

If we build tool skills at higher accelerations (agility), will we get super high deceleration's (degility) for future tasks?

What are the practical limits to celeration? Will there be different limits for different channels? Is it possible that the hear-say channel, which tends to be our most fluent channel, prove to be our most agile channel as well?

Just as we got fluency generativity from building component tool skills to high frequency, will we get agility generativity from building component tool skills at high celerations?

Our large scale applications at Morningside, Malcolm X, Chicago Public Schools, Haughton Learning Center, Cache Valley Learning Center, and Ben Bronz Academy provide unique opportunities to examine what Harry Harlow called “Learning to Learn” fifty years ago. Harlow tried to study it using percent of trials correct as his measure. We have the advantage of having learning in 3 dimensions - number per minute per week, and of having learning to learn in 4 dimensions - number per minute per week per year.

A popular workshop song will be “We all promise, we will do times two!”

And our slogan will be “Do times two, then go for four, or more!”

Thank you for joining me in this grand adventure!

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Keynote Address, International Precision Teaching and Celeration Conference, Seattle, WA - 10 October 1996
References


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Keynote Address, International Precision Teaching and Celeration Conference.
Seattle, WA - 10 October 1996

15
Precision Teaching Classics Sung By The Audience

At the designated points in the previous outline I led the audience in choral singing of the following three Precision Teaching songs. The words were typed in large 42 point type on overhead transparencies and pointed to in rhythm to lead the singing.

The first two songs represent two of the different stages in the evolution of Precision Teaching. The third song presents our future challenge in the first quarter of the 21st century.

Pinpoint, Record, and Consequate!
1967

Words and music by Nancy Julia Ann Johnson, for Precision Teaching Workshops, Kansas City Missouri.

Pinpoint, Record, and Consequate.

Be specific, get that rate,

Aim at the target, then consequate!

Pinpoint, Record, and Consequate!

Are You Charting?
1973

Words by Henry S. Pennypacker sung to the folk tune of Frere Jacques, for Precision Teaching of Florida workshops.

Are you charting? Are you charting?
Yes we are! Yes we are!
Chart a little movement. Look at the improvement!
Every day, In every way.

Are you changing? Are you changing?
Yes I am! Yes I am!
Changing my procedures. Helping little creatures,
Learn to grow. See them grow!

Are we teaching? Are we teaching?
Yes we are! Yes we are!
Teaching with Precision, making each decision,
with our charts. From our hearts!
From our hearts!

We shall not be moved
1920s

This classic union song was sung on picket lines in the strike-torn 1920s.

We shall not - we shall not be moved.
We shall not - we shall not be moved.
Just like a tree that's standing by the water,
we shall not be moved!
Words by Ogden R. Lindsley to classic union picket-line tune of “We shall not be moved,” for International Precision Teaching and Celeration Conference, Seattle WA.

We all promise - we will do times two.  
We all promise - we will do times two.  
Just like our friends at Morningside and Malcolm,  
We will do times two!

Kent is our designer - we will do times two.  
Kent is our designer - we will do times two.  
Just like our friends at Morningside and Malcolm,  
We will do times two!

Og’s our chart inventor - we will do times two.  
Og’s our chart inventor - we will do times two.  
Just like our friends at Morningside and Malcolm,  
We will do times two!

Joe’s our program builder - we will do times two.  
Joe’s our program builder - we will do times two.  
Just like our friends at Morningside and Malcolm,  
We will do times two!

Hollind is our trainer - we will do times two.  
Hollind is our trainer - we will do times two.  
Just like our friends at Morningside and Malcolm,  
We will do times two!

Jim is our developer - we will do times two.  
Jim is our developer - we will do times two.  
Just like our friends at Morningside and Malcolm,  
We will do times two!

Huby is our trainer - we will do times two.  
Huby is our trainer - we will do times two.  
Just like our friends at Morningside and Malcolm,  
We will do times two!

Angela’s our developer - we will do times two.  
Angela’s our developer - we will do times two.  
Just like our friends at Morningside and Malcolm,  
We will do times two!

Black and white together - we will do times two.  
Black and white together - we will do times two.  
Just like our friends at Morningside and Malcolm,  
We will do times two!
Immediate Retelling of Current Events from Channel One by Students with Developmental Disabilities and Its Effect on Their Delayed Retelling

Sheila K. Ritseman, Paul R. Malanga, Randy L. Seegers, and John O. Cooper

A multiple baseline across participants design was used to analyze the effects of immediate retelling on the retention of information from Channel One News Broadcasts. Six high school students with developmental disabilities watched the twelve-minute program each school morning and either retold for one-minute into a tape recorder in the afternoon, or retold for one minute both immediately after the broadcast and again in the afternoon. In addition, the study investigated the effect of self-managed retelling compared with the results obtained with immediate retelling. During self-managed retells, students watched the broadcast as before, but instead of immediately retelling into a tape recorder, they retold to themselves for one-minute either on paper (think/write) or in their thoughts. Results indicate that students with developmental disabilities can increase their retention and can learn a method for self-managing their retention skills. They generally enjoyed learning about current events and using the immediate retelling method. Further, the immediate retelling method was correlated with an increased number of points retold in a delayed retelling for each of the 6 students and decreasing the number of incorrect points of information retold.

Many teachers, parents, and school administrators believe that instruction should prepare students for success in the job market or higher education, primarily by improving the academic and vocational skill levels of students. Accordingly, teachers should not simply present information; they should help students acquire and understand effective repertoires. Students learn in many ways, but the instructional variable of active student response frequently correlates with students’ improved academic accomplishment.

Beginning in the late 1970’s, some educational researchers started focusing more on student response outcomes than on instructional processes as effectors to learning. These researchers demonstrated the relationship between active student response and academic achievement. The term active student response refers to an observable response made by the student to an instructional antecedent (Heward, 1994). The number of responses made within a certain period of time measures how much active student responding occurred. Heward (1994) described four reasons for incorporating active student response into an instructional lesson. First, active student response provides the teacher with information regarding student participation during a lesson. The teacher considers the number of responses made by the student, rather than how long the student attends to a lesson. Second, active student response provides students with many opportunities for practicing the target skills, resulting in increased academic achievement. Third, teachers continuously evaluate their teaching and the students’ learning during the lesson, instead of waiting until its completion. Teachers receive immediate feedback on student understanding by listening to or seeing the students’ responses and adapt instruction as needed. Fourth, active student response correlates with increased on-task behavior. Heward (1994) differentiates between active student response from most definitions of on-task. Typically, a student on-task gives the appearance of paying attention and likely following the lesson, but may not make active responses to instructional stimuli. Conversely, active student response provides the students an opportunity to respond, which concurrently usually improves student on-task characteristics.
Active student responding takes many different response forms. For example, when teachers use response cards as a technique for increasing active student response, all students respond by holding up a sign or card in unison. Teachers use the student displays for determining which students need more instruction from those who do not. Response cards, as opposed to the common hand-raising method, not only increase the frequency of responding of students, but also may improve their retention of the content as shown by better quiz scores (Narayan, Heward, Gardner, Courson, & Omness, 1990).

Another example called choral responding evokes oral group responding to a teacher-presented question. Sterling (1991) showed that with choral responding, students responded with academic answers instead of simply listening to the teacher. Furthermore, the students recalled more health facts after being taught with choral responding than they did with on-task instruction.

One other example of active student response involves immediate retelling, as we used in the present study. Few researchers have investigated this technique (Brown, Dunne, & Cooper, in press), but some teachers report effectively using it in practice. Immediate retelling provides students with an active student response by arranging repetition of the material and engaging students in the lesson as soon after instruction as possible, orally or written. In their study using immediate retelling, Brown, Dunne, and Cooper (in press) reported that 9 out of 10 students improved their correct delayed retells (retention) and decreased their incorrect delayed retells by the use of immediate retells and repeated listening.

Active student response appears compatible with multiple modes of instructional presentation, even with an instructional mode such as Channel One. In 1989, Chris Whittle began offering a product to schools addressing common public school concerns of limited budgets (Winter, 1995, January). Whittle provides free use of a satellite dish, video recorders, and televisions to each school agreeing to classroom broadcasts of Channel One, a 12-minute daily news program. Channel One features current events and adolescent issues written for middle and high school students.

Little research exists concerning the educational value of Channel One, and the available reports give mixed results (Johnston & Brzezinski, 1994; Tiene, 1993). Empirically validating the overall effectiveness of Channel One, especially with developmentally disabled youth, captures the need for further research with Channel One.

We found no studies in the existing Channel One literature where students with developmental disabilities served as participants. These students may benefit from learning about current events because of their deficiencies in general knowledge and social adaptive behavior. The exposure to current issues, places, and people in the world around them may facilitate normalized and socially significant conversations with others. Further, presenting material in multiple formats may facilitate retention. Many students with developmental disabilities experience difficulty with retention.

Many instructional techniques correlate with improved retention of acquired knowledge and skills, such as active student responding (e.g., Test, Cooke, Heward & Heron, 1983) and fluency building (i.e., speed plus accuracy and quality) (Binder, 1993). Immediate retelling as an instructional technique encourages active student responding and fluency building. With immediate retelling, students retell as much information as they can during a short counting period (e.g., 30 seconds, 60 seconds) immediately after reading a text or hearing a presentation.

In an effort to extend the present body of literature on academic retention, self-management, and the limited research on active student responding with students with developmental disabilities (e.g., Barbetta, Heron, & Heward, 1993; Cuvo, Ashley, Marso, Bingju, & Fry, 1995; Dugan, Kamps, Leonard, Watkins, Rheinberger, & Stackhaus, 1995), we examined the effects of immediate retelling on the retention of information by students with developmental disabilities. Specifically, we compared our students' delayed number of correct and incorrect current events informational points (i.e., retention) retold per minute from Channel One broadcasts, during conditions with and without immediate retellings. Finally, we studied the effect of students' self-managed, immediate retells on the maintenance of instructional effects obtained from audio-taping their immediate retelling for the teacher.
We considered the following questions: (a) What effect will immediate retelling of current events information have on students’ retention of correct and incorrect informational points retold during a delayed retelling? (b) What effects will self-managed immediate retelling have on informational points retold during delayed retelling? (d) Will student opinions concerning current events instruction and using immediate retelling change at the end of our research?

**METHOD**

**Participants**

Six high school students from a self-contained classroom for students with developmental disabilities served as participants. The 6 students, 2 female and 4 male students, ranged in age from 15 to 19 years, and were enrolled in grades 10 to 12. They may or may not have been mainstreamed into one of the following: study hall, lunch, physical education, choir, Drawing I, General Science, Integrated Math, Civics, Construction, Home Care, Typing II, and a resource room Algebra class for students with learning disabilities.

These students were selected because they were in the first author’s (hereafter referred to as teacher) first period English class when they watched the Channel One broadcast every morning. All but one student regularly attended a seventh period Life Skills class, during which the students taped their delayed retellings. Table 1 presents specific individual participant information.

Table 1

*Participant Information*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Grade</th>
<th>Age</th>
<th>SES</th>
<th>IQ(^a)</th>
<th>Composite(^b)</th>
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<tbody>
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<td>F</td>
<td>11</td>
<td>18-8</td>
<td>Low</td>
<td>71</td>
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<td>12</td>
<td>19-9</td>
<td>Middle</td>
<td>76</td>
<td>70 +7</td>
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<tr>
<td>3</td>
<td>M</td>
<td>12</td>
<td>18-9</td>
<td>Low</td>
<td>73</td>
<td>53 +7</td>
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<tr>
<td>4</td>
<td>M</td>
<td>10</td>
<td>17-6</td>
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<td>72</td>
<td>66 +7</td>
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<td>5</td>
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<td>10</td>
<td>16-10</td>
<td>Middle</td>
<td>71</td>
<td>65 +8</td>
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<tr>
<td>6</td>
<td>M</td>
<td>10</td>
<td>17-3</td>
<td>Middle</td>
<td>72</td>
<td>47 +8</td>
</tr>
</tbody>
</table>

\(^a\)Full Scale Intelligence Quotient. WAIS-R used for the scores of participants 1 - 3 and WISC-III used for participants 4 - 6.

\(^b\)Composite score from the Vineland Adaptive Behavior Scale. The composite combines communication, daily living, and socialization.
Setting, Materials, and Media

The setting was a first-floor classroom for students with developmental disabilities measuring approximately 9.3 m by 6.2 m. There were nine desks arranged in three rows in the middle of the room. These desks faced the east wall that contained a large chalkboard with two smaller bulletin boards on each side. A television was affixed to the wall to the students’ left, 2 m from the floor. Audio-tape recorders were arranged in stations around the periphery of the room. Two audio-tape recorders were located on the waist high counter which ran the length of the north wall. A third audio-tape recorder was placed on the kitchenette counter along the west wall. Also on the west wall was the door to the hallway. The fourth audio-tape recorder was located on a table along the south wall. The final two audio-tape recorders were placed along the east wall, one at a computer table and one on a desk. The teacher’s desk was located near the desk holding the sixth audio-tape recorder. Two small windows faced each other on the east end of the north and south walls. The room also contained a bathroom in the southwest corner of the room.

A 16-inch Magnavox television was permanently mounted to the wall, and angled downwards for easy viewing. Each morning, the media center specialist broadcasted Channel One to the classroom. Channel One is a 12-minute news program designed for students in grades 6 through 12 and produced by Channel One Communications. Early each morning, the program was transmitted to the satellite at the high school and recorded on one of two video cassette recorders in the media center. The program was then retransmitted to each of the networked televisions in the classrooms around the school. The television was automatically turned on, and the program began. Volume was controlled with the buttons on the television, and the power button on the television allowed the broadcast to be turned off at any time. At the end of the broadcast, the television automatically turned off.

Six audio-tape recorders were used during the study by the students to tape their one-minute retellings and by the teacher to listen to the retellings while counting retells. Three of the audio-tape recorders were Bell and Howell recorders, model number 3191A. The other three were EIKI audio-tape recorders with model number 5090A. Each student had a sixty-minute Maxell brand Communicator Series audio-cassette tape with name and student number clearly displayed on the tape’s label. A second set of six identical tapes was accessible in case of the teacher’s or observer’s unavailability to score the first set in time for the next day. The teacher used a stopwatch to accurately signal the start and end of the one-minute retelling time. The teacher also used data collection sheets to record daily behavior counts and Standard Celeration Charts (Pennypacker, Koenig, & Lindsley, 1972) to chart student progress.

Definition and Measurement of Retelling

The number of correct and incorrect informational points of current events retold by students in one-minute as a delayed retell, five hours after a 12-minute Channel One broadcast were counted. Correct informational points consisted of accurate details from that morning’s broadcast. A point was counted as correct when the student used the correct pronunciation of it, or when the pronunciation was close enough in approximation that the teacher understood the informational point. Understood pronunciations of the following parts of speech counted as correct informational points: (a) proper nouns—people’s first and last names; titles; names of cities, countries, continents; (b) names of buildings, rivers, lakes, oceans; names of organizations or companies; titles of books, newspapers, magazines; days of the week, months, holidays (e.g., President, Bill, Clinton, Paris, France, White House, Pacific Ocean, United Nations, War and Peace, Labor Day); (c) common nouns—objects, general places, concepts (e.g., book, grocery store, wealth); (d) adjectives and adverbs—modifiers used in the broadcast, modifiers not used in the broadcast but synonymous with those used, modifiers not stated but student generated to describe video shown in the broadcast (e.g., blue, five, large, huge, outside, slowly); (e) verbs—actions performed by someone or something, linking verbs with the correct complement (e.g., repaired, appointed, may become president, was healthy); and, (f) prepositions—only used with the correct object as part of a prepositional phrase (e.g., in the water, off the committee).
Informational points were counted as incorrect as follows: (a) words said that the teacher could not understand (e.g., "He lives in Calabash, Ohio." Calabash would count as 1 incorrect - should be Columbus); (b) inaccurate retelling of informational points (e.g., "There was an earthquake in Peru." Peru would count as 1 incorrect - should be Columbia); (c) information from commercials (e.g., "Charles Barkley dunked the ball on the shoe commercial." One sentence about a commercial would count as 1 incorrect); (d) information from old broadcasts (e.g., Informational points not reported in that day's broadcast would count as 1 incorrect for each sentence corresponding to an old broadcast or 1 incorrect for each incorrect informational point included in a sentence with corrects); (e) information from other news sources (e.g., Informational points from newspaper, magazine, and network news not on the Channel One broadcast would count as 1 incorrect for each sentence completely from other news sources or 1 incorrect for each single informational point from another source included in a sentence with corrects); (f) information about the newscasters or about non-news conversations between news stories (e.g., "The newscaster wore a t-shirt that a school in Los Angeles sent." One sentence about a newscaster or non-news conversation would count as 1 incorrect); and, (g) opinion phrases about the broadcast (e.g., "I think", "I did not like").

Not all information given by the students was counted as either correct or incorrect. The following words used were not counted: conjunctions (e.g., and, or), pronouns (e.g., he, she, it), interjections (e.g., yea, oh), articles (e.g., a, an, the), repetitions of previously counted corrects (e.g., the name of a person used more than once when retelling a news story would count as correct the first time and not counted on subsequent times), and nouns, verbs, or modifiers with no essential information (e.g., "They went to this one place.").

During the daily broadcast of Channel One, the teacher wrote important facts and key phrases from the broadcast on a teacher-developed data collection sheet. Six copies were made of this data collection sheet, one for each student's retelling. The teacher then listened to the audiorecorded one-minute retelling of each student and recorded correct and incorrect responses by writing each counted informational unit at the bottom portion of the data collection sheet. Each informational point to be counted, as defined earlier, was written under the corresponding column for correct or incorrect informational points.

Interobserver Agreement of Measurement

Because "observer drift" could relate to potential confounds in this study, interobserver agreement measures were taken. An independent observer trained to assess the believability of the teacher's measurement of the dependent variable assisted. The teacher explained the purpose of the study, the definition of the correct and incorrect informational points, the procedures for listening to and scoring the audio-taped retellings, and the use of the data collection sheets to the independent observer. The teacher and independent observer practiced scoring using the one-minute retellings the students recorded as test skill practice. The teacher and observer compared correct and incorrect responses after independently scoring an audio-tape. If 100% agreement was not reached on the first comparison, the observer and teacher again listened to that audio-tape until 100% agreement was reached. Practice continued on additional audio-tapes until the teacher and observer reached 90% agreement or higher on three consecutive audio-tapes.

During the study, the observer randomly chose three of the six students' audio-tapes to score in three day intervals. The teacher made copies of the unmarked data collection sheets for the observer and to assure independence of observation, the observer listened to the audio-tapes at a different time and in a different setting than the teacher. For each retelling scored by the observer, the observer's data were compared to the teacher's and interobserver agreement was calculated. The percentage of agreement was computed by dividing agreed upon informational points by the agreements plus the disagreements, and multiplying by 100. Interobserver agreement is reported as an overall middle agreement, the high and low points in the spread of agreement overall, and a mean agreement for each student.

The teacher and observer's overall middle agreement was 88 percent, with a spread from 71 to 100 percent agreement. The mean interobserver agreement for individual students spread from a
low of 81 percent for Participant 3 to a high of 94 percent for Participant 5.

Experimental Design and Procedures
We used four conditions--Channel One broadcast, Channel One broadcast with immediate retelling, Channel One broadcast with cues and immediate retelling, and Channel One broadcast with a self-managed immediate retelling--in a multiple baseline experimental design (Cooper, Heron, & Heward, 1987) to analyze the effects of the immediate retelling on the retention of current events informational points. We manipulated the condition across students where there were three baselines of two students each. All students began baseline condition (delayed retelling without immediate retelling) at the same time. The first two students moved to the second condition after a minimum of five data points, or whenever they reached steady state responding, whichever occurred first. When a treatment effect began with the first two students, the treatment began for the second baseline of students. Procedures were the same for the third baseline of two students.

A sequential-withdrawal design (Rusch & Kazdin, 1981) programmed for maintenance. The sequential-withdrawal design consists of sequentially withdrawing different components of the treatment in successive experimental phases following a noticed treatment effect. For this study, when a treatment effect was shown, treatment components were withdrawn in this order: audio-taped immediate retelling, instruction for self-managed retelling, and self-management cue cards. This sequential-withdrawal design programmed for maintenance by increasing the probability of maintaining the treatment effect shown by the immediate retelling, even after all cues and contingencies were removed.

General procedures. Before the study, the teacher and students discussed that they watch news broadcasts to (a) learn about current events and the world around them and, (b) that knowing current events will give them access to conversations in school, home, leisure, and work settings.

Throughout the study, one-minute retellings of remembered informational points of current events retold by the students were taped on audio-cassette tapes for later assessment by the teacher. Each morning at 7:30 a.m., at the beginning of the school's first period class, the teacher instructed the students to complete their preparations for the day and sit at their desks. As soon as the television was turned on for the beginning of the Channel One broadcast, the teacher said, "Please, quiet down and listen carefully to today's Channel One. Later you will each be asked to recall all that you remember from today's program." During the broadcast, the teacher prompted the students as needed to refrain from speaking during the news sections of the broadcast by saying such things as, "Please, no talking", "Quiet down, so others can hear", or "Please, save your comments for your retelling later." Students could quietly talk during the commercials. The teacher answered, but did not solicit, students' questions about the preceding program after the broadcast. The teacher used questions like who, when, what, and why to help lead students to an answer to their questions. Throughout the watching of Channel One and the taping of their retells, the teacher gave intermittent praise comments to the students such as, "Nice listening", "Thank you for paying such close attention", or "Good participation on the retells."

Developing tool skills. The teacher had students practice the steps they would later need to perform before the study began by assigning an audio-tape recorder station to each of the students and instructing them to always tape their retellings at that station. Students practiced the following procedures to assure their understanding of how to record their retellings correctly:

1. Students sat at their respective stations and followed directions of the teacher.
2. The teacher had students practice putting the audio-cassette tape in the recorder and taking it out.
3. Students practiced finding and pressing record and play buttons simultaneously and the stop-eject button.
4. Students were instructed to leave the volume indicator at the pre-set level.

On two consecutive days, students watched a 12-minute pre-taped portion of network news.
Commercials during this broadcast were also watched to match the Channel One format. Procedures for watching the broadcast followed those mentioned previously. Students then went to their stations and practiced a one-minute retell of information remembered from the broadcasts. Feedback on content, speed, number of informational points retold, correct and incorrect responses was given to each student.

Channel One broadcast. At 12:45 p.m. each day, five hours after Channel One, students were asked to record a one-minute retelling of that morning's broadcast. (Occasionally, due to scheduling difficulties, one of the students recorded delayed retelling at 10:45 a.m. three hours after Channel One.) The teacher instructed the students to go to their assigned audio-tape station and wait for further instructions. When each student was ready, the teacher said, "You are going to have one minute to tell as many informational points as you can remember from this morning's Channel One broadcast. When I say 'record', press the record and play buttons. When I say 'date', state today's date and that it is seventh period. When I say 'begin', you may begin to retell." The teacher used a stopwatch to time the one-minute period starting with 'begin' and said, "Time. Please press stop on your audio-tape players." at the end of the one-minute.

Channel One broadcast with a one-minute immediate retelling. During the intervention condition of the study, students retold for one minute immediately following the Channel One broadcast at approximately 7:47 a.m. Procedures were the same as for the delayed retelling explained above, except that students were instructed to state that it was first period, not seventh period. Students also did a one-minute retelling, as described above, during seventh period.

Channel One broadcast with cues and a one-minute immediate retelling. During this condition of the study, students were given a cue for each story from that day's broadcast as a reminder of how many different stories there were and what they were about. The cues were either one or two words and were intended as a reminder to the students to think about telling as much as they could from the entire broadcast. The teacher either showed the cues to the students written on a hand-held index card, or wrote the cues on the chalkboard, depending upon whether everyone was in this condition or only some of the students. Procedures were the same as for the delayed retelling with an immediate retelling condition with the addition of the teacher, either showing or reading from the chalkboard the cues for that day.

Channel One broadcast with a self-managed immediate retelling.

Teacher instruction for self-management. At the beginning of the self-management condition of the study, the teacher explained that, as preparation for the afternoon delayed retell, students would learn a new way of immediate retelling. Students now knew how to retell, and this new method was a way of having students be responsible for using the method best to keep ideas in their memory. The teacher demonstrated and explained two methods for students to use when retelling to themselves: retell to oneself or retell on paper. With both methods, the students could choose to use or not to use a self-management card that served as an outline for reviewing a news story using the five W's of questioning (i.e., Who, What, When, Where, Why).

The teacher displayed a sample self-management card on the overhead projector and explained to the students what type of information would fit under each of the categories. Next, the teacher demonstrated the card's use with a newspaper article. The teacher read aloud the article to students and then, answering each question on the card, generated possible informational points from the story. Students were also asked to add any additional informational points they remembered from the story and what category under which they would belong.

The teacher then introduced the methods of retelling in one's head and retelling on paper. The teacher explained how each method followed the steps they just did together with the card, but that it would not be done out loud or with another person. Neither method was favored over the other by the teacher. The teacher also explained that students would still be timed for one minute when doing this method of retelling.

Self-management. During the self-management condition of the study, procedures for viewing Channel One were the same as de
scribed in the general procedures section. Immediately following the broadcast, students were asked to get their self-management cards and a piece of paper if they chose to do a retell on paper. Once all the students were ready, the teacher said, "You are going to have one minute to retell to yourself as fast as you can all that you can remember from this morning's Channel One. When I say begin, start reviewing in your mind or writing on paper." The teacher again used a stopwatch to time the one-minute period and said, "Time. Please stop your retelling" at the end of the one-minute. The teacher received no record of the immediate retelling. Procedures for the delayed retelling were the same as described earlier.

**Procedural Integrity.** To assess the likelihood that the procedures were applied as planned and described (Billingsley, White, & Munson, 1980), four independent observers on alternate days used a checklist of steps in the procedures to provide a measure of procedural integrity. The teacher made the checklist which included each specific step as explained in the procedures section. An observer either listened to an audio-taped recording of the entire session (from the beginning of the Channel One broadcast to the end of the one-minute retellings) or observed in the classroom during the actual intervention at least once every three days. We calculated procedural integrity by dividing the number of steps checked as completed by the total number of steps on the checklist. If discrepancies arose between the checklist and the observed procedures, the observer discussed them with the teacher, and they verbally practiced a sample intervention with the observer acting as a participant. The observers found that the teacher followed the specified procedures 99 percent of the time during the 16 sessions checked. Total agreement was achieved for all but one session, with 92 percent agreement.

**RESULTS AND DISCUSSION**

Standard Celeration Charts display correct and incorrect informational points of current events retold in one minute as a delayed retelling for students 1 through 6. A focus line was used to draw the celeration courses shown on the Charts. All students consistently retained and retold more current events from the Channel One Broadcast with Cues and Immediate Retelling than during other conditions. Moreover, the frequency of correct delayed retells during the Cues and Immediate Retelling had less bounce (variability) from session-to-session. Cues and Immediate Retelling were functionally related to the improvement of delayed recall. Objectively, these changes in delayed recall were large enough to warrant attention. Subjectively, the students' response to the immediate retelling indicated they knew the immediate retelling helped them to do their delayed retelling. Often, they mentioned they remembered what Channel One was about because they could remember what they said that morning. These results support Heward's (1994) analysis that active student responding enhances learning because of the increased practice students receive. Consistency with other related research on immediate retelling as an independent variable (Brown, Dunne, & Cooper, in press) also suggests the Cues and Immediate Retelling package is functionally related to increases in correct delayed retells.

Results are unclear, however, concerning how the addition of the one or two word reminders (i.e., cues) to immediate retelling affected the delayed recalls. Researchers report (e.g., Bransford, Franks, Owings, Vye, & McGraw, 1982; Lukose, 1987) that students with developmental disabilities seem less able than regular students to provide their own organization to incoming information and therefore need help in arranging information for retention. The four students in this study who received the immediate retelling condition without the cues made little or no improvement in delayed recall. This lack of student improvement evoked use of additional cues. Perhaps the addition of cues provided enough of a response prompt to occasion consistent responding. Cues in this case were likened to headings in reading text that function to make the organization clear to the student as an aid in retention (Holley, Dansereau, Evans, Collins, Brooks, & Larson, 1981). Further, the cues might have influenced the improvement in recall because these cues changed the immediate retelling from a free recall to one of recognition plus recall. Students needed to only recognize, not come up with the cues, and then the cues perhaps triggered the recall of other points of information. This interpretation appears consistent with Skin
ner's definition of the intraverbal operant (Skinner, 1957).

Channel One provided the context and content for the retelling. Results further the research already done on increasing students' knowledge of current events (Johnston & Brzezinski, 1994; Tiene, 1993). Teachers and researchers report mixed opinions as to whether Channel One by itself significantly improves current event knowledge. This study suggests that some classroom practice procedures can improve any effects that passive watching may have.

Despite the positive results of the immediate retelling method, it is labor intensive for the teacher. Classroom teachers can, however, reduce the intensive labor of our method. For example, teachers could arrange partner sharing following a presentation where the teacher would not have to listen to all student retells; or teachers could use reciprocal teaching with immediate retelling. Palinscar and Brown (1984) correlated reciprocal teaching with increased comprehension and retention.

The frequency of incorrect delayed information points retold by students decelerated from the Channel One Broadcast to Channel One Broadcast with a Self-Managed Immediate Retelling, the final condition. Although students continued to make some incorrect responses, they more often made no, or only 1 incorrect response per minute of retelling. Again, these improvements can be attributed to incorrect delayed recall to the Cues with Immediate Retelling method. Students are likely to make some incorrect delayed recalls, and an instructional goal of no incorrects would probably be difficult to consistently attain. This conclusion is consistent with other findings that report students with developmental disabilities make more errors when remembering and taking longer to recall than students without special needs (Caruso & Detterman, 1983).

In their research on Channel One, Johnston and Brzezinski (1994) and Tiene (1993) found that students who viewed Channel One without discussion, quizzes, or other methods to increase retention, scored only a little better on test scores compared those who did not watch the broadcast. Further, the students who watched Channel One still incorrectly answered 50% of the test items. Rapid pace of presentation, the lack of student knowledge about the complete background of the stories, and the difficulty level of some of the content in this story likely contributed to the occurrences of incorrect delayed responses. Students usually made fewer correct and more incorrect responses when the Channel One broadcast had especially difficult topics such as congressional term limits or the balanced budget amendment. The difficulty level of some broadcasts probably accounted for many occurrences of incorrect recalls.

All students showed favorable delayed recall of information during the Channel One broadcast with the Self-Managed Immediate Retelling condition. Students demonstrated that they could apply a recall strategy on their own that could be used when watching news at home. This result is an important outcome for students because knowledge of current events may increase their normalization in society and improve their adaptive behavior. Whether the students transferred the self-managed retell is unknown because this generality issue was not addressed. It is possible, however, that students will use the method. O'Sullivan and Pressley (1984) found that their participants learned a mnemonic strategy and transferred its use to other situations. Clearly, the assessment of generality of the self-managed immediate retelling represents an important area for future research on recall, beyond this assessment of maintenance which is also a type of generality.

Several limitations are related to subjects, independent variables, and the experimental design. First, many student absences and school scheduling conflicts often broke up and lessened the number of sessions available for data collection. Since this study was completed at the end of the school year, students had no opportunity to view Channel One during spring break, field days, or class trips. Participation in field days and class trips always increase during the last few weeks of the academic year in this school.

Second, Channel One was developed for use with middle and high school students. The difficulty level of some content above was the understanding of most students in this study. Also, the amount of information that students recalled from difficult broadcasts probably depended on the students' understanding of those topics. Students' previous knowledge of the content
presented or their knowledge of the theoretical as opposed to concrete nature of the topics was not assessed.

Third, few studies have used immediate retelling as an independent variable. Because of this lack of research and evidence to support its use, the generality of using retelling as an independent variable is still questionable.

Fourth, although the sequential-withdrawal design (Rusch & Kazdin, 1981) was used to program for maintenance, other generality concerns were not assessed. For instance: Did the use of self-management occur in other settings (e.g., homes) or with other content (e.g., network news broadcasts)?

Finally, delayed retells during the end of the seventh school period, the class period that provided the most distraction to remembering were assessed. Students during this period and the preceding period were often involved in enjoyable activities such as cooking, shopping, and volunteering that broke up the academic context of the school day and perhaps made it difficult to refocus on academic performances. This limitation, however, further argues for the efficacy of immediate retelling.

Students completed a questionnaire about Channel One before and after this research to evoke their opinions about watching and learning from Channel One. They did not report a large change of opinions, but opinions that changed from the before to the after assessment changed in a positive direction. Absence of large change in opinions was probably due to the high rankings the students gave on the questionnaire before the study. Certain questions did show, however, a larger change in opinion than others. For instance, after the study, more students reported talking about what they saw on Channel One with both people at home and at school, finding the commercials less interesting, and becoming increasingly interested in the news content.

After the study, when students were asked what they did not like during the study, they answered that (a) they could not remember enough information for the 1-minute assessment, (b) they found retelling difficult, and (c) they could not talk to their neighbor during Channel One. Four students reported that what they did for this study would help them in the future. When asked why, the students said because they knew how to listen better or that they had practice remembering. The other 2 students could not think of a reason for how it could or could not help them. All 6 students reported that they believed they remember more from Channel One now than they did before the study.

The method of immediate retelling as an independent variable is a novel one. The present study suggests that retelling as an independent variable did aid in increasing retention. Behavior analysts need to study the effects of retelling on retention with other populations, other school curricula, and other presentation formats (e.g., reading). Further research is needed to determine the effectiveness of immediate retelling without the addition of cues.

Some questions still remain after the completion of this study that could focus the replications of this study or variations of it. What are the long-term benefits of using immediate retelling as a practice activity with Channel One? Will the students transfer the self-managed retell to home situations? Will the students transfer the self-managed retell to other learning situations?
a = without Cues
References


Utilizing intact and embedded heading as processing aids with narrative text. Contemporary Educational Psychology, 6, 227-236.


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The Effects of Using Direct Instruction Reading and a Re-Reading Contingency, Coupled with a Reward and Praise Contingency, with a High School Sophomore

Kelly R. Holz, Stephanie M. Peck, T. F. McLaughlin and Sue Stookey

The purpose of this study was to evaluate the effectiveness of using re-reading as a consequence for failing to read passages rapidly using the Direct Instruction approach with Corrective Reading, Skill Applications: Decoding C (Engelmann, Meyer, Johnson, & Carnine, 1988). The participant was a 16-year-old male, born in California, but had lived in Germany for 12 years. He returned to the United States with an extensively fluent vocabulary in the German language but had little exposure to the English Language; he was placed in a special reading program to improve his English reading skills. He read slowly, made many errors, but had close-to-perfect comprehension. The number of words read correctly, the number of errors made during an oral reading, and the number of times the student had to re-read the passage in order to correctly read the material in 1 min. and 20 sec. was measured. A single-case design was implemented to examine effectiveness of Direct Instruction, a re-reading contingency, a reward contingency, and praise on the reading fluency of this student. The results indicated that Direct Instruction, the re-reading contingency, and the use of praise were effective in improving correct rate. The effect of implementing the reward contingency was also discussed. The utility of re-reading, reward system and the praise contingency combined with Direct Instruction were discussed.

Building reading skills at an early age establishes the necessary foundation for further enrichment in multiple areas of the curriculum. Reading is an important skill which allows people to broaden their experience while exploring the world in which they live. The ability to read is crucial, not only for success in education, but also for achievement later in life. It has been suggested that failing to acquire reading skills will adversely affect one's everyday life and may make it highly unlikely that one will enjoy an economically and socially successful adult life (Danziger & Gottschalk, 1995; Hart & Risley, 1995).

Direct Instruction and the application series Corrective Reading (Engelmann, Meyer, Johnson, & Carnine, 1988) is a skill-based reading instruction program for students of all ages and levels. The emphasis of this program is on the student-teacher interaction, which is carefully guided by lessons that are sequenced in a logical manner. The two major rules of Direct Instruction are to "teach more in less time," and to "control the details of what happens" (Engelmann et al., 1988).

According to Darling-Hammond and Snyder (1992), teacher behaviors emphasized in models of Direct Instruction include frequent single-answer questions, drill and practice, large-group choral responding, and controlled practice. These strategies are integral in the prepackaged curriculum, Corrective Reading (Engelmann et al., 1988). Specifically, Direct Instruction materials, such as Corrective Reading use highly sequenced lessons to pace students through the materials in a very specific order. By arranging learning tasks into a series of small and sequentially organized steps, the desired behavior can be taught directly and shaped accordingly.

Direct Instruction has been demonstrated to be an effective method for improving the literacy of children and adults (Carnine, Silbert, & Kameenui, 1990). It has been suggested that the success of Direct Instruction
is due to the components of explicit, scripted teaching materials, and precise feedback procedures to deal with student errors. Moreover, Direct Instruction provides a precise analysis of environmental-behavioral relationships that shape learning, analyses of curricular areas into logically organized skills, and analyses of how these skills can be taught most effectively to the student through a precise, logical presentation formula.

Evaluations of Direct-Instruction approaches with children who are at-risk for failure in reading have been extremely positive (Gersten, 1985). The national evaluation of Project Follow Through, which was developed to assist primary-age low income children in their schooling, found that the Direct Instruction model had a beneficial effect on the achievement of the students who participated for a full four years (Carnine, et al., 1990; Engelmann et al., 1988; Gersten & Keating, 1987; Gersten, Keating, & Becker, 1988). The results revealed that significantly more Follow Through students (93.1%) graduated from high school than did comparison students (81.7%).

Although extensive research has been conducted on the efficacy of Direct Instruction with elementary school children at risk for school failure and older students with disabilities (Gersten 1985), few studies with older children (Blackwell, Stookey, & McLaughlin, 1996) and children who use English as a second language, have been conducted. One of a few studies, Blackwell, et al. (1995) found that employing Direct Instruction procedures could improve the reading fluency of a high school student. In addition, the number of times that the participant had to re-read the material to reach his goal for fluency was lower when Direct Instruction was employed. The purpose of this study was to evaluate the effectiveness of using rewards and praise with the Direct Instruction Reading Program, Corrective Reading Skill Applications: Decoding D (Engelmann et al., 1988), on the acquisition of reading fluency and accuracy with a high school student. The present case study also attempted to extend the use of Direct Instruction with students who use English as a second language. The final purpose was to replicate the work of Blackwell, et al. (1996).

Method

Participants and Setting
The participant, Gary, was a 16-year-old high school male, born in California, but moved to Germany at age 2 years. While he was in Germany, German was the primary language spoken. The family returned to the United States when he was 14 years old. In spite of his primary language being English, he informed the authors that he "thought" in German.

Gary was enrolled in general education classes but attended a remedial reading class to improve his basic reading skills. He had no deficits in his academic skills other than reading. Gary's reading difficulty appeared to be related to his use of German as his primary language. Gary reported that he mentally translated everything he read from English to German. It is noteworthy that his oral English skills were sufficient enough for him to function well socially; however, his reading speed and accuracy were in need of improvement.

The setting was a special education classroom, located in a building adjacent to the main high school building. The classroom was staffed by a certified special education teacher and a part-time teaching assistant. The special education teacher volunteered her free period to assist and teach high school students who encountered problems with their academic performance. Students were also referred to the program due to their below grade level performance in the basic skills.

Materials
The materials used during this study were Corrective Reading, developed by Engelmann, Meyer, Johnson, and Carnine (1988). The grade level of materials used in the classroom ranged from the third to twelfth grade level. At the beginning of the school year, Gary began the Direct Instruction program
at the beginning of the series, at the third-grade reading level, and he progressed through Lesson 24. At the time of the investigation, Gary was reading Lesson 25, estimated to be at the sixth grade level. On average, one lesson was completed per day. The standard for progressing from one lesson to another was that Gary was required to read from the lesson at a rate of 200+ words correct per minute.

**Dependent Variables and Measurement Procedures**

There were three dependent variables evaluated: the number of words read correctly, the number of re-reads required to read a passage in 1 minute, 20 seconds, and the number of errors. A word was scored as read correctly if Gary pronounced the word exactly as it was written in the text. A re-read was defined as reading an entire passage from beginning to end. An error was defined as a word that was mispronounced, omitted, inserted, or a word that was not read in 5 seconds. An error was also recorded if the subject requested a delay in timing while reading a passage.

**Experimental Design and Conditions**

A single-case alternating treatments design was used to assess the effectiveness of the independent variables. They were: Direct Instruction, praise, and a reward contingency. Both a Direct Instruction intervention and a reward system intervention were implemented separately and in combination to identify which intervention produced the best performance. If the Direct Instruction intervention was most successful, it was hypothesized that the student’s poor performance was the result of a language skills deficit. If the combined use of Direct Instruction and the reward system was the most effective, it was hypothesized that the student’s insufficient performance was because of the lack of motivation and skill.

**Direct Instruction (Baseline).** Baseline consisted of giving the participant a practice sheet of words that were to appear in a passage that the student was to subsequently read. The sheet included nine sounds that were introduced at the beginning of each lesson. After practicing the sounds and words, the participant read the passage. If the student could not read the entire passage in 2 minutes, he was required to re-read the same passage several times out loud until he could read the entire passage in 1 minute, 20 seconds or less. Baseline data were taken for four sessions, and each session lasted approximately 45 minutes.

**Direct Instruction and praise contingency.** The first of three interventions implemented was the praise contingency. In this condition, the instructional procedures used were the same as in baseline. However, during this condition, the experimenter also provided praise, contingent upon the subject’s efforts to read. Praise included any positive remarks made to the student, such as “good job reading the passage” or “you improved by 10 seconds, nice work.” During this condition, the experimenter continued to correct the errors but also gave positive feedback.

**Direct Instruction, praise, and reward contingency.** The second intervention was a reward contingency. Rewards were selected by the subject and were ranked from one to six using the Rank Ordering for Tasks, (See Figure 1 for a sample). The six rewards were ranked as follows: 1) comic book or magazine of choice, 2) Power Bar, 3) ball-point pen (black ink), 4) postcards, 5) gum, and 6) glow-in-the-dark stickers. Prior to reading the passage, the student and experimenter set a goal for how many re-reads it would take to meet the 1 minute, 20 seconds criterion. The student received a reward chosen by the experimenter if he completed the particular lesson with fewer than the decided number of re-reads. If the student exceeded the targeted number of re-reads, the reward was withheld and reserved for the next lesson.

**Direct Instruction (Baseline).** The third intervention was the same as Baseline and was alternating with the praise and praise/reward contingencies.

**Interobserver Agreement**

Interobserver agreement was taken once during Baseline and three times throughout the intervention by the student and the ex-
Table 1

Ratings for: Gary
Date: February 1996
Academic Area: Reading

<table>
<thead>
<tr>
<th>TRAID</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC</td>
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<td>1</td>
<td>0</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>BCD</td>
<td>1</td>
<td>0</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
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<tr>
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<td>2</td>
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<td></td>
</tr>
<tr>
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<td>2</td>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
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<td>2</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
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<td>3</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL

Key for Ranking
0 = least preferred
1 = neutral
2 = most preferred

Table 2

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Comic/magazine/cars</td>
<td>Pens</td>
<td>Glow-in-the-dark stickers</td>
<td>Powerbar</td>
<td>Pencards</td>
<td>Gum</td>
</tr>
<tr>
<td>#2</td>
<td>*Most Highly Preferred Item</td>
<td>**Least Preferred Item</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results and Discussion

The results are displayed in Chart 1. The means and ranges by phase are also summarized in Table 2. The data showed that Direct Instruction procedures alone, using the Corrective Reading materials were not very effective in improving the student's reading skills. Although the participant's average reading rate was fastest during Direct Instruction only, Direct Instruction alone in the absence of any contingencies actually resulted in more errors and re-reads than when combined with the earning of a reward.

Given that the Direct Instruction intervention combined with a reward system produced the best performance, the hypothesis that the student's inadequate reading performance was due to a lack of motivation was supported.

According to Carnine, Silbert, and Kameenui (1990), some students come to school eager and willing to learn, while other students experience difficulty in acquiring an interest in learning. Motivation can be obtained by first demonstrating to the student that they can succeed in reading. This is done through carefully planned materials and instruction. Second, extrinsic rewards can be provided to the student contingent upon accurate reading. In this study, Gary was provided a reward contingent upon reaching the criterion...
Table 2

Number of corrects and errors for each session across the various experimental conditions

<table>
<thead>
<tr>
<th>Phases</th>
<th>Corrects</th>
<th>Errors</th>
<th>Re-reads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Instruction (Baseline)</td>
<td>$\bar{x} = 387.3$ (Range: 381-398)</td>
<td>$\bar{x} = 13.3$ (Range: 9-21)</td>
<td>$\bar{x} = 15$ (Range: 13-16)</td>
</tr>
<tr>
<td>Direct Instruction and Praise</td>
<td>$\bar{x} = 386.3$ (Range: 360-402)</td>
<td>$\bar{x} = 11.3$ (Range: 6-18)</td>
<td>$\bar{x} = 11$ (Range: 9-16)</td>
</tr>
<tr>
<td>Direct Instruction with Praise</td>
<td>$\bar{x} = 368$ (Range: 328-397)</td>
<td>$\bar{x} = 9.1$ (Range: 1-14)</td>
<td>$\bar{x} = 7.1$ (Range: 3-13)</td>
</tr>
<tr>
<td>Reward</td>
<td>$\bar{x} = 390$ (Range: 374-402)</td>
<td>$\bar{x} = 30.5$ (Range: 16-38)</td>
<td>$\bar{x} = 15.2$ (Range: 13-16)</td>
</tr>
</tbody>
</table>

within a limited number of re-reads. When rewards were removed from the intervention package, the rate of errors increased rapidly, and the number of re-reads increased.

It is important to note, however, that the use of rewards or praise in the absence of Direct Instruction was not tested; therefore, it is unknown whether rewards alone would have been sufficient to improve Gary’s reading. It is possible that although Direct Instruction alone did not improve Gary’s reading, it was an integral component for success when paired with the reward system. Specifically, Direct Instruction procedures may have allowed Gary to reach the criterion for earning the reward. These issues should be evaluated in future research.

References

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Fluency is an essential element of good reading (Allington, 1983). A lack of fluency in oral reading has commonly been attributed to poor reading skills. Sweeney (1992) pointed out that much of the research in reading remediation focuses on improving decoding skills, rather than in addressing important variables related to fluency and reading comprehension. Allington (1983) argues that a focus on decoding skills is incomplete. Research shows a direct relationship between low decoding rates and important deficits in reading comprehension (Biemiller, 1977-78; Deno, Mirkin, & Chaing, 1982; Jenkins & Jewell, 1992; Lovett, 1987; Starlin, 1992). Therefore, several authors are advocating the adoption of fluency strategies, such as repeated readings, as a means of improving both decoding and comprehension skills of deficient or at-risk readers (Slocum, Street, & Gilberts, 1995; Samuels, 1979; Sweeney, 1992; Sweeney, Omness, Janusz, & Cooper, 1992). Fluency, as Lindsley (1990, 1991) describes, is developed through a combination of instruction and repeated practice. Repeated readings promote automaticity in reading by making decoding automatic (Downs & Morin, 1990).

Fluency in a given task can be indicated by rate, latency or duration (Howell & Lorson-Howell, 1990). Rate, combined with accuracy, is the best measure of how well a student can do a given task (Lindsley, 1990, 1991). When rate measurement of fluency is used, performance can be compared not only across students but between repeated measures of an individual student's responses (Howell & Lorson-Howell, 1990). Fluency is also closely related to the generalization and maintenance of skills (Binder, 1993; Dowhower, 1987; Scott, Stoutimore, Wolking, & Harris, 1990), the transfer or flexibility of learning, and the effective use of skills in demanding or stressful situations (Binder, 1993).

Precision Teaching techniques are not instructional strategies, but rather "measurement procedures and performance standards" used to record student response frequencies and provide a picture of behavior changes over time (Downs & Morin, 1990). Combining effective teaching strategies with precise measurement, recording, and charting of performance has produced impressive results (Binder, 1993). For example, fluency-building instructional procedures combined with Precision Teaching measurement practices raised elementary students' scores on the Iowa Test of Basic Skills between 20 and 41 percentile points over three years in one Montana study (Binder, 1993). Additionally, programs such as the Morningside Academy in Seattle, Washington produce an average improvement of three grade levels in children and youth in a
single year and guarantee an average of two academic years' worth of improvement in two separate academic skills for adults every five weeks (Binder, 1993).

Repeated reading is a practice procedure for learners to enhance basic reading skills (Samuels, 1979). The learner reads and rereads a short passage repeatedly until a satisfactory fluency level is attained (Sweeney, 1992). Readers can work with passages at any level of difficulty, with error correction immediately and consistently provided. Samuels (1979) compares repeated readings to athletic skill drills and recommends graphing results to further motivate students.

Research in the area of repeated readings was successful across a variety of curricula, classrooms, and student populations. The combination of repeated readings, a seecover/write procedure, and Precision Teaching measurement procedures were employed to improve the reading and spelling of an adult with severe reading and spelling deficits (Sweeney, 1992). Carroll, McCormick, and Cooper (1991) combined repeated readings and Precision Teaching strategies to increase the reading fluency of students with behavior disorders who had severe reading disabilities. The combination of repeated readings with reciprocal peer tutoring and Precision Teaching measurement procedures were used to improve the reading fluency of third-grade students with learning disabilities (Lee, 1990). Repeated readings and free-retells were used by Sweeney (1992) to improve the oral reading performance and literal comprehension of eighth- and fifth-grade students who were identified as academically at-risk due to their reading problems in the classroom.

Downs and Morin's (1990) criteria for students in need of fluency training in reading includes students who: (a) read less than 80 words per minute; (b) frequently repeat, hesitate, or misread; (c) read below grade level; (d) read too fast and ignore punctuation; (e) lack expression and omit vocal inflection; and (f) hesitate to read orally, even in individual sessions. Standard teaching techniques often inhibit fluency by limiting practice and providing continuous feedback and error correction which interrupts and slows performance (Binder, 1993). Repeated reading procedures combined with Precision Teaching measurement techniques not only give performance feedback but motivate students as well (Downs & Morn, 1990). Reading fluency is best built by reading passages, not by drills with isolated words or phrases (Howell & Lorson-Howell, 1990).

Another effective procedure for the acquisition and fluency of sight-words is the use of a SAFMEDS procedure (Eshleman, 1985; McDade, Austin & Olander, 1985). SAFMEDS stands for S-say, A-all, F-fast, M-minute, E-every, D-day, S-shuffle. Essentially, this is a flashcard procedure with a stimulus on one side of a card and the desired response on the other side of the card. Research in this area has shown important elaborations and improvements in the acquisition and fluency of sight-word recognition for students (Eshleman, 1985; McDade et al., 1985). Further, SAFMEDS are used with a variety of different students, from those in elementary classrooms to those students at the university level, as well as with a variety of different curricula (e.g., math facts, research terminology, history facts, etc.).

Decoding words in a second language demands familiarity with the phonemes and alphabet of the language. The use of paired associations between English sight-words and the second language sight-words is usually the instructional mode adopted by most foreign language teachers (Hammerly, 1974; Hammerly, 1979; Oskarsson, 1975). In a recent study, Soliman and Adepoyu (1993) showed aural feedback was a successful instructional approach for the initial foreign language acquisition to 16 seventh-grade students.

Although Precision Teaching measurement procedures, combined with a variety of measurably effective instructional strategies, such as repeated readings and SAFMEDS, are successful at improving academic and social behaviors, the authors found only one Precision Teaching study that dealt directly with the acquisition of foreign or second languages by students with disabilities. Held (1992) used a computer generated, match-to-sample procedure with three high school aged students with severe behavior handicaps for the acquisition and fluency development of Spanish sight-words. The Precision Teaching measurement procedure showed impressive elaborations related to the acquisition and fluency of Spanish sight-words across all three participants.
The purpose of this study was to evaluate and improve the acquisition and fluency of Hebrew as a second-language with an 11-year-old, fifth-grade girl. A multiple intervention and Precision Teaching measurement system was employed to evaluate the fluency levels related to: (a) a see/write to see/think Hebrew alphabet acquisition; (b) a see/say Hebrew SAFMEDS procedure; and (c) a see/say Hebrew repeated readings procedure. The primary setting for the study was in the student's home.

Method

Participant and Setting
Adira, the 11-year-old daughter of the first author, served as the participant. Adira had taken Hebrew lessons for three years. Her classes were held at the local temple, one afternoon a week for two hours throughout the regular school year. Adira had received deficient reports from her teacher the previous spring, and the Temple school had recently decided that students not meeting the minimum requirements for each grade level would be held back from the next level of Hebrew instruction. The Temple school's five years of Hebrew lessons prepared children for their bar or bat mitzvah. [A bar or bat mitzvah (son or daughter of the commandment, respectively) is a Jewish religious ceremony acknowledging and commemorating that a son or daughter has reached a level of development where he or she is recognized as fully responsible for personal religious and moral actions. The bar mitzvah is the traditional male rite-of-passage into adulthood in the Hebrew faith, while the bat mitzvah is the traditional female rite-of-passage into adulthood in the Hebrew faith. Typically, a bar or bat mitzvah is celebrated when a boy is 13 years of age, or when a girl is 12, and after they have received extensive training in the language, traditions, and ceremonial and religious customs that accompany the Jewish faith. The bar/bat mitzvah ritual is usually held in the synagogue to mark the occasion. The young adult reads a prophetic Scripture passage (the haphtarah) in Hebrew to the congregation and may be called upon to lead all or parts of the service. The bar/bat mitzvah is then recognized as a full member of the congregation, legally responsible for his/her own actions and able to count as a member of the required quorum of ten (Neusner, 1993).]

In Adira's temple, bar/bat mitzvahs are expected to lead both the Friday and Saturday services, with the option of also learning to read the Torah as time permits. Several bar/bat mitzvahs were canceled in the past because students were not meeting the Temple school's Hebrew proficiency criteria. Adira's bat mitzvah was set for two years and three months from the onset of the intervention, where she was significantly behind in her learning. After two years of Hebrew school, she was still unable to say or write the alphabet, sound out words, or read the prayer book. Adira met the criteria for lack of reading fluency stated by Downs and Morin (1990) by: (a) having an extremely low reading rate, according to her Hebrew teacher for the past two years; (b) performing poorly when asked to read, also based on teacher reports; (c) being well below expectations for her grade level, based on her rabbi's standards; and (d) choosing not to read in class or services when given the opportunity.

At the end of the current religious school year, Adira was expected to be able to chant 17 different selections in Hebrew and lead an entire Friday evening service. This service was a standard practice of the current rabbi at the synagogue she attends. It was important for her to be fluent in Hebrew pronunciation during the Friday evening service before she began fourth and fifth year classes. The fourth and fifth year lessons were taught by the rabbi and focused solely on the much more demanding Saturday morning service and haphtarah readings.

The temple school taught students to read the Hebrew prayers and blessings before teaching chants or tunes, so this study focused on repeated phonetic readings of Hebrew texts. The school did not necessarily teach Hebrew to be spoken, nor were readings taught for content. Students become familiar with the different sections of the services and the prayers and blessings associated with each, but direct translation was not learned. Content was taught by discussing English translations and the history of the prayers and blessings.

Instruction in this study took place in Adira's home in the evening using the dining room table or other quiet spots in the house.
Materials
During the first condition, a gaudy, foot-long, plastic ruler containing the Hebrew alphabet (i.e., spelled alephbet in Hebrew) in script was used as a guide and to check for correct and incorrect movements. Forty-one preprinted flashcards depicting the individual letters and vowel marks in book print were used in the second procedure. These forty-one flashcards composed a deck of SAFMEDS used for the acquisition of the Hebrew alphabet. The back of each SAFMEDS card named the letter or vowel, gave the correct pronunciation, and showed how to write each in manuscript and cursive. The pronunciation given for vowels was Sephardic (i.e., Spanish or Portuguese), so these were altered to reflect the Ashkenazic (i.e., German) pronunciation preferred by the local rabbi. The Friday night prayer book used in the local temple, Likrat Shabbat. was utilized for practicing all of the repeated reading passages.
All timings were recorded on a data record sheet, and charted on a Standard Celeration Chart. The student was shown how to record and chart data and frequently assumed responsibility for this.

Performances
Hebrew Alphabet Acquisition. The first condition moved from a see/write to a see/think learning channel set, with the goal of teaching Adira the Hebrew alphabet. Hebrew is both written and read from right to left. The Hebrew alphabet consists of 32 basic consonants, five of which have variant forms (differing by the placement of a dot), and five of which have final forms, used when a letter occurs at the end of a word. Vowel markings are used in prayerbooks in the U.S., but not in Torah scrolls or in Israel. Vowel marks are included to help beginning readers and others not fluent in the language. They are denoted by dots and dashes, usually placed beneath a consonant, but occasionally appearing above or beside one. There are nine basic vowel markings.
Letters were counted correct when Adira wrote accurately in script form in proper alphabetical order, and incorrect when the cursive letter form was inaccurately written, written out of order, or omitted. Two timings were conducted per session; the better performance was then recorded. An instructional aim of 60 letters per minute was selected based on the performance of an older, experienced student who performed 64 letters in one minute.
A 12 inch ruler containing the 32 characters of the Hebrew alphabet was placed where Adira could easily see it. At least 10 minutes were spent in see/write repeated practice of the alphabet. Adira became adept at writing the alphabet without referring to the ruler after the first few sessions, so the learning channel changed from a see/write to a think/write. One-minute think/write timings were conducted immediately after each practice session. Adira self-corrected her work by visually comparing it to the ruler. Her work was then checked by the first author.
Hebrew SAFMEDS. The second movement cycle employed a SAFMEDS procedure of the Hebrew alphabet to teach letter and vowel/consonant sound recognition. Using the SAFMEDS, Adira was given one minute to see/say as many cards as she could, while the first author watched and recorded for correct and incorrect letter pronunciations. Corrects were defined as any card for which the sound produced matched the sound given on the card. Incorrects were defined as any mispronunciations or passes related to a given SAFMED. Corrections made by the student after a card was face-down were counted as incorrect. Two separate timings were conducted after each session; the better score was then recorded. An aim of 60 sounds per minute was established, based on suggested performance standards (Intermediate School District No. III. 1974; Koenig & Kunzelmann, 1977; Koenig & Kunzelmann, 1980; White & Haring, 1980).
Practice consisted of Adira flipping through the cards one at a time while pronouncing the sound associated with the letter or vowel mark depicted. SAFMEDS were placed face-down, so the response could be checked by the tutor. SAFMEDS on which Adira made frequent errors (usually vowels) were singled out for additional practice. After flipping through all SAFMEDS at least six times, she was timed for one minute.
Repeated Readings. The third movement cycle was a see/say learning channel set, using repeated readings practice. Adira was told to read as much of the selection as she could during a minute, repeating the passage until told to stop. Corrects were defined as words pronounced accurately, in order, and as written. Incorrects
were defined as words omitted, passed, or mispronounced. Two timings were conducted, and the better score was recorded. An aim of 160 words per minute was selected, based on the performances of two teenagers and an adult who were proficient readers of Hebrew (e.g., 145, 151, 168, respectively).

The tutor for the repeated reading practice was Adira’s fourteen year old sister. Her older sister had five years of Hebrew lessons and had been bat mitzvah 9 months before the study. She was also employed by the local temple to tutor students in their final months of bar/bat mitzvah training.

Practice for the repeated readings was held for 10 to 60 minutes, depending on the tolerance level of the tutor. During this time, Adira read the selected reading as best she could. Initially she worked on pronouncing each word aloud correctly before moving on to the next word. Once a line was sounded out, the tutor instructed her to repeat the line several times. As her accuracy increased, Adira was told to read as quickly and correctly as she could, repeating the reading until the timing took place. Errors were corrected during practice by the tutor. When a word was mispronounced, Adira was told the correct pronunciation and instructed to repeat the word and then to either begin with the word immediately preceding the problem word or to go to the start of the line in which the word appeared and begin from there to ensure that the word was used correctly in context. One-minute timings took place after each practice session.

Ahavat Olam, a prayer using 45 words from the Ma’ariv or introductory section of the Friday night service, was selected for the first repeated reading because Adira did not know it. The second reading containing 24 words was Tzadik Katamar, from the Kabalat Shabbat service. The third reading with 21 words was the Barhu, also from the Kabalat Shabbat service. (Typical words in all three readings contained just over 4 consonants - vowels were not counted). The second and third readings were introduced simultaneously, during the repeated readings practice. Data were collected and scored separately for each reading. Adira was not working on these passages at Hebrew school and had never read them before the beginning of tutoring. She was somewhat familiar with all of these, having been to services in which they were read.

General Procedures
The first author and her oldest daughter served as tutors throughout the study. Instruction during the study consisted of three major components: (a) see/write and see/think Hebrew alphabet acquisition; (b) Hebrew sight-word vocabulary drills using SAFMEDS; and (c) oral reading fluency of Hebrew text using repeated readings. Instruction for the first four weeks consisted of the see/write and see/think Hebrew alphabet recognition exercises, combined with the SAFMEDS to develop fluency with Hebrew sight-word vocabulary. Instruction for the remaining six and a half weeks consisted of repeated readings on Hebrew scripture passages. Each of these separate components was assessed daily using one minute timings to determine the effectiveness of the instructional components. The see/write and see/think direct instruction functioned as a warm-up activity to bolster and improve prerequisite tool skills. The tutors used direct instruction, guided practice, and independent supervised practice to ensure accuracy during the see/write and see/think portion of the instruction. After the completion of this see/write and see/think exercise, a one minute timing was conducted to assess Adira’s fluency in Hebrew alphabet recognition. Adira and the tutor both counted the number of correctly written Hebrew letters and the number of incorrect letters by comparing them to the Hebrew alphabet models on the 12 inch ruler. Adira then self-corrected any errors made during her one-minute timing.

During the SAFMEDS practice, Adira practiced her SAFMEDS by seeing the front of one of the cards and saying the correct Hebrew letter or word on the back. If she said one of the cards incorrectly, she corrected herself and put the card back in the deck to go over again. The SAFMEDS that she correctly pronounced were put to one side and considered mastered for that session. After she practiced saying the SAFMEDS at least six times, she did a one-minute timing. The tutor again served as the counter during the one-minute timing.

The last component of instruction was the use of repeated readings to evaluate Adira’s Hebrew oral reading fluency. The tutor followed along
while Adira read a selected passage aloud. The tutor identified reading errors as Adira read the passage and told her how to correctly pronounce a given word. Adira then correctly pronounced the word, reread the word in context, and resumed reading the remainder of the passage. At the end of this instructional reading period, Adira completed a one minute time trial over the selected repeated reading passage. The tutor served as counter and identified any errors made during the one minute timing and remediated any errors.

Results

Table 1 summarizes data from the acquisition of written Hebrew consonants. Additionally this table presents Adira’s data on pronouncing Hebrew letters and sight-words. Results from Chart 1 show two accelerating data paths for the number of correctly written consonants and a fairly flat trend in learning opportunities during the see/write-think/write condition. During the first six sessions, the student’s celeration on correctly written consonants accelerated at x15 per minute. A second trend occurred during the final nine sessions, when the celeration for the number of correctly written consonants accelerated at x1.4 per minute.

During the see/write-think/write, the student’s overall performance change for correctly written consonants accelerated at x18 per minute, while learning opportunities and skips decelerated by -15 per minute.

Results from Chart 2 show an accelerating data path for the number of correctly pronounced sounds and a decelerating path in incorrectly pronounced sounds and skips. During SAFMEDS practice, Adira’s correctly pronounced sounds accelerated at x1.25 per minute, while incorrects decelerated by +1.8 per minute.

During SAFMEDS practice, Adira’s overall performance change for correctly pronounced sounds multiplied by x1.6 per minute. Incorrectly pronounced sounds showed a deceleration of -1.8 per minute with a x6.0 bounce. Only two data points went above 5 per minute during the 15 repeated reading practice sessions.

Table 2 indicates both preassessment and practice session data for all three repeated readings. Repeated reading #1 results from Chart 3 show an accelerating data path for the number of correctly read words, and a decelerating path in learning opportunities during the see/say condition. During the first repeated readings practice, the student’s correctly pronounced sounds accelerated at x2.25 per minute, while incorrects showed a +1.0 deceleration with a x8.0 bounce. Only two data points were above 5 per minute during the 18 repeated reading practice sessions. During the first see/say, repeated readings condition, the student’s overall performance change for correctly read words multiplied by a x20.3 per minute, while incorrects divided by +9.0 per minute.

A maintenance check, conducted 12 days after this movement cycle ended, showed a score of 152 correctly read words per minute and only one incorrectly read word.

Results from Chart 4 show two distinctive celeration data paths for the number of correctly read words and a decelerating trend in learning opportunities during the second see/say repeated reading condition. Adira’s correctly pronounced sounds initially accelerated at x5.0 per minute across the initial five sessions but slowed to an acceleration of x1.7 across the final 11 sessions. Incorrectly pronounced sounds showed a deceleration of -1.8 per minute with a x6.0 bounce. Only two data points went above 5 per minute during the 15 repeated reading practice sessions.

During the second see/say repeated readings condition, the student’s overall performance change for correctly read words accelerated at x40.0, while learning opportunities decreased by +12.0 per minute.

Results from Chart 5 show an accelerating data path for the number of correctly read words and a decelerating trend in incorrectly read words during the third repeated reading practice. Adira’s acceleration of correctly pronounced sounds was a x3.0, while incorrectly pronounced sounds decelerated by -1.6. Adira’s overall performance change for correctly read words multiplied by x21.0, while incorrectly read words divided by +9.0.
Table 1

Student Performance on See/Write and Think/Write Consonants and See/Say Sounds

<table>
<thead>
<tr>
<th>Hebrew Alphabet Acquisition</th>
<th>Hebrew SAFMEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preassessment</td>
<td>4 correctly pronounced sounds/min.</td>
</tr>
<tr>
<td>4 correctly written consonants/min.</td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>12 SAFMEDS Sessions</td>
</tr>
<tr>
<td>14 See/Write and Think/Write Sessions</td>
<td></td>
</tr>
<tr>
<td>Median Correct</td>
<td>56 Correctly pronounced sounds/min.</td>
</tr>
<tr>
<td>53.5 Correctly written consonants/min.</td>
<td></td>
</tr>
<tr>
<td>Range Correct</td>
<td>35-68/min.</td>
</tr>
<tr>
<td>10-67/min.</td>
<td></td>
</tr>
<tr>
<td>Median Incorrect</td>
<td>2 incorrectly pronounced sounds/min.</td>
</tr>
<tr>
<td>5 incorrectly written consonants or skips/min.</td>
<td></td>
</tr>
<tr>
<td>Range Incorrect</td>
<td>0-5/min.</td>
</tr>
<tr>
<td>0-13/min.</td>
<td></td>
</tr>
</tbody>
</table>

* Written incorrects never exceeded 1/min., but skipped/omitted letters ranged from 1-12/min.; incorrect performances only occurred during 4 of the 14 sessions.
Table 2

Student Performance on Three Repeated Readings

<table>
<thead>
<tr>
<th></th>
<th>Repeated Reading #1</th>
<th>Repeated Reading #2</th>
<th>Repeated Reading #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preassessment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of correctly read words</td>
<td>8/min.</td>
<td>5/min.</td>
<td>8/min.</td>
</tr>
<tr>
<td>Number of incorrectly read words</td>
<td>7/min.</td>
<td>3/min.</td>
<td>8/min.</td>
</tr>
<tr>
<td>Practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of sessions</td>
<td>18</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Median of correctly read words</td>
<td>108/min.</td>
<td>116/min.</td>
<td>123/min.</td>
</tr>
<tr>
<td>Range corrects</td>
<td>12-180/min.</td>
<td>11-202/min.</td>
<td>27-171/min.</td>
</tr>
<tr>
<td>Median of incorrectly read words</td>
<td>2.5/min.</td>
<td>3/min.</td>
<td>3/min.</td>
</tr>
<tr>
<td>Range Incorrects</td>
<td>0-8/min.</td>
<td>0-6/min.</td>
<td>0-6/min.</td>
</tr>
</tbody>
</table>
Discussion

Results of this study showed that the combination of see/write-think/write alphabet recognition exercises, SAFMEDS for letter-sound pronunciation, and repeated readings for oral reading fluency with Precision Teaching measurement procedures made important improvements in Adira's ability to read Hebrew. The first two procedures improved her basic decoding skills. The see/write-think/write procedure effectively taught her to write and recognize the alphabet, and she became fluent in producing the sounds associated with consonants and vowel markings with SAFMEDS practice.

Involving Adira's older sister as one of the tutors, meant that three individuals schedules were adjusted to ensure that practice occurred at least four days per week. Tutoring sessions varied in length, usually becoming shorter as Adira's fluency increased. Adira enjoyed timing and charting her behavior. She assumed responsibility for counting and charting, and would let neither her older sister nor the first author know what she had scored until all one-minute timings had been completed during a given session.

Adira reported that she is doing better than she ever had before in Hebrew school (e.g., she has quit complaining about having to go to class). The first author and her older sister continued to work with Adira on other readings, using the same procedures. Adira asked to work with a selection that she is learning in Hebrew school. Shortly after the first repeated reading procedure ended, Adira's teacher introduced Ahavat Olam, and she was able to master it immediately. She enjoyed her success in Hebrew instruction through the use of the different components of the intervention, and did not complain about continuing the procedures even when she knew the study was officially completed.

The results of the current study have important implications related to foreign language instruction and the acquisition of second languages. The results from this study, with its inclusion of Precision Teaching measurement, demonstrate the importance of measurably effective instruction for the acquisition and fluency development of foreign languages (Held, 1992). Further, these outcomes augment existing support of SAFMEDS and repeated readings for classroom instruction. Finally, ease of implementation, data collection, and charting show the efficiency, effectiveness, efficacy, and viability of these procedures with a variety of curriculum materials, classroom environments, and students.

One of the major limitations of this study is the fact that it focused on the acquisition and fluency of pronunciation of Hebrew, rather than addressing the comprehension components of understanding the second language. The focus of this study was for the student to learn to read Hebrew scripture to be able to recite it back at her bat mitzvah, thus being recognized as possessing adult responsibilities in the Jewish faith. Unfortunately, recitation for the sake of tradition without a specific understanding of the Hebrew text through direct translation may inadvertently detract from the magnitude of the occasion and richness of the language and heritage.

Slocum et al. (1995) pointed out that one of the major drawbacks in research related to rate measures of oral reading fluency is that rarely do they directly assess the comprehension levels of students relative to the passages they are reading. Secondly, the research on oral reading fluency (i.e., "word calling") and repeated readings tends to report correlational or subjective judgments of improvements in reading comprehension rather than direct measures of students' understanding of the text (Sweeney, 1992). Exclusion of comprehension as a significant measure of reading achievement greatly limits conclusions related to oral reading fluency. Therefore, it is advisable that future research in the area of foreign language acquisition also directly address variables related to comprehension, for example, through the use of retelling procedures.

The intervention package (i.e., see/write-think/write strategy, SAFMEDS drills, and repeated readings) combined with Precision Teaching measurement procedures was an effective way to teach learners to decode and read a foreign language, and build reading fluency in that language. Future research should examine the effectiveness and efficacy of these procedures across a variety of different foreign languages (e.g., Spanish, French, Japanese, German, Russian, Chinese) frequently taught at the secondary and university levels.
References

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*Learning Russian*

Abigail B. Calkin

In 1972, I read some of Anna Akhmatova’s poetry in translation and thought, “If it’s that beautiful in translation, what must the original be like?” I bought a Russian grammar book and procrastinated until 1987. With a trip to the then Soviet Union coming up, I began to learn Russian and in 11 weeks covered the equivalent of first semester, using one minute timings. A year later I began to take Russian at a university and studied it there for two and a half years using one minute timings to learn vocabulary.

Subsequently, I came across the poetry of Marina Tsvetaeva which I also greatly admired. One of my goals became to learn to read Tsvetaeva in the original and to translate some of her poetry with high translation and English quality.

I renewed my study of Russian shortly before I retired. Currently, I do timings on eight pinpoints and two weekly timings. I also use, untimed, the Pimsleur System (1995) titled Speak. Read. & Think Essential Russian.

The Practices

The Charts for April and May were SAFMEDS in this case, *(Say All Facts a Minute Each Day Shuffled)* only—reading in Russian and translating to English. The timings were one per day, and the celerations ranged from x1.15 to x1.5 on corrects and x1.5 to +2.3 on errors. Once school was out and, as of mid-June, I was retired and able to study an hour to an hour and a half per day; I increased the number of pinpoints to nine. Daily, I first do the set of vocabulary SAFMEDS-see/say Russian, see/translate Russian to English, and see/translate English to Russian. I use the commercially made Vis-Ed cards (1989) and their blank cards also. The cards are 2”x3 1/2” and very easy to handle. The aim on reading Russian SAFMEDS is 90 because I can read English SAFMEDS at that frequency. As of October 29th, I had not reached that aim, but I like it dangling in front of me. The aim on translation is 60 per minute. A phase change to another set of cards is done at the same time on all three pinpoints.

The second set of three timings I do each day is declining nouns and adjectives and conjugating verbs. The aim for declining nouns was 80 until one time I forgot to mark the aim on the Chart and reached 100 per minute; my declension aim is now 100 correct per minute. The adjective declension aim has always been 100 correct. Verb conjugation aim is 90 correct because the verbs I’ve used usually have more syllables than the nouns and adjectives and, therefore, take longer to say.

The third set of timings is pronouncing, reading, and speaking. I use VocabuLearn’s (1989) Russian pronunciation tapes. The Russian speaker is native, and the word is said once in English followed by a pause and the Russian word. My aim is 100 corrects per minute. The reading passage I selected from Khavronina’s (1989), *Russian As We Speak It*. The beginning of this book the professor used for grammar and syntax review as we began our third year of Russian studies. Each chapter begins with a reading passage. I am currently on Chapter 5, with an aim of 140 words per minute until my Russian speech is far more fluent, at which time I shall increase my aim to that of my speech. I started a “speak” Chart, found that counting the words as I spoke slowed me down and began to record my speaking to count the words later. Still, the celeration, x1.25, was not close to what I wanted; I dropped this pinpoint and will resume it when I acquire more Russian.

Due to the complex nature of this study, the Charts for this article have been reproduced in their original form of submission.
In personal communication, July 24, 1996, with Ogden Lindsley, he mentioned the Pimsleur system. The Pimsleur System is a set of 16 tapes designed for use for 32 days to teach speaking the language. The tapes have an English and two Russian speakers. The system is based on two principles: "...the Principle of Anticipation and the scientific principle of memory that [Pimsleur] called Graduated Interval Recall" (p.viii). It most effectively employs the principles of operant learning, using primarily controlled operants. When asking a question in Russian, the learner has about five seconds in which to respond before one of the Russians says the correct response.

Since childhood, I have had a problem speaking a foreign language. My mother was fluent in French with accentless pronunciation, yet she spoke to me in a very reserved manner and with an American accent. Although she was proficient in Spanish and had taught that as well, she refused to speak Spanish in Spain and made me do it—I know no Spanish, so she rehearsed me. From her I learned to be incredibly shy when speaking a foreign language, such that I usually become totally silent, blush and smile. Determined to overcome the shyness that inhibits my conversation and learning when speaking a foreign language, I called SyberVision and ordered the Russian tapes. This takes one half hour per day for 32 days, but I do not count correct and error frequencies. (I practice with these tapes fairly consistently but not every day. When I finish, I plan to do them again since Level 2 is not yet available.) This increases my daily Russian learning time to at least two to two and a half hours per day.

Immediately after doing each timing, I chart it on the daily Chart. Initially, I used Elizabeth Haughton's (1992) stacking—placing the frequencies on the same day line. On return from the International Precision Teaching Conference in Seattle, October 1996, I began to use the Timings Chart (Tpmn-3EC) for some of the pinpoints. Before using the Timings Chart and now, the timing charted on the daily Chart is that which has the highest correct frequency.

I study Russian the first thing in the morning while all is quiet, and the danger of interruption is most minimal. I use the same desk every day, a different one from where I write. I listen to the Pimsleur tapes either during or right after lunch.

On Sundays, I also use a weekly summary Chart to be sure I do some review of the vocabulary cards (Russian to English and English to Russian) on which I have reached my aim. These are the only timed weekly reviews.

Results

SAFMEDS

Accelerations for reading Russian SAFMEDS (Chart 1) ranged from x1.2 to x1.7 with the middle being x1.6. As I continue through the same set of cards, the number of timings per day increases. Accelerations for Russian to English SAFMEDS (Chart 2), corrects, ranged from x1.2 to x2.6, with the middle being x1.3. For errors, the range was +2.6 to +15, with a middle of +3.5.

English to Russian SAFMEDS (Chart 3), the acceleration range for corrects was x1.3 to 2.3, with a middle of x1.5, and for the errors the range was +3.5 to +10, with a middle acceleration of +8. Again, on both of these pinpoints, I increased the number of timings per day before I reached my goal.

Charts 4 and 7 show my first uses of the timings Chart. I am not able to follow Morningside Academy’s rule of "two below the x2 line, ask for help."

Six times I had an interruption within the series of timings. On the following timing (same pinpoint), three times the corrects increased, three times the corrects decreased.

Declining and conjugating

Russian has six cases. There are three different declensions for masculine, four each for feminine and neuter nouns. The singular is different from the plural. There are, of course, the exceptions too. I have learned from conversing with Russians (in Russian) that if I use the wrong form, they look at me as if I made a social faux pas. or, if the person knows me well, I am immediately corrected.
The range of celeration for corrects on declining nouns (Chart 5) was x1.4 to x4.3, with a middle of x1.9. The range of celerations when declining adjectives (Chart 6) was x1.25 to x5.5, with a middle of x1.5.

The range of celerations for corrects when conjugating verbs (Chart 8) was x1.5 to x2.2, with a middle of x1.8. During the fourth phase on Chart 8, I was going to slice back again to first conjugation verbs only during the first week, but I had a conversation with Lindsley (personal communication, July 24, 1996) about component and composite skills in general and decided not to slice back. Good thing! That turned out to be my best celeration on that Chart--x2.2.

I stopped the see/say infinitive to gerund on the timings Chart (Chart 7) because the learning was not fast enough to please me. I did it in the first place because I have noticed in my reading of Russian poetry that the Russian gerund is used frequently and it is sometimes not related in spelling to the infinitive and, therefore, impossible to find in the dictionary. My brief timings on gerunds were sufficient, so that I now identify them readily in poems.

Two things sometimes slow my learning. Apparent from the daily Charts, if I miss several days in a row, the celeration slows. Being away from home for six weeks definitely caused me to skip doing the timings for many days at a time on all the pinpoints. The other is the sometimes detrimental effect of interruption seen on the timings Charts. Once I am within a timings set, if my husband speaks to me, what he says to me stays in my mind during the next timing, in the same way that the Russian words and phrases run through my mind. Thus, if he asks, "Where's the dog?", that runs through my mind with at least the same power as the Russian words. I also notice if I stop during the series on one pinpoint to refill my teacup, my learning is affected. Thus, interfering behavior can be counterproductive to my learning. From now on, I intend to note what the interruption is.

(I am reminded of listening to an NPR program about Gregorian chanting and how monks who chant six to eight hours per day need only about three hours of sleep a night. I have been told by some that when I do the timings, I sound as if I am chanting. We don't know why the one minute timing is so effective in learning, but I wonder if it may be because the timing forbids the entry of stray thoughts, and the information learned goes more quickly to long term memory.)

Pronunciation, reading and speaking

The pronunciation Chart, Chart 9, shows low celerations except for the first phase. Corrects are usually high; errors quickly decelerate to zero. My errors are usually emphasizing the wrong syllable. While I am learning the correct pronunciation, I am often learning the word for the first time. Someone says the word in English, and I say it as often as I can in Russian. While I am saying it, a Russian pronounces it correctly. It becomes a game to see how many times I can say it, and if I can say it at exactly the same time as does the Russian, then I have a "hear" stimulus at the same time as I say the word.

Chart 10 shows the data for reading text. The celerations for corrects range from x1.2 to x155. My present aim in reading text is 140 words per minute. Once I become more proficient, I shall increase that to 200 or 250.

Think/say Russian in conversation (Chart 11) had a celeration of x1.25 for corrects and a jump-up in errors when I began to record the speaking, probably an error in counting. The deceleration of errors was +1.2. I noticed that I often said "uh" because I didn't know what to say next or couldn't think of the word I wanted. While I decelerated that at +1.7, it did not increase the corrects nor decrease the errors by anything close to x1.7 or +1.7. I stopped this timing because I realized that speech at 50 words per minute is too slow, and that I needed more component skills before again timing this large but desirable composite.

Next Steps

General

• I have long been curious about what gives the one-minute timing its power. A part of this is: What is the effect of an interruption on learning during or between timings?
•Have others used the same or very similar format for teaching oneself a foreign language?

**Personal**
Changes I plan to make:
• I shall do Pimsleur each day until I complete it, including review. When it is released, I shall buy the second level of Russian. (This program is also currently available in French, Spanish, German, Japanese.)

• One of Tsvetaeva's books is in four line stanzas. I plan to translate one stanza per morning. While the poetry will not, of course, correspond to the words and grammar timings I am doing, these elements will come up and be examples of applications. Further, it will fulfill one of the purposes of my learning Russian, and it will keep pressure on me to keep learning.

• To maintain doing my timings when away from home, I shall set a specific location and routine in advance. I also shall decrease the number of timings initially until the habit is established, and I can expand to the full set. Occasionally, I shall also vary the location at home.

**References**
Haughton, E. (1992) Learning with Precision Teaching. Presentation at the 10th International Precision Teaching Conference. Park City, Utah.
The Effects of Direct Instruction on Early Reading Skills of a Kindergarten Student

Angela Edmondson, Stephanie M. Peck and T. F. McLaughlin

The purpose of this study was to examine the effects of Direct Instruction on the early reading skills of a kindergarten student through the use of the SRA DISTAR reading program, *Teach Your Child to Read in 100 Easy Lessons* (Engelmann et al., 1983). The participant was repeating kindergarten for the second year at the time of the study. He showed delays in letter recognition, phonic acquisition, and beginning reading skills. The participant could correctly identify two sounds prior to intervention. A multiple baseline across letter sounds was used to demonstrate the increase and maintenance of phonic acquisition. A total of 13 lessons were implemented, and the outcomes indicated that Direct Instruction through the use of the DISTAR program increased the participant's knowledge of letter sounds.

Reading success must begin with proper instruction. Although there are many methods for teaching reading, there is strong research supporting instruction of letter-sound correspondence, especially for children at risk for reading failure (O'Connor, 1992). Teaching isolated letter sounds, and the sound blends, results in higher first grade achievement in word recognition and spelling (O'Connor, 1992). This method, known as phonics instruction, helps the learner understand that letters in words represent speech sounds and identify which sound corresponds with which letter (Putzi, 1993).

One teaching model that effectively utilizes the phonics method for teaching children to read is known as Direct Instruction. This model consists of a very specific sequence for teaching reading. First, beginning exercises are simple and straightforward. Single sounds are taught in isolation and in words via a modeling approach. The teacher first says a sound while pointing to the corresponding letter. Then, the child repeats this sound while looking at the letter. Second, the program carefully sequences every skill that the child is expected to use when reading. Skills, such as left to right orientation strategies for sounding out words, comprehension techniques, and problem-solving skills are all task analyzed into their component steps. Third, practice and discrimination exercises are carefully repeated to provide the highest degree of success as possible. For example, the sounds "b" and "d" are introduced separately, so the child will not confuse them. A smooth transition from one lesson to the next is achieved by frequent review of previously learned material. New skills are introduced slowly into a context of well-rehearsed skills. Finally, the Direct Instruction program provides for clear communication between the student and teacher (Engelmann et al. 1983). This is demonstrated by the frequent modeling, feedback, and error correction drill evident in Direct Instruction. According to Engelmann, Haddock, and Bruner (1983), teachers must examine the communication involved in early instruction to identify reading problems in students. In addition, ..."to appreciate the pitfalls that are involved in clear communication, we have to put ourselves in the place of the child who is trying to learn to read" (Engelmann et al., 1983, p. 10). Direct Instruction allows teachers to provide immediate feedback and assistance through this positive communication (Gersten, 1987).

*Teach Your Child to Read in 100 Easy Lessons* (Engelmann et al. 1983) is one example of a Direct Instruction curriculum. This book, adapted for parents, utilizes the methods of Direct Instruction through DISTAR, a program published by the Science Research Associates (SRA). Research conducted on the effectiveness of the DISTAR program has shown it to be successful in teaching children the proper skills for reading achievement. For example, one study conducted with kindergarten through third-grade students...
provided significantly positive results. This study involved 10,000 participants who were instructed in reading using the DISTAR program. These children outperformed all other children on standardized tests of reading achievement, language performance, and self-esteem who were instructed with other reading programs (Engelmann et al., 1983).

DISTAR can not only effectively teach general-education students how to read, but it is also the most widely used program by special education teachers serving children with mild handicapping conditions (O’Conner, 1992). Research supports the utility of DISTAR for low-income, minority students. One study conducted in a low-income Southeastern rural community compared the effects of the DISTAR reading program to a basal reading approach (Umbach, 1987). The results showed that 31 first-grade problem readers (19 male and 12 female, 1 white and 30 black), who were instructed with DISTAR, scored significantly higher on the Woodcock Reading Mastery Test than a matched control group of problem readers who were instructed in the basal reading program. According to Engelmann, Haddox, and Bruner (1983), "the DISTAR program worked better than any other program in the cities, better in rural areas, better with whites, with blacks, and with brown, better with poverty children and with middle-class children (p. 10)."

The first purpose of this study was to examine the effects of Direct Instruction on the early reading skills of a kindergarten student through the use of the DISTAR reading program, Teach Your Child to Read in 100 Easy Lessons. Another purpose of the paper was to replicate and evaluate the findings of Stenseth and McLaughlin (1996) with an older child.

Method

Participant and Setting
The participant of the study, a 7-year-old male, was repeating kindergarten for the second year. He showed delays in letter recognition, phonic acquisition, and other beginning reading skills. He could recognize the letters in his name, on an inconsistent basis, but he was unable to identify a majority of the alphabet letters. The participant was enrolled in a regular kindergarten class that contained 15 other students and the teacher. The first author worked with the participant two to three days a week, in an unoccupied room at the participant’s school. Each session lasted a total of 20 minutes, and sessions were conducted for 6 weeks.

Materials
Flash cards containing the letters from the DISTAR alphabet found in the book, Teach Your Child to Read in 100 Easy Lessons, were constructed. This alphabet consists of 38 letter sounds and provides an easier phonic comprehension strategy. For example, the letter "h" makes the common sound, but it also appears in the alphabet with the "s" to make the "sh" sound. The "th" and "wh" and other joined sounds are also components of this alphabet.

Response Definitions and Measurement
The dependent variable was the number of correct oral responses the participant made when shown a flashcard. A correct response was defined as the participant saying the sound that matched the letter on the flashcard within 5 seconds of the flashcards presentation. An incorrect response was defined as the participant stating any sound other than the sound on the given flashcard, saying "I don’t know," or not responding within 5 seconds. All data were collected using an event-recording procedure.

Experimental Design
A multiple baseline design (Kazdin, 1982) across letter sounds was used. Nine flashcards were used during this experiment. These were divided according to the number of sounds introduced in the given lessons. Lessons 1-16 were completed during the intervention. Lessons 1-4 introduced the sounds, "s", "m", and "a". In lessons 5-10, the long "e" sound as well as the "t" and "r" sounds were introduced. Lessons 11-16 introduced the "d", "i", and "th" sounds.

Procedures

Baseline. During all baseline sessions the participant was shown all the flashcards and was
prompted to say the sound on each card. If the participant did not respond correctly, or did not respond within 5 seconds, the card was placed in a pile to the left of the experimenter. If the participant responded correctly, the card was placed to the right of the experimenter. Praise was delivered for all correct responses. During sessions 1-4, the experimenter presented 38 flashcards. However, because the participant became upset with knowing so few sounds, the number of cards was limited on all subsequent sessions. In sessions 5-10, only six flash cards ("s", "m", "a", long "e", "i", "t", "d", "i", and "th" sounds) were presented to the participant. No data are available for the sounds "d", "i", and "th", because during sessions 4-8, the participant was not tested on these sounds.

**Intervention.** The researcher implemented Lessons 1 through 13 found in the book *Teach Your Child to Read in 100 Easy Lessons*. The experimenter implemented one lesson per session, and each lesson lasted approximately 20 minutes. All lessons were taught sequentially, and no lessons were skipped. Each lesson contained 7 to 8 sections or "tasks." The first task introduced the sounds to be learned. The participant was shown a letter sound and then verbally prompted to say the sound after the instructor provided a verbal model. Next, the participant practiced the sounds introduced in the lesson by imitating verbal models from the teacher, while looking at the printed word. Next, the participant reviewed the specified sounds as well as any words that were introduced. Finally, the participant wrote the sounds introduced in the lesson. The instructor modeled the correct form, after which the participant traced this model and continued writing independently. This was meant not only to build upon writing skills, but to reinforce proper sound identification.

Upon completion of a lesson, the participant was shown flash cards and was told to say the sound for each card. The experimenter expected that the sounds taught in that particular day's lesson as well as previous lessons to be sounds correctly read. It was expected that other sounds would be read incorrectly. If the participant responded incorrectly or did not respond within 5 seconds, the experimenter placed this card to the left and displayed the next flash card. If the participant responded correctly, this card was placed to the right of the experimenter and the participant was praised. At the end of the session, the number of flashcards in the correct and incorrect piles was counted and recorded.

**Results and Discussion**

The results are shown in Chart 1. Baseline data show that the participant correctly pronounced two sounds. These were the "s" and "t" sounds. With the implementation of Direct Instruction, the number of sounds pronounced correctly increased. After the implementation of Lessons 1-4, the participant correctly identified an average of 2 sounds (range 1-3). After completing Lessons 5-10, which taught the sounds "e", "i", and "t", the participant was able to correctly say these sounds, as well as maintaining 2 of the 3 sounds from Lessons 1-4. After completing Lessons 11-13, which taught the sounds d, i, m, and th, the participant was able to correctly 1 of these 3 sounds, while maintaining all of the sounds taught in Lessons 1-4 and all of the sounds from Lessons 5-10. At the conclusion of the study, the participant was able to say correctly a total of seven sounds. Of these seven sounds, five were sounds that the participant did not know at the beginning of the study.

The results of the study showed a functional relationship between the Direct Instruction program and the acquisition of letter sounds. The participant increased his letter sound correspondence and progressed in early reading skills. Frequently, the participant was unable to correctly identify the letter sounds from the flashcards the same day that the sound was taught. Often it was not until the next lesson, the review lesson, or even after several maintenance lessons that the participant was able to consistently identify some sounds. These results demonstrate the importance of providing repeated practice for students experiencing difficulty in learning to read.

The present outcomes extend and replicate those of Stenseth and McLaughlin (1996) with a child who was experiencing difficulty in school. Teachers who have children who did not know letter sound correspondence, should implement DISTAR materials to teach such an important skill.
Although at first glance, the outcomes may not appear to be socially significant (i.e., because the participant can only read a total of seven sounds), the rate at which the participant learned these new sounds represents a marked improvement over previous instruction. After one and a half years of kindergarten instruction, the participant had learned only two letter sounds, both of which were in his name. Using the DISTAR program, the participant learned five new sounds in fifteen 20-minute sessions. Given the results achieved thus far, it is conceivable that the participant could learn all 33 sounds in just 85 more lessons, which could be completed in less than one school year.

References

T. F. McLaughlin and Stephanie Peck are affiliated with Gonzaga University, Department of Special Education, School of Education, Spokane, WA 99258. Angela Edmondson is a student attending Gonzaga University.
Use of Precision Teaching and a Choke Chain and Verbal Prompt to Teach a Yellow Labrador Puppy to Heel: A Brief Report

Megan Gallagher and T. F. McLaughlin

This report considers the use of a choke chain and verbal prompt to teach a nine-month yellow Labrador puppy to heel. An AB experimental design provided evaluation data on the amount of time that the animal heeled during her 10-minute walk. The results showed an increase in the amount of time the dog heeled and a reduction in the number of minutes that the puppy would not heel during 10 minute walks, during the choke chain and verbal prompt condition. The procedures were practical. Informal observation by the owners and first author indicated that heeling generalized to other times of the day and activities.

Training pets to engage in appropriate behaviors has been suggested by several authors ranging from Breland and Breland (1951), Skinner (1951) to Pryor (1984). Heeling is one of the first behaviors that trainers teach to animals (Pryor, 1984).

The purpose of this study was to increase the number of minutes, Bailey, a 9 month old Labrador puppy, would heel during 10 minute walks. using data collection of Precision Teaching. In addition, the use of a choke chain (Pryor, 1984) to teach the skill was evaluated. The use of a choke chain was viewed as humane and reasonable by Bailey's owners. In addition, others such as Karen Pryor and Helen Woodhouse have advocated its use. Woodhouse has also indicated that it is far kinder to use a choke chain than to continue to tug and haul the animal's neck with an immediate and meaningless level of force (Pryor, 1984).

Response Definition
We measured the number of seconds that Bailey would heel on 10-minute walks. Heeling was defined as walking next to the first author without her tugging on the leash. When Bailey was heeling, the stop watch was kept running. When she did not heel, the stop watch was stopped. In this way, the number of seconds heeling could be determined from each walk. Walks were also timed by the first author.

Experimental Design and Experimental Conditions
An AB single subject design (Kazdin, 1982) was used to examine the duration of heeling and not heeling during the presence and absence of the choke chain and verbal prompt.

Baseline. Baseline consisted of a series of walks without a choke chain. This phase lasted for three walks and three data days (Monday, Wednesday, and Friday).

Choke chain and verbal prompt. The intervention consisted of the first author taking Bailey for her 10-minute walk. The verbal prompt "Bailey Heel" or "Heel" was paired with an upward thrust of her arm on the leash which was attached to the a choke chain (Pryor, 1985). This was done each time Bailey would leave the side of the first author during the walk. Data were gathered for seven weeks, three times each week.
CALENDAR WEEKS

31/3/96
DAY 10

31/3/96
DAY 10

31/3/96
DAY 10

31/3/96
DAY 10

1000
500
100
50
10

= ceiling

= number of seconds

choke chain
&
verbal prompt

0.001
0.01
0.1
1
10
100
1000

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

SUCCESSIVE CALENDAR DAYS

T.F. McLaughlin
Megan

SUPERVISOR
ADVISER
MANAGER
Gonzaga University

Magen
Magen

Duration of Healing

9 mos.
puppy

BAILEY
BEHAVER
AGE LABEL COUNTED

Magen Gallagher
Results and Discussion

The number of seconds during the 10-minute walk with heeling can be seen in Chart 1. Bailey did not heel during baseline. With the implementation of the choke chain and verbal prompt, there was an immediate increase in Bailey’s heeling. The number of seconds of heeling increased to 491 seconds out of 600 seconds per walk.

The results of this brief report indicate that the use of a choke chain and a verbal prompt was correlated with improved heeling behavior of a nine month old Labrador puppy and the procedure appeared highly effective.

As can be seen in Chart 1, there were some days Bailey heeled better than others. On those sessions, the first author and Bailey would encounter a large number of other dogs. However, for the last seven sessions, Bailey would heel on the average of 9 minutes, 19 seconds.

Since the project, the first author occasionally continues to walk Bailey which is now a much more pleasant experience. Bailey can walk at a brisk but slow pace. The use of the Standard Celeration Chart made it easy to monitor celeration in Bailey’s heeling.

This study demonstrated that a choke chain can be effective in increasing heeling. No data were taken on the effects of generalization, but from informal observations, Bailey’s behaviors generalized to other areas which she frequented with her owners. Another possible reason for the effectiveness of the outcomes was that the owners continued to implement the same procedures during their walks with Bailey. If the owners would continue to follow the procedure, Bailey should become very consistent in heeling.

References


T. F. McLaughlin is affiliated with Gonzaga University, Department of Special Education, School of Education, Spokane, WA 99258. Megan Gallagher is a student attending Gonzaga University.
The Effects of Precision Teaching on the Acquisition of the Prevocational Skill of Cross Stitching: A Case Study

Anjali Barretto and T. F. McLaughlin

This study considers the effectiveness of Precision Teaching techniques on the acquisition of a prevocational skill. The participant was a 58 year-old adult male with a developmental disability. The skill chosen for the study was cross stitching. A time series analysis was used to compare progress between baseline and intervention phases. The results indicated that although the target rate of 20 movements per minute was not achieved, definite progress was made across time.

Sewing is a good recreational skill and can teach both developmental and marketable skills to individuals. Eye-hand coordination, spatial relationships and patience are among the valuable developmental skills taught through sewing. Practice is necessary to develop dexterity, efficiency in coordination, and spatial conceptualization. Techniques for time, money and stress management can be built into the projects. Interpersonal relationships can be enhanced by working together on sewing projects (Loker, 1987).

"In whatever circumstances of fortune one may be placed, the ability to sew will always be useful; for as, on the one hand, a practical knowledge of plain sewing enables one to appreciate other people’s work at its true value, so, on the other hand, it enables one to produce strong and lasting work should necessity arise" (Dillmont, 1972).

Hand-sewing is also relatively economical as it requires few inexpensive and easily obtainable materials (Cronin & Cuvo, 1979). Cross-stitching was the skill chosen for this study. By learning this skill, the participant would be able to produce articles for sale which, in turn, would add to his income.

Sewing is a skill that may increase presentability as it can embellish the appearance of a garment. Presentability has been defined as a goal for rehabilitation of clients who live in the community (Sanders, 1976). Physical appearance is an important aspect of integration; therefore, promoting presentability should be a major objective (Cronin & Cuvo, 1979).

Precision Teaching is a technique of basing educational decisions on changes in continuous self-monitored performance frequencies displayed on Standard Celeration Charts (Lindsley, 1992). Since Precision Teaching requires a graphic display, changes in performance can be studied more easily (West, Young & Spooner, 1990). Precision Teaching has been found successful, in part, because feedback to the teacher is immediate, which allows for interventions of new methods if the initial methods are unsuccessful (Briere, 1988). Data-based Precision Teaching allows one to determine whether an intervention is effective, whether it would be maintained, or whether it should be completely changed (White & Haring, 1980). Precision Teaching is said to improve any curriculum as it combines well with any curricular approach (Lindsley, 1992). In addition, wherever Precision Teaching has been used, it has almost always doubled student learning (Lindsley, 1992).

The purpose of this study was to evaluate the effectiveness of Precision Teaching techniques on the acquisition of cross-stitching skills, by an adult male with a developmental disability.
Method

Participant and Setting
The participant was a 58 year-old adult male with Downs Syndrome. The study was conducted in a sheltered workshop for people with disabilities. The participant was chosen for the study to improve his prevocational skills which consisted of woodwork techniques. Learning a new skill would be beneficial to both the participant as well as the organization.

Dependent Variables and Measurement Procedures
The dependent variable was the number of cross stitch movements per minute. These data were gathered and placed on the form shown in Chart 1. Across-stitch consisted of two diagonal stitches that overlap, worked on a grid. Two movements constituted one diagonal stitch. A series of diagonal stitches, running from the top left to the lower right corner of each square, was made. Then the direction was changed, and the stitches were crossed by diagonal stitches, running from the top right to lower left corner of each square. Sample cross-stitching patterns can be seen in Figures 1 through 3.

Daily sessions were conducted Monday through Friday. Each session was 30 minutes. The first 20 minutes were spent teaching the skill, and the next 10 minutes the participant was given an opportunity to stitch without assistance. The results of these sessions were recorded and charted on six cycle Charts.

Experimental Design
A time series analysis was conducted to record and compare the participant’s progress over time. The rate was set at 10 stitches per minute (i.e. 20 movements per minute). This was determined by timing a non-disabled person; however, this was not applied to the subject because of his disability. The rate was used as a comparison.

Baseline. The baseline consisted of a recording of the participant’s current level of performance for cross-stitching. This lasted for two days.

Physical Guidance. Physical guidance was used to teach the participant the movement of the needle in and out of the fabric. This was in effect for five days.

Fading physical guidance using verbal guidance. During this phase, physical guidance was faded, and verbal guidance was given. This was done for eight days.

Two line prompts. Two line prompts were introduced. A two line prompt consisted of two horizontal lines drawn parallel to each other and the width of one square on the grid. The participant used these lines as a visual clue to guide him in his stitching. This phase was in effect for seven days.

Two line prompts and reverse direction cross-stitching. Two line prompts were continued, and the participant was made to move the needle in the reverse direction to cross the stitches. Up until this phase, the participant had been doing the stitches in one direction (i.e. series of diagonal stitches running from the top left to bottom right corner of each square). This phase of instruction required him to reverse the direction of the stitches, thus doing a completed cross-stitch. This phase lasted for 13 days and continues to be implemented after the conclusion of the data collection.

Results and Discussion

Overall, results of the study showed an increase in the number of correct stitches, from 0.05 per minute to 2.2 per minute and a decrease in number of error stitches from 2.0 per minute to 0.1 per minute. During Baseline, average number of correct stitches was 0.05 (range 0.0-0.1) and error stitches was 2.0 (range 1.2-2.8). When physical guidance was given, the mean for corrects rose to 0.27 (range 0.2-0.4) and errors fell to 0.45 (range 0.0-0.8). In the next phase, physical guidance was faded and verbal guidance was given. The average number of correct stitches showed a further increase to 0.83 (range 0.4-1.5). The errors showed a slight increase to 0.63 (range 0.1-1.4). When the two line prompts were given, the mean for corrects rose to 1.58 (range 0.5-2.5) and for errors fell to 0.2 (range 0.0-0.5). In the final phase, where the participant was required to do complete cross-
Figure 2
Figure 3

21st March
25th March
26th March
28th March
1st April (Crossing Stitches Reversé Direct)
2nd April
3rd April
4th April
8th April
9th April
10th April
11th April
15th April
16th April
stitches, the average number of correct stitches showed a further increase to 2.2 (range 1.5-3.8), and errors showed a decrease to 0.1 (range 0.0-0.5).

The results showed that the participant had learned the skill of cross-stitching accurately and now should be assisted to work toward increasing his speed. At the end of the study he was given an opportunity to choose a project of his own and the colors he would like to use. He is currently working on it. Although he still makes a few errors, he can identify them and ask for help. The author's intention was to make him totally independent in this skill area. The director of the workshop asked the author to teach the skill to one more person from the workshop while continuing to work with the participant of this study. The intention was to increase the variety of sellable products from this workshop. Precision Teaching proved to be an effective technique in analyzing and evaluating the progress of the client. In addition, Precision Teaching was effective in indicating when a phase change was required.

The cost of the materials used was less than five dollars. However, no articles have been produced for sale as yet. The cost effectiveness of this project in terms of turnover can be determined with a survey of the market to discover what items will yield more sales. Production rates will have to be increased, and more people in the workshop will have to be taught the skill.

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Brave New Worlds: A Comparison of Utopias & Dystopias
Abigail B. Calkin

Utopia, a literary form and philosophical term, is an idealized society. Its opposite, dystopia, more a literary form than a philosophical term, is a novel in which a demagogue controls society.

To compare these two forms in literature, I analyzed the environments, behaviors, and expressions of feelings according to whether they were free or controlled/restricted in three utopias and three dystopias. Environmental freedom and restriction exist in the physical environment—the freedom of open spaces, the restriction of cages or prisons. Behavioral freedom is defined by free operants—alternatives or choices such as presenting one's own learning material or choosing whether to do a, b, or c. Behavioral restrictions are controlled operants—answering the telephone, waking when the alarm rings, a student being called on. A feeling of freedom or restriction is a mental event occurring within a person, whether on a beach or in a cell, choosing or being told what to do.

I analyzed the first, middle, and final 27 pages as representative of each novel. The Chart shows that utopias had the higher frequency of free environments and operants, x1.7 higher for both than the controlled. Conversely, the dystopias had the higher frequency of restricted environments (x1.4) and controlled operants (x2) than the free.

Presentation of protagonist and antagonist free and restricted feelings occurred in the dystopias. The utopias had very little, if any, discussion of feelings. In the dystopias, the presentations of free and restricted feelings seemed designed to present a greater contrast of the free and controlled situations to underline the "evils" of a controlled society.

References
Measuring Creative Writing
Abigail B. Calkin

As I walked through the poster sessions at the October 1996 Precision Teaching conference in Seattle, I approached the poster of Albertson and Billingsley. A chill of excitement ran through me, and I felt as if I were three feet off the floor: There before me was data on student creative writing! This summer I tutored Zack, a fifteen-year-old sophomore, who wanted to improve his grammar knowledge and writing skills. He has just been put on the high school newspaper staff to fill in for one of the regular reporters who will be abroad for part of the year. One of his goals for his sophomore year is to do well enough to be a regular reporter.

Other than Albrecht's (1981) article on teaching creative writing to sixth graders, Lovitt's Charts (1984) on his writing a book, and my own common sense and Chart Knowledge, I had no frequencies or celarations to guide me in teaching writing. Zack's Charts were...well, I wasn't sure...but I did not think they were spectacular.

I worked with Zach for eight sessions. He wrote and/or edited during six of those. When charting the data for this article, I put the think/write ideas on the left half of the Chart and the think/write paragraphs on the right half of the Chart. The aim for think/write ideas was 20; Zack had a middle frequency of ten on the three days he did the one minute timing on ideas.

During think/write words in a story's first draft, Zack's frequencies ranged between nine and 33 words written per minute. The middle two frequencies were 18 and 19 per minute. His highest frequency of 33 per minute he wrote when at camp, watching a game as he wrote. All other situations were contrived for practice. He hand-wrote all his first drafts.

The purpose for sharing this Chart now is to let people compare the writing frequencies that Albrecht (1981), Lovitt (1984), Albertson and Billingsley (1996), and I found. Albrecht (teaching sixth graders) found middle frequencies on the one minute timings of think/write words or short phrases were six to 17, and for words written in sentences and paragraphs, the range was from nine to 20. Lovitt counted not words but tactics written per day. Albertson and Billingsley found the two middle schoolers, using a word processing program, wrote 16 words per minute during outlining and 12 to 15 words per minute for one student and 14 to 26 for the other student in paragraph writing. Thus, we have some information about the number of words 11- to 15-year-olds write during creative writing assignments.

I did a ten-minute timing while writing this article: my words per minute, first draft, were 19. When writing for an hour, my frequency on a first draft was 14 words per minute or one page per 20 minutes. As usual, I used the computer when writing. Given that handwriting is slower than using a word processor, Zack's frequencies compare very nicely to Albertson's & Billingsley's students and to mine.

Ideas for the Future
• Much more data on students and adults would be most helpful in looking at creative writing.
• One thought to increase ideas in the one minute timing would be to do several timings before the paragraph writing.
• In the close of Lovitt's (1984) article, he has some interesting quotations and estimates from professional writers on their output. This gives me an idea for another Chart share, since, for years, I have counted pages written per year.

References
Success with Precision Teaching

Angela D. O'Brien

My first attempt with Precision Teaching came as a result of a Master's program course taken at the University of Washington. The instruction in Precision Teaching that I received encouraged me to make more changes in my instructional program which led to the success my student now has at completing another task independently.

Subject
Derek S. is a 4 year old boy who is severely autistic. He attends preschool at the Experimental Education Unit in Seattle, where he is included among students with and without disabilities.

Goals
The general instructional target was for Derek to independently hang up his backpack and coat upon entering school in the morning with one verbal prompt. One verbal prompt is given to the entire class each morning in the preschool.

The aim-rate chosen for Derek was 1 completed sequence within 45 seconds, as determined by the amount of time it took the first student entering the classroom to complete the task. The aim-date was set according to the last day I would be able to work with Derek.

Procedure
Prior to intervention, Derek went directly to the toy area upon entering the classroom and became upset when directed to his cubby. Derek would drop his backpack to the floor and would receive full physical assistance in removing his coat, making no attempt to hang these items independently. This behavior cycle delayed Derek in joining his classmates for group play time.

Instruction began with graduated guidance. These early instructional attempts were confounded by the fact that I was still in the learning process myself. Thus, the first Phase Change consisted of an improvement in delivery of prompts. This change did not decrease the amount of time it took Derek to complete the task; however, the number of prompts did decrease.

A second Phase Change occurred due to the data points appearing below the minimum acceleration line. I decided to eliminate all excess prompts.

Although the minimum acceleration lines do not dictate that the Final Phase change should have taken place, I felt that my newly acquired knowledge on the constant time delay method would be beneficial to Derek. Derek reached the aim rate by the aim date.

Follow-Up
Nearly one year later, Derek continues to complete the task with the same level of accuracy. Precision Teaching proved to be efficient, easy to learn, and effective.

Angela O'Brien is working on her Master's degree at the University of Washington, Seattle, WA
Graduated guidance using verbal, gestures, partial physical & full physical prompts allow some time before prompting.
Increase praise (SR+) for staying at cubby
Eliminate excess prompts (allow 1 verbal prompt)
Constant time delay (2 sec.)

Hang up backpack & coat
-(RF) accel. target
x (# of prompts) decel target

SUCCESSIVE CALENDAR DAYS

SUPervisor
A. O'Brien
Successive Calendar Days

Derek S.
Autistic

G. O. White
A. O'Brien
Supervisor
Adviser
Manager
The second day's keynote address at the 1996 International Precision Teaching Conference involved entering the friendliest learning channel. After years of exploring ways to teach concepts of frequency and celeration on the Standard Chart most effectively, I discovered these motoric aids. Participants learn to point toward the wall to frequency positions as they are called out by the trainer. Then participants develop a notion of the vertical distances of various performances on the Chart by using their hands. Lastly, participants hold out their right arms at celeration angles announced by the trainer. This highly effective approach energizes participants with laughter as well as Precision motor skills.

Say and point to the frequency position on the wall when you hear it.

<table>
<thead>
<tr>
<th>Position</th>
<th>Frequency (per minute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling</td>
<td>1000</td>
</tr>
<tr>
<td>Side wall of room</td>
<td>100</td>
</tr>
<tr>
<td>Middle of wall</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(1 per minute) 100 per day</td>
</tr>
<tr>
<td></td>
<td>(.01 per minute) 10 per day</td>
</tr>
<tr>
<td></td>
<td>(.001 per minute) 1 per day</td>
</tr>
<tr>
<td>Floor</td>
<td></td>
</tr>
</tbody>
</table>
Performance (frequency) Differences
(a vertical distance)
At arms length

Learning (celeration) per week
(a slope, an angle)
Hold out your arm

X 16
X 4
X 2
X 1.4
X 1
÷ 1.4
÷ 2
÷ 16
÷ 4
Journal of Precision Teaching and Celeration

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Jacksonville State University

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