ers, prepared tapes that covered the major concepts. They also studied each student's learning styles profile to determine individual approaches. To ensure that these students were not being given a watered-down course, the students were given the same departmentally prepared six-weeks and semester exams as the other Algebra II classes. At the end of the year, 32 of the 34 students passed the course!

Mission Accomplished

Five years after that transforming summer when I made my vow, I feel a sense of accomplishment. My principal, my colleagues, and I have found a more successful way to teach. Credit also goes to each and every student who so eagerly embraced a better way of learning. The reward for all of us is the satisfaction that our students are learning more successfully than ever before. Our dropout rate has declined because school is a more interesting and friendly place to be. Together, we have created a secondary school that Rip Van Winkle would not recognize. That school is Corsicana High School in Corsicana, Texas.□

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CAROLYN E. BRUNNER AND WALTER S. MAJEWSKI

Mildly Handicapped Students Can Succeed with Learning Styles

Since teachers at Frontier Central High School in Hamburg, New York, began using a learning styles approach, the number of special education students earning regular high school diplomas has grown dramatically.

At Frontier Central High School in Hamburg, New York, students identified as mildly handicapped are enjoying high rates of success. Indeed, most are now earning high school diplomas based on their unprecedented attainments on both local examinations and New York State Competency Tests. The secret of their success is a well-researched, faculty-developed curriculum that takes into account the needs and strengths of individual learners.

Laying the Foundation

The groundwork for the program was laid over the summer of 1987. During those months, six special education teachers and a coordinator worked together to develop units of instruction in social studies, mathematics, and language arts for special education students in grades 9–12 (Shands and Brunner 1989). Our goal was to provide these students with a program closely aligned to regular education.

Since the students would be expected to cover additional, more difficult content, the project writers wanted to include many helpful instructional strategies. The learning styles model developed by Rita and Kenneth Dunn (1978) appeared best suited to our needs. Five stimuli—environmental, emotional, sociological, physical, and psychological—serve as the framework for the model's 21 elements.

Our goal was to provide special education students in grades 9–12 with a program closely aligned to regular education.

We were, of course, excited about the prospect of improving our students' academic achievement by teaching them in ways they learn best (Dunn et al. 1989), but we also wanted them to learn new and difficult material at a faster pace with increased retention. And, as practitioners, we wanted to reduce discipline problems. Tough nut to crack, but the reports on the model were so strong, we thought we'd try it.

Beginning in the summer of 1987, we provided staff development in learning styles for special education teachers and administrators, including

an assessment of their own learning styles using the *Productivity Environmental Preference Survey* (PEPS) (Dunn et al. 1979, 1982). The project writers were also administered an inventory, one that identified their individual teaching styles.

We began implementing the program in September 1987 without inventories for the students. Curriculum writing continued during the 1987–88 school year on half-day Staff Development Release Days (seven during the year). Then, during the summer of 1988, we made curriculum revisions/additions.

Accommodating Learning Styles

We began assessing student styles in September 1988, using the *Learning Style Inventory* (Dunn et al.). Based on the results, teachers then developed "best shot" instruction, which we define as instruction presented through a person's primary perceptual strength, reinforced through his or her secondary strength, and, finally, reinforced again through his or her tertiary strength. Briefly, here's how teachers addressed the 21 learning style elements.

To deal with the *environmental* elements, teachers redesigned their classrooms. For example, to accommodate students' design needs, teachers provided those who required a formal atmosphere with traditional classroom furniture and allowed students who preferred an informal setting to work on a carpeted section on the floor and to use pillows for additional comfort. Teachers also attended to students' needs for sound, light, and temperature.

Because many of our students do better when working cooperatively with their peers or as a member of a team, teachers developed and taught students many small group techniques.

The *emotional* stimuli—motivation, persistence, responsibility, and structure—were addressed through instructional strategies and lesson designs. For example, teachers gave students who required structure detailed schedules for completion of tasks and materials; for students with a low preference for structure, they provided assignments with fewer directions and deadlines for completion and allowed them to self-structure their tasks.

Teachers included the *sociological* elements in their unit plans as well as in their lesson designs. Students who preferred to work by themselves could do so. But because many of our students do better when working cooperatively with their peers or as a member of a team, teachers developed and taught students many small group techniques. All units provided a menu of instructional approaches and activities that addressed students' preferences for working alone, with peers, or with their teachers and their requirements either for variety in learning activities or for routine.

As we looked at the *physical* elements of learning style, our unit plans and lesson designs concentrated on the perceptual element. Teachers planned activities to introduce students to new or difficult information through their perceptual strengths. And, so that they could adapt their home study habits to their personal strengths, students were counseled about their learning styles. Teachers also accommodated students' needs for the other three physical elements of intake, time of day, and mobility.

Finally, the *psychological* or *cognitive* elements were analyzed for students. Teachers began organizing lesson plans with these elements in mind. Some students are *global*: they need to see the "grand plan" before they can concentrate on details. Others are *analytic*: they need to learn successively, in small steps, one detail followed by another. Globals and analytics are equally able academically; however, students in each group achieve best when taught with approaches that match their individual styles.

The number of students who passed the necessary local examinations and State Competency Tests to receive diplomas increased from 25 percent in 1987 to 66 percent during the program's first year.

Just the Beginning

In June 1987, before we began using the new curriculum, only 25 percent of our students passed the necessary local examinations and State Competency Tests to receive diplomas. During 1987–88, the program's first year, that number increased to 66 percent. During 1988–89, the second year, 91 percent were successful. This past year, 1989–90, the results remained constant at 90 percent, with a greater ratio of handicapped students passing State Competency exams than regular education students!

We have witnessed a number of other benefits as well. First, as our students recognize they *can* succeed, fewer of them are dropping out. Second, teachers are seeing growth in their students' self-esteem. Third, since our students are realizing they can earn their diplomas, we've seen a marked decrease in discipline referrals. Finally, as they gain confidence in their modified classes, mainstreamed students are showing comparable gains in other classes.

Something wonderful is happening—and it's only just begun. Learning styles is the ingredient we needed to make many of our kids "come alive!" □

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JANET PERRIN

The Learning Styles Project for Potential Dropouts

The learning styles approach offers at-risk youth a second chance—just ask students in Amityville High School's successful program.

"I probably would have dropped out of school, and now I'm graduating."

"I never would have believed I'd be going to college, but I am!"

"For the first time, I really felt my teachers cared about me."

Those reactions are from 12th graders who, for the past two years, have participated in the Learning Styles Project for potential dropouts at Amityville High School in New York. Students were selected for the program at the end of 9th grade, according to three criteria: failure in two or three subjects, scores in the fifth stanine or below on a standardized reading test, and excessive absences.

During the summer of 1987, their teachers were trained in the Dunn and Dunn model (1978) of learning styles. Then, at the beginning of the year, the school used block scheduling to group the students together for 10th grade math, social studies, English, reading, and science during the regular school day. During the first few weeks, the teachers introduced the concept of learning style. Soon the classes began to experiment with alternative groupings, varied instructional strategies, and individualized response activities. They discussed personal study habits and different environments for learning. Then they took the *Learning Style Inventory* (Dunn et al. 1982, 1987) and received individual printouts indicating their learning strengths and weaknesses. Teachers conferenced with each student on how to interpret the results.

The gains in student achievement are easy to calculate, but the gains in self-esteem are immeasureable.

At weekly staff meetings, administrators and guidance counselors used the printouts to plan counseling strategies and intervention techniques. At the same time, teachers consulted with each other to plan instructional strategies for students working alone, in small groups, or with the teacher; to develop activities suited to the various