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EDITORIAL POLICY

The Journal of Precision Teaching is a multidisciplinary journal 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 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 considered for publication.

Materials submitted for publication should meet the following criteria: (1) be written in plain English, (2) contain a narrative that is brief, to the point and easy to read, (3) use the Journal of Precision Teaching Standard Glossary and Charting Conventions, (4) contain data displayed on the Standard Celeration Chart that justify conclusions made, (5) be submitted in quadruplicate to the editor, and (6) include one set of original charts or hand-drawn copies. Each formal manuscript will be reviewed by one consulting editor and two reviewers, two of whom must approve it prior to publication.

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Reducing Grabbing by a Profoundly Retarded Boy in a Public School

Alice Dye Maechtlen
Albuquerque Public Schools

Richard L. McDowell
University of New Mexico

Overcorrection is used to reduce stereotyped, self-injurious, and disruptive behavior in severely handicapped individuals (Azrin, Kaplan and Foxx, 1973; Freeman, Graham and Ritvo, 1975). Overcorrection was developed by Foxx and Azrin (1972) as a reductive procedure to be used where extinction, reinforcement of incompatible behaviors, time-out, or intense punishment were unsuccessful or inappropriate.

In the present experiment, procedures are described which decelerated violent grabbing behavior in a profoundly retarded boy. The boy's public school special education teacher decided to use a modified overcorrection procedure for several reasons. The classroom was not equipped with a time-out room. Corporal punishment was forbidden by the school system. The teacher was encouraged by the overcorrection procedure used by Freeman, Graham and Ritvo (1975) that reduced nail picking through a one minute procedure used during only three hours per day.

The boy, Sam, was 11 years old and classified (AAMD) profoundly mentally retarded. Sam was ambulatory, but exhibited poor balance and stiff body movements. He had limited receptive language and no expressive language. Sam grasped people or objects with one or both hands and would not release his grasp voluntarily or on command. It was necessary for a staff member to leave the scheduled activity and pry Sam's fingers open. Since he often grabbed other students' hair, there was usually some screaming and crying until his grasp was broken. It was extremely disruptive to the classroom routine and upsetting to the other students. The records in Sam's cumulative folder indicated that he had been grabbing for a number of years and that previous attempts to decelerate the behavior were unsuccessful.

For overcorrection the teacher chose arm movements to discourage grabbing. The arm movements were suggested by autism reversal postures described by Azrin, Kaplan and Foxx (1973). The overcorrection procedure consisted of four steps. First, Sam's grasp was released by prying his fingers apart. Second, the teacher or other manager said, "No! don't grab! Arms out!" and held his arms straight out from his shoulders for ten seconds. The third step was to say, "Don't grab! Arms down!" while holding his arms down at his sides for ten seconds. Fourth, the manager said, "Don't grab! Arms out!" while again holding his arms straight out from his shoulders for ten seconds. All four steps were used each time Sam grabbed. When this procedure of approximately 30 seconds had been completed, Sam was returned to his previous activity.

To evaluate the effects of this procedure an ABAB design (Hersen and Barlow, 1976) and Precision Teaching were used. Intervention prior to the overcorrection procedure consisted of saying, "No!" and prying Sam's fingers open. Since that had been the normal response it was continued during the before periods. It would have been inappropriate to allow him to grab someone's hair, for example, and not to intervene.

The First Before Phase indicates that Sam was grabbing at a median frequency of .28 per minute or approximately once every three minutes (see Chart 1). During the First Intervention Phase, the 30 second overcorrection procedure was used for only one hour per school day. This resulted in a deceleration multiplier (turn down) of /1.2 and a decrease in the median frequency from .28 to .10 per minute or one grab every 10 minutes. A Second Before Phase showed a slight increase in the median frequency of grabbing to .11 per minute. However, within the Second Before Phase the deceleration continued at a turn down of /1.2. During the Second Intervention Phase, the 30 second overcorrection procedure was applied for the entire school day. The median frequency dropped to .06 per minute or approximately one grab every fourteen minutes. The deceleration turn down during that all day overcorrection phase was /1.1. Toward the end of that phase the
Chart 1. Overcorrection Decreases the Frequency of Grabbing

Before 1: Intervention 1: Overcorrection
Before 2
Before 3: Intervention 2: Overcorrection

SUCCESSIVE CALENDAR DAYS

COUNT PER MINUTE

SUPERVISOR
ADVISER
MANAGER
DEPOSITOR
AGENCY
TIMER
COUNTER
CHARTER

Sam
BEHAVER
AGE
LABEL
COUNTED
grabs
teacher learned that Sam would be transferred to an institution for the mentally retarded. Sam's last week in public school was spent in a return to the before conditions. During this Third Before Phase the median frequency of his grabs returned to .10 per minute. Had Sam remained in the class the teacher would have attempted to decelerate the behavior even further by continuing to use the overcorrection procedure all day.

The overall effect of the overcorrection procedure was to decelerate Sam's grabbing behavior from .28 per minute or one every 3 minutes to .06 per minute or one every 14 minutes, a frequency multiplier of /4.7.

REFERENCES


Alice Dye Maechtlen is a teacher in the Albuquerque Public Schools and Richard L. McDowell is a faculty member in the Department of Special Education, University of New Mexico, Albuquerque, NM 87131.

ON WRITING A BOOK

Thomas C. Lovitt
University of Washington

This is a data story of how a book was written: Tactics for Teaching, a Charles E. Merrill publication. From the day I began work on the book, July 12, 1982, until I received my copy on January 9, 1984, I collected data on preparing each of the five drafts, correcting the manuscript after it was returned by the publisher, and proofing the typeset when the publisher sent it to me. I have a daily record.

This was a relatively simple book on which to collect data, since it was neatly made up of 112 tactics. Each tactic was described in four or five pages. There were 50 tactics in reading, 25 in classroom management, 25 in independence, and 12 in arithmetic. There was also a brief preface to the book, some introductory materials for each section, and a small glossary. None of that material took up much space. I collected data on only the 112 tactics.

I followed the same format for all 112 tactics. First, there was a brief rationale. That was followed by a few words about the client for whom the tactic would be most suitable. The third section was the longest: the procedures for administering the tactic. In this section I tried to include enough material so that the intelligent reader would at least have a feel for putting the plan into operation. The next section pertained to modifications. There, I described how, if certain adjustments in the approach were made, it might be arranged for different pupils than those for whom it was originally intended. Those youngsters might be older, of a different type, or in some other way dissimilar. The last section was simply a citation of the research that supported the tactic. The interested teacher could read the entire article and fill in any missing information, or clarify some parts that were not obvious when she read my condensed and paraphrased version.

About 95% of these tactics were supported by some research and had been published in an education or
psychology journal. My colleagues and I had written 25 of them. I drew heavily on two journals for these ideas, The Reading Teacher and the Journal of Applied Behavior Analysis. Other journals that supported some of the tactics were Learning Disability Quarterly, Gifted Child Quarterly, Teaching Exceptional Children, Journal of Child Psychology and Psychiatry, Exceptional Children, Journal of School Psychology, Behaviour Research and Therapy, American Journal of Mental Deficiency, and Behavior Therapy.

The Data

Charts 1, 2, and 3 display the cumulative number of tactics written. On day 1, for example, I started with 12 tactics that I had already finished. By day 2 I had written 15, which meant that I wrote 3 tactics on the second day.

As shown in Charts 1, 2 and 3, it took 80 days to prepare the first draft, 46 for the second, 11 for 2+, 22 for the third, and 28 for 3+. The 2+ and 3+ drafts contained only small, minor changes.

Not surprisingly, it took the longest time for the first draft and, expectedly, I spent more time on the second draft than on the third (46 as compared to 22 days). Not much time elapsed between drafts; only 19 days separated the first and second drafts. There were 10 days between drafts 2 and 2+, 4 separated 2+ and 3, and 17 days elapsed between drafts 3 and 3+.

Aims and aim dates are indicated on the Charts 1, 2 and 3. I met the aim for the first draft 11 days in advance, 14 days ahead for draft 2, 10 days early for 2+, and 29 days ahead for 3. I was two days late for 3+.

As noted on Chart 2, the manuscript was first sent to the publisher on March 8, 1983. This was about 34 weeks or 240 days from start to finish of the first go around.

Now it was Merrill's turn. Mary Henkener, the editor assigned to this book, began to put in her changes. The first batch of her corrected copy reached me on May 6, 60 days or about eight weeks after I had sent it. The ball was now in my court. I had to go over her copy, answer all the queries, and make other changes I wanted. This task was completed by June 6, a four-week turn around.

It was Merrill's turn once again. They now had to typeset the copy and send that to me. The first pages reached me on August 6. From the time they had the corrected manuscript, until I received the typeset copy, a little over eight weeks had passed. I returned all the typeset pages by September 1. This was about a three-week turn around.

From the time I started the first draft until I returned the typeset copy, about 60 weeks had gone by (three Charts worth), and from the time I began the text on July 12, 1982, to its arrival on January 9, 1984, 78 weeks had passed. There were 436 pages of typed copy for this book or 333 printed pages when it was published.

Some Comments

Although I know it took 60 weeks to write this book, I don't know exactly how many hours I spent writing, looking up references, editing, and all the rest. I estimate, however, that I averaged one and one half hour's per day. Taking that figure, I devoted 630 hours to the book.

Earlier, I mentioned that a feature of this book that made it rather easy to write, was that the tactics were short and followed the same format. Once I had chosen a tactic and had outlined the supporting article, it was simply a matter of punching that material into the formula.

Other books could be sectioned off in this way and perhaps written more easily. Instead of setting out, at various times, to write large sections of a book, it might be easier to identify small, 4-6 page units. When it comes to writing these smaller sections authors can more easily schedule the time. I know I can find several two or three hour blocks throughout a week, but it's very difficult to set aside many five or 10 hour time periods.
Chart 1. Writing the First and Second Drafts of a Book

Tactics for Teaching:
First Draft

Second Draft
Chart 2. Writing Drafts 2, 2+, 3, and 3+ of a Book

Tactics for Teaching:

- Second Draft
- Draft 2+
- Third Draft
- Draft 3+
Chart 3. Editing Drafts of a Book

Tactics for Teaching:

Received publisher's returned copy for editing

Received publisher's typeset copy for editing

* copy received

and returns them to publisher
Another key feature that made it relatively easy to write this book was Merrill's production editor, Mary Henkener. She laid out a schedule for both of us and we stuck to it; we kept one another on task. That is an important ingredient; for we all need a bit of pressure in the form of deadlines from time to time.

Another factor that prodded me to write this book was that I wanted to use it. This was more motivating than the expectation that anyone else would purchase or read it. I had, for several years, discussed and presented many tactics in this book at workshops and university classes. Generally, the teachers and students at those meetings were anxious to learn about these instructional ideas. I therefore looked forward to organizing them into a volume, for they could then be described quickly and reliably.

Additional Data

Recently, I've come across a few accounts of some real authors who kept data on their writing habits. Hemingway, for one, monitored his daily output on a large chart made out of the side of a packing case set against the wall under the nose of a mounted gazelle head. The numbers on the chart showed the daily output of words from 450, 575, 462, 1250, back to 512. The higher figures were on days that Hemingway worked a little extra, so he wouldn't feel guilty about fishing the next day on the gulf stream (Plimpton, 1965, p. 219). Based on those figures, Hemingway wrote about 650 words per day.

Anthony Trollope wrote:
When I have commenced a new book, I have always prepared a diary, divided into weeks, and carried on for the period which I have allowed myself for the completion of the work. In this I have entered, day by day, the number of pages I have written, so that if at any time I have slipped into idleness for a day or two, the record of that idleness has been there, staring me in the face, and demanding of me the circumstances of the time,—whether my other business might then be heavy or light, or whether the book I was writing was or was not wanted with speed,—I have allotted myself so many pages a week. The average number has been about 40. It has been placed as low as 20, and has risen to 112. And as a page is an ambiguous term, my page has been made to contain 250 words; and as words, if not watched, will have a tendency to straggle, I have had every word counted as I went. . . There has ever been the record before me, and a week passed with an insufficient number of pages has been a blister to my eye and a month so disgraced would have been a sorrow to my heart (Trollope, 1946, p. 116).

Calculating from that information, Trollope wrote 5.7 pages or about 1,430 words per day. Relative to Hemingway, he was more productive, and certainly, more guilt-ridden.

We don't know how long those authors wrote, simply that they labored over a rather long period of time. But we do have some writing data over a number of years from Theodore Roosevelt. Although he didn't keep track of it himself, others have counted his words. Edmund Morris estimated that Roosevelt produced 18 million words in his 30 years as a writer. His collected works amounted to 38 volumes of history, natural history, biography, criticism, political philosophy, essays, and memoirs. He also wrote an estimated 150,000 letters. Taking Morris's estimates, Roosevelt wrote 600,000 words per year or about 1,640 a day (even more than Trollope).

Those were all words written, not necessarily words published. B. F. Skinner has provided us with the latter. As you might imagine, he didn't leave the counting to anyone else. In his book, Cumulative Record, Skinner presented a 30-year cumulative record of his published words since 1930. In that time, he wrote 175,000, which amounted to 5,833...
There are then, several ways to keep track of one's writing efforts. The author can count words, pages, larger units (e.g. tactics), or still larger units (e.g. notebooks). The author could take a more functional approach, as did Skinner, and count published units (e.g. words, pages, or volumes). Counting words or other units would certainly be a more immediate revelation of the writer's efforts, since there is generally a lengthy time period between writing and publication. It would be interesting for the professional writer, however, to keep track of both units written and units published, to learn about their correspondence.

REFERENCES


Thomas C. Lovitt is a faculty member at the University of Washington, Experimental Education Unit, CDMRC, WJ-10, Seattle, WA 98195.
Chart 1. Self-report: Positive and Negative Statements

Baseline: staff counted negative statements

Student counted negative statements

Student counted positive statements

SUCCESSIVE CALENDAR DAYS

R makes negative/positive statements

S. Peterson

SUPERVISOR

ADVISER

MANAGER

DEPOSITER

AGENCY

TIMER

COUNTER

CHARTER

University of Florida Gainesville, Florida
whereby the student used the same wrist counter to determine the number of positive statements made during five hours of the school day. This phase was presented to the student as a reward for decreasing negative verbalizations. After recording positive statements for five days, and observing the beginning of rapid acceleration, the student returned to his home school. The home school personnel were informed of these successful interventions and were encouraged to continue using them.

These data indicate that self-report may be an effective method for monitoring positive and negative verbalizations in the school setting. Making the student aware of his behavior may be a useful step toward positive behavior change.

Susan K. Peterson is an assistant instructor at the University of Florida and the Head Teacher of the Multidisciplinary Diagnostic and Training Program, University of Florida, Box J282, J. Hillis Miller Health Center, Gainesville, FL 32610.

THE PAPER CLIP COUNTER (PCC): AN INEXPENSIVE AND RELIABLE DEVICE FOR COLLECTING BEHAVIOR FREQUENCIES

Lori Landry and Patrick McGreevy
Louisiana State University

Many teachers collect continuous (daily) frequencies in their classroom on specific movements (tasks, behaviors) or pairs of movements (Lindsley, 1972; White and Haring, 1980; McGreevy, 1983) for each student. Some of these movements or pairs of movements, such as "sees and writes answers to mixed multiplication facts correctly or incorrectly", or "hears and writes spelling words from Lyons and Carnahan-Book 3 correctly or incorrectly", are assessed daily for a one or two-minute counting period and leave a permanent record (answers or words) that can be counted easily at the end of the counting period (White and Haring, 1980). Other movements, such as "sees and says Dolch sight words correctly or incorrectly", are also monitored daily using a one or two-minute counting period, but do not leave a permanent record. If the starting and ending point of a student's "say" performance on a word list are marked, or if flash cards are used, the correct and incorrect movements can also be counted easily at the end of the counting period (McGreevy, 1983).

Some movements or pairs of movements, such as "raises his hand while in his seat or leaves his seat and interrupts other children", are assessed daily for a longer counting period (e.g., one hour, three hours, or the school day) and do not leave a permanent record. Inner movements, such as "feels challenged", are also monitored daily using longer counting periods and again do not leave a permanent record. These movements must be counted as they occur using special behavior counters (McGreevy, 1983). Four of the most commonly used counters are: (1) a wrist counter (Lindsley, 1968), (2) an abacus wrist counter, (3) an abacus shoestring counter, and (4) an index card and pencil. The wrist counter is a metal device about the size of a watch, attached to a watchband. This counter is operated by pushing one of two buttons and will retain a count up to 99 for one movement and nine for another. The abacus wrist counter is made of pipe cleaners and beads arranged in 12 rows of nine beads attached to a leather wrist band. This counter is operated by sliding beads in rows designated as ones or tens and will retain a count up to 99 for six movements. The abacus shoestring counter is made of a shoestring and beads arranged in four sets of nine beads attached to a key ring. This counter is operated by sliding beads in the same manner as the abacus wrist counter and will retain a count up to 99 for two movements. The index card and pencil are used to retain counts for one or two movements depending on the size of the marks and the card.

The Paper Clip Counter (PCC), shown in Figure 1, is an easily assembled, inexpensive, reliable alternative to these four behavior counters. Similar to the abacus shoestring counter, the PCC will retain a count up to 99 for two movements. However, the PCC is quickly and easily assembled with
Figure 1. The Paper Clip Counter (PCC)
materials found in almost every teacher's desk. These materials are: four #1, standard size paper clips that have not been bent, two 3" x 5" index cards, a single-hole punch, several pieces of cellophane tape, and one piece of twine or yarn approximately two feet in length. The PCC costs approximately five cents and can be assembled by teachers or students in approximately ten minutes. The reliability of the PCC, in terms of retaining the count, was tested by seven teachers for 50 school days. Each teacher was asked to set the PCC on a particular count at the beginning of the school day and wear it around her/his neck. The "retaining the count" reliability was defined as the proportion of the number of days that the count on the PCC remained the same from the beginning to the end of the school day to the total number of days the PCC was worn. The reliability of the PCC was found to be 50/50 days.

Figure 1 displays the PCC in its actual size. To construct the PCC, refer to Figure 1 and follow these seven steps: (1) write or type the numbers on the two cards exactly as shown; (2) draw a line dividing each card in half as shown; (3) designate by words or marks the movement to be counted on each card; (4) cover the edges of both cards with cellophane tape; (5) punch three overlapping holes 20 times on each card exactly as shown; (6) place the four paper clips on the cards surrounding the four zeros; (7) punch a hole near one end of each card; and (8) place the twine or yarn through each hole and tie the two ends. Now the PCC is ready for use by a teacher or a student and can be worn around the neck.

When one of the movements first occurs, move a paper clip on the appropriate card from "0" to "1". Each time this movement occurs, move this paper clip to the next number. This is shown in Figure 1 with dash lines. When this paper clip is at "9" and the movement occurs, move it back to the "0" in that half of the card and move the other paper clip from "0" to "10". This is shown in Figure 1 with solid lines. Then, continue counting using this procedure.

The PCC is considerably less expensive and easier to replace than all of the counters previously described, except the index card and pencil. The PCC is capable of retaining more data than the wrist counter and as much data as either the abacus shoestring counter or the index card and pencil. In addition, the PCC is easier to use than either the abacus wrist counter or the index card and pencil. Thus, the PCC is the first reliable, easy-to-use counter accessible to students, enabling them to monitor and manage their own behavior.

While using the PCC, the first author discovered additional uses for this device: (1) the cards can be laminated and the backs can be used to store reward stickers; (2) 3M Post-it Notes can be attached to the back of the cards as notes or reminders to the teacher or student; and (3) the aim for each movement can be designated by placing a star or mark next to the appropriate number (see Figure 1).

REFERENCES


Lori Landry is a student majoring in special education and Patrick McGreevy is an assistant professor of special education at Louisiana State University, 201 Peabody Hall, Baton Rouge, Louisiana 70803.
A Review

ARCADE STYLE SOFTWARE
FOR YOUR MICRO: A REVIEW OF
DLM'S ARCADEMIC SKILL BUILDERS FOR
MATH AND LANGUAGE ARTS

Robert L. Bower
Wayne State College

The Arcademic Skill Builders series in math and language arts provides an imaginative electronic video arcade style to drill and practice. The language arts and math series each contain six different programs. Each package contains a fast action program with colorful graphics in an arcade format, supplementary worksheets, flashcards (math only), record keeping sheets, and progress charts. Arcademics were designed by Jerry Chaffin and others at the University of Kansas.

The developers' rationale was to make elements of classroom instruction as motivating as arcade games. Underlying assumptions guiding the design of Arcademics are clearly expressed. Success in learning is reflected in student improvement, rather than merely preventing the student from making mistakes. High rates of responding are built into the program as fluency is central to the operation of these programs. The authors clearly state that student motivation is encouraged through improvement in performance over time (learning), fast action (high frequency of responding), and increasing levels of difficulty.

Each program follows a unique game format. In Verb Viper, the player feeds the dragon the correct tense of verbs coming from caves to match the subject on the pad underneath. In the case of Word Invasion, the player helps Alien Octopus aim at and fire down words representing parts of speech (nouns, pronouns, verbs, adjectives, adverbs, and/or prepositions). Players fire from a star station in order to disintegrate uncoming meteors by answering multiplication of numbers 0 through 9 in Meteor Multiplication. Apples are fed to alligators in a swamp by adding and subtracting numbers 0 through 9 in the game Alligator Mix. A record displays the high, low and current scores at the end of each game. Scores are recorded as hits and misses. See Table 1 for a complete listing of Arcademic Skill Builders.

Arcademic Skill Builders provide a broad range of skill levels in an attempt to individualize the instruction and make the programs useful to children in grades three through six. This is accomplished through the use of built-in program control options. All games have control options which may be used to adjust speed, content, reading and vocabulary levels, and running time. Speed of stimuli presentation may be adjusted from 1 to 9. The content adjustments are specific to each game; one must refer to the game reference card or manual. One may also adjust the difficulty of the reading and vocabulary levels from approximately grade one to beyond grade three. Games may be from one to five minutes in duration. Players may use keyboard commands or game paddle controls. Games may be played with or without arcade sound effects.

The basic philosophy of Arcademics is clearly stated in the manual. First, repetitious drill and practice can be fun and stimulating. Students respond to challenge, and, in this microcomputer software series, errors are viewed as opportunities to improve rather than as indications of failure. The rate of stimuli presentation imposes no ceiling on student performance. Feedback which is incorporated into the program will assist students in implementing performance and instructional strategies which facilitate improvement.

The suggested strategy for student placement into the program is to start students "where they aren't" and step forward or backward as necessary. A specific procedural approach or teaching strategy is outlined in all Arcademic manuals: (1) establish aims for students; (2) explain procedure to students; (3) monitor and record student progress; (4) chart student
<table>
<thead>
<tr>
<th>NAME</th>
<th>CONTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LANGUAGE ARTS</strong></td>
<td></td>
</tr>
<tr>
<td>Word Invasion</td>
<td>Parts of Speech: nouns, pronouns, verbs, adjectives, adverbs, and prepositions</td>
</tr>
<tr>
<td>Verb Viper</td>
<td>Correct tenses of verbs</td>
</tr>
<tr>
<td>Word Master</td>
<td>Antonyms, synonyms, and homonyms</td>
</tr>
<tr>
<td>Word Radar</td>
<td>Sight words</td>
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<tr>
<td>Spelling Wiz</td>
<td>Spelling</td>
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<tr>
<td>Word man</td>
<td>Initial consonants and long and short vowels</td>
</tr>
<tr>
<td><strong>MATH</strong></td>
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<tr>
<td>Alien Addition</td>
<td>Addition of numbers 0 through 9</td>
</tr>
<tr>
<td>Minus Mission</td>
<td>Subtraction of numbers 0 through 9</td>
</tr>
<tr>
<td>Meteor Multiplication</td>
<td>Multiplication of numbers 0 through 9</td>
</tr>
<tr>
<td>Demolition Division</td>
<td>Division problems with answers 0 through 9</td>
</tr>
<tr>
<td>Alligator Mix</td>
<td>Adding and subtracting numbers 0 through 9</td>
</tr>
<tr>
<td>Dragon Mix</td>
<td>Multiplication of numbers 0 to 9 and division problems with answers 0 through 9</td>
</tr>
</tbody>
</table>

*Journal of Precision Teaching, Vol. V, No. 1, Spring, 1984*
progress; (5) interpret student progress; (6) establish strategies for improvement; and (7) set new aims. Aims are set for number of hits and misses by a designated date. The authors recommend that no aim be set at less than 40 hits and no more than two or three misses per two minute game. Students should be actively involved in aim setting. Student progress is charted on a two cycle semilogarithmic graph with room for 70 calendar days. Ten visuals of learning pictures with suggested teaching strategies are included in the manual. Blackline masters of the Student Record Sheet, Progress Chart, and Strategies for Improvement Sheet are included in the packet.

The authors recommend that the Skill Builders be linked to the elementary school curriculum and used to introduce and/or reinforce concepts. Software content is an integral part of the elementary school curriculum. The programs would be appropriate for most elementary school students beyond the second grade. Additionally, the programs could also be used by junior and senior high school students who are experiencing difficulty in the content areas. Program manuals list many ways to link the software to related activities. Blackline masters are included for all skills and each level of skill difficulty. These practice sheets look very much like those developed by Precision Teachers over the years, with many response opportunities and response counts on the right margins. Flashcard sets are included in the math programs.

COMMENTS: Arcademic Skill Builders clearly offer an alternative for those who are shopping for drill and practice microcomputer software appropriate for the math and language arts elementary school curriculum. To this reviewer's best knowledge, this is the only frequency-based software currently on the market. It clearly utilizes the fundamental elements of Precision Teaching. The arcade style, including high frequencies, certainly makes the games exciting to play. The games are highly sought after by students—young and old!

The control option built into all programs is very practical and provides much flexibility for using the programs under various conditions. Teachers and/or students may vary content, difficulty level, speed of play, running time, and whether or not sound and/or game paddles are used in each program. However, no provision is made for adding new content.

A great deal of variability exists in speeds between programs. The author completed 4 levels of six programs 10 times. The median number of responses for each level of each program is shown in Charts 1 and 2. In Alligator Mix the response ratio for level 7 to level 1 is approximately a x4, and the response ratio in Verb Viper at the same level is less than x1.8. Therefore, the same speed levels across programs do not reflect the same response quantities.

A black and white monitor as well as a color monitor were used to review the program samples. Although the color was more aesthetically appealing, playing the games in black and white was not a detraction and was just as exciting. Once control functions are set or default values used, the disk may be taken out of the drive and used elsewhere. All programs operate on a single boot system. This is a tremendous advantage where multiple use is required. The option of running the program without noise in a classroom setting is a real asset to most practitioners. Current score, low score and high score are provided at the termination of each game. Scores recorded are only "counts" and are not transformed to frequencies. As a result, highs, lows, and currents will be much different when the game length(counting period) is changed.

Users of Skill Builders must be aware that game participation and scores measure more than just the language arts and math content. A certain amount of hand-eye coordination, dexterity and fine motor control are required to obtain high scores at high speed levels. There is also some variability between scores on the same game, with the same content, and at the same speed and difficulty level when the play option of keyboard or game paddle is elected. Additionally, the error goal of two or three misses in a two minute game, as stated by the authors, may be very unrealistic when students are using high speed level
Chart 1. Performing Arcademics Math

Alligator Mix: Levels 1, 3, 5, 7
Meteor Multiplication: Levels 1, 3, 5, 7
Demolition Division: Levels 1, 3, 5, 7

(median correct frequency for ten timings)
Chart 2. Performing Arcademics Language Arts

Verb Viper:
Levels 1, 3, 5, 7

Word Invasion:
Levels 1, 3, 5, 7

Word Master:
Levels 1, 3, 5, 7

(median correct frequency for ten timings)
options and going for high scores. Errors in keyboard entry and/or paddle board coordination often occur during a game. The important factor may be the ability of the student to demonstrate knowledge of that basic fact with a quick self-correction.

The authors indicate that errors are learning opportunities and students should feel free to make errors during game play. Strategies recommending how to improve performance and learning through teaching to the errors are outlined in the manual. However, specific errors made during the course of a game are not recorded or indicated in any manner. The student is provided an error count but not a listing of the specific errors. Even at the termination of a one-minute game, one does not remember the specific errors made during play. This makes it difficult to employ a "teach to the errors strategy" unless someone else can record or verify errors. For this reason, it may be helpful for students to work in pairs - one student as player and another as recorder.

A glut of poor to useless microcomputer software is currently in the marketplace, and much of it has found its way into educational settings. Arcademic Skill Builders in Math and Language Arts provide a clear alternative to what currently exists in drill and practice packages. Students really do enjoy playing the games. Approach responses to Arcademics are very strong as players always want to do one more. Most drill and practice software is painfully slow and imposes very low response ceilings on students. The action can be very fast in Arcademics. The control options make the programs very affordable, applicable and adaptable for users. The documentation and support materials which explain rationale and procedures are excellent. Actual game operation directions are somewhat sketchy, but they can be easily figured out. See Table 2 for additional information.

TABLE 2
DLM Arcademic Skill Builder Information

| HARDWARE: | All 12 programs are compatible with Apple II and IIe, as well as Commodore, IBM PC and Atari 400, 800 and 1200. Programs published before October 1983 may not be compatible with all these systems. DLM will work with customer replacements. |
|SOURCE: | Developmental Learning Materials One DLM Park Allen, Texas 75002 Toll-Free Phone 800-527-4747 |
| COST: | $44 per program |
| BACK-UP: | Defective disks replaced at no cost within six months of purchase. After six months disks can be replaced for $20 each. |

What effects will Arcademics have on students' learning in your classroom? The authors suggest research was conducted in the form of a developmental or pilot study. However, no data or references are included in the manual. Therefore, the aforementioned question remains an empirical one. I think that you will certainly want to give them a try. For all the shortcomings the programs have, they may very well be the best drill and practice software on the market and the only frequency-based software designed to ensure many painless student trials in these curricular areas.

About PT

NOTES FROM THE EDITOR

Patrick McGreevy

Welcome to Volume V of JPT. First of all, I would like to thank you for...
your patience and your support. I have experienced a great many difficulties in moving the Journal. However, most of these difficulties have been resolved and JPT is once again on an even keel.

I have one very specific and sincere request: send us your manuscripts and chart shares. Many of us have attended presentations at regional and national conferences where data are presented to support various conclusions. Most of the time, these data and conclusions never appear in a published article or book. As a group, PTers need to publish more—not just in JPT, but in other journals as well. Maybe we can pick up some hints from Tom Lovitt's article and chart our writing behavior!

Remember, if you see a Chart-based article in another journal, let us know so we can "spread the word."

I would like to thank the consulting editors, designated Precision Teachers and others who have recently reviewed manuscripts. The reviews have been precise, to the point, and very helpful.

The National Precision Teaching Conference in Park City, Utah went very well. Congratulations to Susan Ryberg, Steve Kukic, Cy Preston, Bruce Griffin, Joan Sebastian and the many others that made this conference an overwhelming success.

There was discussion in Park City concerning the formation of a national association of Precision Teaching. Pros and cons were presented. Although there was some support for such an association, it was decided that one would not be formed at this time. Some of those in attendance felt that we can more efficiently spread the word of PT by participating in other national organizations. Others felt that it might be advisable someday to apply for sub-group status within the Association for Behavior Analysis(ABA). Still others expressed the opinion that local and state PT organizations might be more useful at this time. These organizations could sponsor smaller PT conferences.

Well, with some people, a simple suggestion is all it takes. The Davis County School District in Farmington, Utah will hold their own PT Conference on June 13. It is being organized by Mary Butler, P.T. Consultant, and Ruth Kunkel, Coordinator of Special Education Inservice Programs. We wish you the best of luck, Davis County! Let the readers of JPT know how it goes!

COMPUTING

Bill Wolking

The last column introduced and described Aimstar, an Apple II program for Precision Teachers. This time I can pass along some experiences with Aimstar and then finish the column with some information about Macintosh, the new Apple personal computer. Seven students doing practicums with me have now used the program for almost three months. Everyone started with high enthusiasm for the program. They saw their charted data on the screen, the potential of the computer application of decision rules and took off. However, it is difficult to continue, because of the time required to input the data. Recovery from errors is also time consuming. The program is very sensitive to dates and we have experienced some problems in this area. At this point, none of the teachers have elected to continue using Aimstar. The ratio of benefits (manipulable video screen charts, quick calculation of last 6 acceleration lines, and computer application of decision rules) to costs (time entering data, time tracking and correcting errors, nonparticipation of learner in charting and decisions) is not good. This isn't too surprising. Discussions over the past several years about the possible contributions of microcomputer programs like Aimstar have generally led to the conclusion that they would probably detract from, rather than enhance, day-to-day Precision Teaching. Lindsley has probably been among the most consistent in saying that it would be very difficult to improve Precision Teaching with computer assistance or management programs.

When we started, I thought the computer application of decision rules would be a useful program function.
It would insure that they are done quickly and accurately and so might heighten the frequency with which decision rules were actually used. It hasn't worked out that way. This section of the program is fussy. It sometimes required a large investment of teacher time before this function gave us a printed output. Our teachers have not felt that the results have contributed to the effectiveness of their teaching. No hard data to back this up, however.

Personally, I plan to continue to explore Aimstar. We haven't used it enough or interacted with the authors enough to be able to draw firm or final conclusions. However, at this point I don't think very many classroom Precision Teachers will find the costs-benefits ratio attractive enough to continue using Aimstar for very long. Researchers and trainers, however, may find it helpful for special jobs, or find ways to improve the program.

We feel that a program of this type will only be functional, under conditions in which learners take their timings on a microcomputer and their frequencies are automatically stored in a file that may be directly opened by a Precision Teaching program which would chart the latest data point and immediately display the Chart for the student. The current version of Aimstar tends to pull you back toward a group oriented and after-the-fact analysis of the data. It makes Precision Teaching less dynamic and tends to exclude the learner from vital immediate participation in the teaching and learning decision process.

A few days ago a new version (1.1) of Aimstar arrived from the publisher. No letter or documentation was included, so it is difficult to know how the new version differs from the old. I played with it for a while, but no differences were apparent. Hopefully, error recovery has been improved. If any of you have used Aimstar, please share your experiences with us.

Since the last column, microcomputing has been set on its ear by the introduction of the Macintosh on January 24, 1984. Apple has put out a product which has the earmarks of a classic. This micro is different! It breaks tradition with the Apple II family, the IBM PC family and everything else out there. It's not appropriate in this column to take the space to describe the technical features of this machine. Buy an issue of MacWorld magazine or better yet, stop in at your local Apple dealer and try out the Macintosh. Don't worry if you are computer phobic. Ten minutes on this machine will leave you loving it and feeling like a computer whiz. I have observed eight year olds learn how to use the Mac by intuition in just 10 or 15 minutes.

The point to make here is that we have crossed a watershed. Computing is now easier, more personal, more reactive and productive and less expensive (per function available) than ever before. The impact on education is difficult to imagine. The Macintosh makes you feel that the most optimistic opinions of the impact are not exaggerated. Already a cult has developed among professional programmers. It's now considered a professional insult to ask a programmer to write for any machine other than the Macintosh-Lisa, 32 bit family of computers. New language are already being readied for market that are based on icons and mouse-pointing, in place of traditional Fortran/Basic symbols and formats. According to several articles it won't be long before you can write computer programs by manipulating icons with a mouse.

The Macintosh graphics program (MacPaint) and word processor (MacWrite) make it possible to include accurate representations of Standard Celeration Charts full of data in educational reports, letters, and notes. The chart may be drawn to correct proportions and then reduced in size to fit the space demands of the document in which you are inserting it.

Send contributions for the column to Bill Wolking, G315 Norman Hall Addition, University of Florida, Gainesville, FL 32611. Happy Computing!
LETTER TO THE EDITOR

Dear Patrick,

...We visited an L.D. teacher last week and thought you might be interested in these charts. The teacher, Heather McWade, is a first year teacher, but she seems to have picked up PT beautifully. We're so used to seeing flat data that we were really excited about the charts she shared with us (e.g. Chart 1).

We had a neat experience last Friday. We visited a classroom of physically impaired L.D. kids and observed the kids doing PT in reading and math. You should have seen those kids go to town on their math facts-- we were so impressed we felt like calling 60 Minutes. We are encouraging the teacher to write an article describing the results of her research and submit it to JPT.

Hope this letter finds you well...we're encouraging more teachers to submit Chart-sharing articles to you.

Sincerely,

Linda Diviaio and Marilyn Hefferan
Orange County Precision Teaching Project
800 South Delaney Ave.
Orlando, FL 32801

Thanks to Linda and Marilyn for their letter and charts. Congratulations to Heather and her students!
Chart 1. An Exciting Chart from Orlando, Florida
The National Adolescent Conference on Behavior Disorders

October 11-13, 1984  The Hilton Hotel  Pensacola, Florida

This multi-disciplinary conference will bring together an array of individuals concerned with developing and implementing programs with older adolescents. Presentations will include workshops, addresses, and informal poster sessions covering topics such as youth service agencies, clinical and interagency interventions, curriculum building, residential and correctional programs, substance abuse, and computer applications.

This is a unique opportunity to learn and share information with some of the nation’s leading experts in programming for adolescents.

Come join us for the presentations and parties by the white sand beaches of Pensacola.

Sponsored by:
- Council for Children with Behavior Disorders
- Minnesota Education of the Emotionally Disturbed
- Florida Federation Council for Exceptional Children
- Pensacola Junior College
- The University of West Florida

With the Patronage of:
- West Florida Hospital Psychiatric Pavilion

For further information, contact:
- Bill Evans  Special Education
- Sheldon Braaten  Harrison School

Pensacola, Florida 12514
(904) 474-2891
(612) 374-5782  55405

1984 Adolescent Conference Registration

Complete the above information, check the appropriate boxes and return this form with a check made payable to THE UNIVERSITY OF WEST FLORIDA.

Mail to:

CASHIER
THE UNIVERSITY OF WEST FLORIDA
PENSACOLA, FLORIDA 32514

REFUNDS: All refunds will be subject to an administrative charge of 20%. If you are unable to attend, submit notification in writing. Refunds after October 11 will not be honored.

Registration Options:

☐ $55.00 Early Bird (by September 15)
☐ $70.00 Regular (after September 15)
☐ $55.00 Student
☐ $30.00 Daily
☐ $ 3.00 Check here if you would like to attend the Thursday evening kickoff party at the Naval Aviation Museum.

Complete the above information, check the appropriate boxes and return this form with a check made payable to THE UNIVERSITY OF WEST FLORIDA. Mail to:

CASHIER
THE UNIVERSITY OF WEST FLORIDA
PENSACOLA, FLORIDA 32514

REFUNDS: All refunds will be subject to an administrative charge of 20%. If you are unable to attend, submit notification in writing. Refunds after October 11 will not be honored.
Continuing Education Units

Continuing Education Credits (CEU's) for conference participation are available through Pensacola Junior College. These may be purchased at the conference registration site. One CEU for 10 hours of conference participation will cost $6.00; two CEUs for 20 hours of participation will cost $12.00.

Transportation

Eastern Airlines is proud to serve as the official airline of the 1984 Adolescent Conference in Pensacola, Florida.

Eastern has arranged for special discount air fares for all those attending the conference. In order to receive these low rates, you must call Eastern Airlines at the toll free number provided below—even if you live in an area not served by Eastern.

Our Eastern coordinators will charge your air fare to your credit card, or invoice you for payment. They also have information on special rental car rates with Avis. Your tickets can be mailed to you, or picked up at your nearest Eastern office or professional travel agency.

Please call Eastern as soon as possible to insure your discounted air fare:

all states except Florida 1-800-327-1295
in Florida 1-800-432-1217

HOTEL RESERVATIONS

HOTEL ACCOMMODATIONS:

A. Hilton $55/60 double (conference headquarters)
B. Gulf Breeze Holiday Inn $45/55 double
C. Lenox Inn $43/50 double

My preference is: 1. 2. 3.

*Every attempt will be made to meet your choice of accommodations**A map is provided on the reverse side

Name
Address
City State Zip
No. in party
Arrival Date: Time
Departure Date: Time
Number of nights

Complete all of the information above and mail to:
Ms. Shirley Kirchhur
The Pensacola Hilton
200 East Gregory Street
Pensacola, Florida 32501

*Every attempt will be made to meet your choice of accommodations**APicture is provided on the reverse side