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The Great Falls Precision Teaching Project: An Historical Examination

Ray Beck & Richard Clement

The Great Falls Precision Teaching Project is the most widely cited demonstration of the effectiveness of Precision Teaching. Combining use of the Standard Celeration Chart and principles of Precision Teaching originated by Ogden Lindsley, with additional techniques developed at the Experimental Education Unit at the University of Washington, educators in Great Falls, Montana, created a model of implementation and dissemination that has produced remarkable improvements in students' learning and achievement in both regular and special education classrooms.

Students showed marked improvements in classroom assignments, overall concentration and work habits, and displayed obvious enhancements in self-esteem. These effects led to use of Precision Teaching in all classrooms by all teachers, and to formal validation for both regular and special education by the U.S. Office of Education Joint Dissemination and Review Panel. Results included 20 to 40 percentile point improvements in basic skills achievement among regular elementary school students.

Introduction

The Precision Teaching Project has been a part of the Great Falls Public Schools for 15 years. Precision Teaching uses a set of measurement procedures for monitoring behavior and making decisions about the effectiveness of any teaching technique, curricular methodology, or behavioral intervention. It involves both direct and continuous observation and measurement of social and/or academic behavior. Precision Teaching is *direct* in the sense that it measures students' academic performance directly from the curriculum rather than indirectly by means of standardized tests. It is *continuous* insofar as measurement and charting of performance occur every day.

In addition to these key elements, the Great Falls approach includes specific instructional components emphasizing the remediation and/or development of basic skills through: (1) practice and drill, (2) setting of high academic performance standards, and (3) frequent data-based decisions.

The Model and Its History

The Precision Teaching Project in Great Falls provides the classroom teacher with: (1) a precise means of describing academic behavior, (2) a unique recording and charting procedure, (3) a set of techniques for interpreting charted data and applying decision rules, and (4) a bank of practice materials designed to complement and reinforce the classroom teacher's current curriculum objectives. The student receives daily opportunities to: (1) practice basic skills (e.g., reading, math, and spelling) at high performance levels, (2) maintain a charted record of daily growth, (3) progress through the curriculum at an individual pace, and (4) assist the teacher in making curricular decisions.

Initially, Precision Teaching procedures were used in Great Falls to assist mildly handicapped students with basic skill deficits in special education settings. Three elementary schools were chosen to house resource rooms where students received remedial instruction in math, reading, and spelling. The remediation focused only on the use of repeated practice using one-minute timings. Once students reached a predetermined rate (or "aim") of correct responding (i.e., 70-90 digits per minute in math facts), they moved to more difficult tasks in the curriculum sequence. Teachers and students used a set of decision rules with Standard Celeration Charts of daily one-minute timings. The rules specified a change in the program if: (1) the Charts showed no growth over three consecutive days, (2) the student was at "aim" (e.g., 200 words per minute) for two out of three days, (3) growth was less than x1.25 (25%) per week, (4) correct rates were decelerating, and/or (5) the student's progress was less than the projected celeration (learning rate) for three consecutive days. This model remained the focus of intervention strategies during the entire project period and is

still the basic structure for special education resource rooms in Great Falls today.

The Sacajawea Plan

Many educators associate the Great Falls Precision Teaching Project with Sacajawea Elementary School which served the project as a training site for some 12 years. Moving from special education to the regular classrooms at Sacajawea was an evolutionary process. Initially, there were no stated objectives, routine methods, or procedures for the use of Precision Teaching in regular elementary classrooms. The transition from special education to regular education was the result of Sacajawea's involvement as one of six test sites in an experiment conducted by the Great Falls Public Schools Special Education Department. As part of the intervention plan, the principals and several staff members from three experimental schools visited the University of Washington's Experimental Education Unit and the Seattle, Spokane, and Tacoma Project.

Part of the visit permitted the observation of classrooms where students with learning problems were using teacher-made materials and teachers were obtaining daily timed samples of students' work. After visiting these classrooms, the Sacajawea teachers committed themselves to implementing Precision Teaching, not only in their resource rooms, but within every regular elementary class in the school.

A number of Sacajawea teachers felt that the same types of problems existed within regular classes as in special education settings. For example, students: (1) exhibited basic skill deficits, particularly in the areas of math, reading, and spelling, (2) lacked the tool skills such as "write numbers", "say sounds", "write letters", or "words" which are prerequisite to the basic skills of math, reading, and spelling, (3) were incredibly accurate, but painfully slow, and/or (4) lacked the ability to maintain skills over a period of time. (That is, they soon forgot their math facts, vocabulary, and spelling words.)

In the early stages of implementation, teachers were concerned with the amount of time Precision Teaching procedures would take from classroom instruction and with their ability to manage 25 to 30 individual student programs. However, through trial and "learning experiences", both teachers and students became comfortable with daily timings, charting, and the use of curriculum practice sheets. Most importantly, the students became comfortable with daily monitoring and with sharing their own performance gains with the rest of the class. The staff soon found that they had *more* , not less, instruction time. Students whose teachers set high performance standards progressed rapidly through the curriculum, particularly in the areas of reading and written assignments. Students seeing their gains in visual displays on Standard Celeration Charts demonstrated marked increases in self-esteem. In addition, youngsters extended their concentration, improved their work habits, and openly expressed pleasure with their individual progress. Some teachers reported that once students were accustomed to one-minute timings, they were better able to focus and concentrate on test material.

From a few teachers at the Sacajawea School in 1974, the Precision Teaching Model eventually involved 100 percent of the staff. Approximately 450 students were involved in reading, spelling, writing, math, geography, penmanship, art, and physical education programs using Precision Teaching. More recently, Precision Teaching has evolved into a preventative measure for students deemed "at-risk" for possible special education placement.

Evidence of Effectiveness

Throughout the Project's history, Precision Teaching techniques have been successfully applied to students in both regular and special education programs in grades K-12. The Great Falls Precision Teaching Project has demonstrated the efficacy of its approach to the United States Office of Education's Joint Dissemination and Review Panel on two occasions.

In the first review (1975), the panel examined the impact of Precision Teaching on mildly handicapped students for one academic year. In this evaluation, six elementary buildings were randomly assigned to experimental and control groups (3 buildings each). These schools were similar in terms of class size, pupil-teacher ratio, cost per pupil, type of support services, and family income. The students served were in the lower quartile of first, second, and third grade youngsters, and the intervention model included the following elements: (1) students practicing basic skills through daily one-minute timings, (2)setting high performance aims (e.g., 70-90 digits per minute in math facts, 200 words per minute in oral reading), (3) daily charting of performance, (4) data-based curricular decisions, and (5)use of a materials bank of 10,000 basic skill practice sheets.

Of the 19 experimental-control group comparisons, 15 (79%) of the experimental groups were significantly superior on post-test examinations. One experimental group caught up to a previously statistically superior control group.

In a second study, submitted to the Office of Education in 1979, Precision Teaching was validated for use by regular elementary programs. A longitudinal evaluation design demonstrated that students under the Precision Teaching model as first, second, third, and fourth graders significantly out-performed other district fourth grade students in the areas of reading, math, and spelling as measured by the Iowa Test of Basic Skills. Precision Teaching students out-distanced their control counterparts by over 20 percentile points in reading and some 40 percentile points in math.

A further study compared a Precision Teaching group against a control group of third graders on measures of reading and mathematics. Whereas control group students were superior on the measures prior to intervention, post-test scores showed a 24 percentile difference in favor of the Precision Teaching group in math and 32 percentile difference in reading over their counter-parts.

A study conducted in 1977 attempted to follow up students who were deemed "remediated" in the 1974 Precision Teaching Project evaluation. Results revealed that youngsters remediated at the end of the 1974 school year were still meeting academic success with little or no washout effect, as measured by standardized achievement tests, classroom performance measures, and by teacher judgement. These data suggested that students under a Precision Teaching model did not regress once the intervention was withdrawn.

In 1981, the State of Montana Office of Public Instruction formally named the Precision Teaching Project as a proven-validated practice for use in high school math and English programs.

Training and Dissemination

The Precision Teaching Project remains one of the most significant demonstrations of effective dissemination and inservice training in American public education. Many educators who are familiar with Precision Teaching were first introduced to it through the Project. The procedures employed by the Project were and continue to be judged "best practices" in training and dissemination. Some of these practices are briefly described below.

Exportable Training Materials

Each participant in training sponsored by the Project received a manual that was designed not only to support the implementation of Precision Teaching in a classroom, but to support the sharing of techniques by trainees to a new generation of educators. The manuals, exercises, and masters for transparencies helped the trainees to remember what they had been taught and to teach others how to use Precision Teaching.

Demonstrations of Precision Teaching

The training occurred at the Sacajawea Elementary School where Precision Teaching was being used every day in each of the classrooms. Trainees visited classrooms to see teachers and students using the techniques. Trainees were able to talk with students individually and to ask them about how Precision Teaching had helped them to learn more efficiently. These individual conferences provided the students an excellent opportunity to teach the trainees about Precision Teaching. Seeing the procedures in use helped to reassure the trainees that Precision Teaching was practical, useful, and acceptable to teachers and students alike.

Second Generation Training and Demonstration Sites

To aid in the dissemination of Precision Teaching, the Project established several second generation training and demonstration sites located in various sections of the country. Sites were certified according to their adherence to the Precision Teaching model developed by the Project. The Project also certified trainers at these sites. Certification required approval of training procedures and materials. Materials, training outlines and schedules, and training activities were essentially identical to those used by the Project at the Sacajawea Elementary School. Periodic site visits and recertification activities prevented deviation from the original model.

Certified Trainers

As the number of requests for training increased, the trainers supported by the Project in Great Falls became unable to respond to all of them. The project established a network of trainers certified to conduct training in the Precision Teaching model. To protect the fidelity of the model and to ensure its validity, the Project required additional training for its trainers as well as demonstrations of presentation and delivery. Additional documentation of training effectiveness and impact were also required of all certified trainers.

Trainer's Conferences

The Project held periodic conferences for certified trainers. These conferences provided trainers with opportunities to share the results of their activities and to learn about new developments from the Project. These conferences created a sense of identity and purpose among the certified trainers as well as an appreciation for the importance of maintaining the fidelity of the model.

Effective Teaching Techniques

Most inservice training programs fail for many of the same reasons preservice training has generally failed to achieve uniform acquisition of skills. According to Borg (1975), teacher training programs fail for three reasons: "the learner typically does not focus on specific teaching skills; he has no effective model to emulate; and he receives no feedback on his performance that he can translate into specific changes in his teaching behavior" (p.7). We have already described the attention given to the development and validation of the Precision Teaching model. The Precision Teaching Project also addressed Borg's other concerns. Each Precision Teaching skill was carefully targeted for training. Trainers used "hands on" exercises that simulated actual classroom application to give constant and immediate feedback to the trainees. Building "fluency" in performance is an important tenet of Precision Teaching. Trainees learned skills to build the fluency of their students by building fluency in their own performance. This was accomplished by giving trainees ample opportunity to practice the skills and techniques they would use later to apply Precision Teaching in their classrooms.

Plans of Intent

To increase the probability that trainees would use the techniques they had learned, each trainee completed a Plan of Intent as part of the training. Each trainee was asked to stipulate the *how's*, *where's*, and *who's* in a plan to use Precision Teaching in their own setting. Project trainers, who were scheduled for follow-up site visits, retained a copy of the Plan of Intent. The trainee kept a second copy as a reminder of the terms of the "contract for implementation" which it represented.

Implementation Checklists

Every trainee received a check list which referred to each element and practice required for complete implementation of the model. Using the checklists, trainees evaluated the quality of their Precision Teaching programs. Trainees and Project staff also used these checklists to help recalibrate Precision Teaching efforts during follow-up training conducted "on site".

Follow-Up Training

Four to six weeks following training conducted at the Training and Demonstration site, a certified trainer visited the site(s) where the trainees were working. Plans of Intent were reviewed along with the implementation checklists. This one to two days of follow-up permitted training to be conducted "in the field" where the skills were expected to be used.

Administrative Support

Inservice trainers are sometimes surprised by how many teachers seem to be interested in applying the skills they have learned, but who then become quickly discouraged because they find little support or encouragement for doing so. We encouraged "whole school" adoptions of the model and expected school administrators to be full and active participants in the training. In this way we created an environment in the adopting schools that encouraged continued implementation of the model.

Summary and Historical Credits

Since the original approval by the Joint Dissemination Review Panel in 1975 as a special education project, and later in 1979 as a regular elementary program, the Great Falls Precision Teaching Project has met the challenges of dissemination throughout the United States and Canada. As a part of its ongoing dissemination efforts, the Project also:

* presented to the World Congress for Exceptional Children, University of Sterling, Sterling, Scotland

* presented to the Department of Health, Education, and Welfare 25th Anniversary, Washington, D.C.

* presented for four consecutive years at the Association for Behavior Analysis Conference

* presented at sixteen national conferences, including Council for Exceptional Children, Association for Children with Learning Disabilities, and American Association of School Administrators

* originated the International Precision Teaching Conference, which subsequently led to nine annual meetings

* was selected by the Cantalician Foundation as one of six non-discriminatory instructional practices for minority students, U.S. Office of Civil Rights

* has become a required course for certification in school psychology and special education, State of Montana, and

* was awarded the "Pacesetter Citation" as one of thirty developer-demonstration projects in the United States to address "Nation At-Risk".

Since 1975, the Project's model has been adopted in 44 states, 3 provinces in Canada, and several school districts in England. Over 8,000 educators have been trained, impacting some 153,000 students. Although the original Project personnel have migrated to various parts of the country, Precision Teaching training is still available using the Great Falls model and can be arranged by contacting the first author through Sopris West, P.O. Box 1809, Longmont, Colorado 80502, (303) 651-2829.

Reference

Borg, W.R. (1975). Moving toward effective teacher education: One man's perspective. Logan, Utah: Utah State University, University Press.

Ray Beck was Director of Special Education, Great Falls Public Schools, and Project Director of the Precision Teaching Project. Richard Clement was the Principal of the Sacajawea Elementary School, Great Falls Public Schools, Montanna, and is currently the Principal of a junior high school in Ketchikan, Alaska.