One Million Students on Bicycles

Bicycles for Transportation and Health in Texas

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Summary

Encouraging 10-12 year old students to use bicycles for transportation by providing education on techniques and safe roadway riding habits can support other programs designed to promote activity for health and wellness. To achieve universal coverage of bicycle education in the United States requires acceptance of the discipline by the public and private school systems. This paper describes a program that has overcome the barriers to introducing a non-academic program in academic systems. Discussion includes development, funding, marketing, implementation and results of such a bicycle curriculum.

Other programs have been introduced in school systems but none have attempted introduction to every school child in a state. The public school system in Texas has 1.041 independent school districts with 3.656 schools teaching 10-12 year olds and 600.000 students in these two grades.

The major barrier to introduction of this program has been marketing it to the independent school districts. In Texas each school district makes decisions on what programs are introduced. Some school districts allow individual schools to make the decision. In this environment, getting the program into the schools becomes strictly a marketing effort.

The marketing of the program proposes two overall strategies: 1) a Direct Strategy is narrowly targeted to teachers and administrators; and 2) an Indirect Strategy, which is intended to motivate parents to advocate to the school district's management. Each of these approaches has its unique problems. This paper explains the marketing efforts, successes and failures of the program.

Introduction:

Riding a bicycle for transportation, to school, to sporting events or to socialize with friends, could provide most of the basic activity requirements to meet the Centers for Disease Control and Prevention (CDC) recommendations for children. (1)

Bicycle ownership is almost universal among young children in Texas. However, use of a bicycle for transportation, even to school, is limited principally by safety concerns. Encouraging 10-12 year old students to use bicycles for transportation by providing education on techniques and safe roadway riding habits can supplement and support other programs designed to promote activity for health and wellness. Assuring parents that cycling is a safe activity is essential to increasing the level of participation of children.

The Texas Bicycle Coalition (TBC), a 501(c)(4) non-profit organization, was formed in 1991 to oppose local efforts to close public roads to bicycle riding. It quickly became evident that education was a strong part of any advocacy issue so TBC encouraged the state legislature to pass a law requiring the development of a bicycle traffic safety education curriculum. This law was passed in 1993 and the Texas Department of Public Safety (DPS) developed the curriculum in 1996.

From 1996 to the present, the curriculum was taught in schools by visiting instructors in Travis County, Texas. During the first two years of this program, over 10,000 children received the education and training. Independent school districts in the Longview, Texas area have adopted the program and use it in the classroom to teach every 4th (10-11 year old) grader in five school districts. The limiting factor in expanding this program to the entire state was that it required an experienced cyclist to teach it.

Results of the program in Travis County suggest that children who complete the course are more likely to:

1. Ride to school
2. Wear a safety helmet

3. Avoid serious crashes

Based on this model, the Texas Bicycle Coalition Education Fund, a 501(c)(3) non-profit organization, decided to modify the method of teaching the curriculum and provide it to school districts across the entire state of Texas.

Texas SuperCyclist Project:

On-going funding for this project comes from two grant sources. Subaru of America, Inc. has provided two automobiles and additional funds with a total value of US$150.000 over three years. The Texas Department of Transportation (TxDOT) through a program funded by the National Highway Traffic Safety Administration (NHTSA) has provided a three-year grant initially totaling US$716.000. This grant runs from August 4, 1999 to September 30, 2002. Approximately one-half of this sum is to train and pay instructors.

The curriculum consists of four (4) classroom modules of 45-minutes to one hour, and one longer on-bike module to allow students to practice and assess their level of understanding and decision making capabilities.

The modules are:

1. Safety Rules and Laws
2. Vehicle Safety
3. Safe Choices
4. Operator Safety
5. Safety in Action

In addition to the curriculum, DPS also developed two videotapes (one for students and one for parents) and four posters presenting significant parts of the curriculum.

Each module has handouts for the students to take home and use to interact with their parents. In this way, parents know what the students are learning and can reinforce the training after the class is over. It also reduces the level of misunderstanding and allows the parents to feel more comfortable allowing their children to use a bicycle for transportation.

Teacher training consists of four hours of classroom lessons and two hours of on-bike lessons. Each Health or Physical Education teacher receives a manual including the curriculum, lesson plans, overheads and masters of all handout and classroom material. In addition, a classroom video is provided each teacher and a set of posters is provided to each school. The training and material is provided to teachers free of charge. Non-teachers are charged a fee of US$50 per person. After training each teacher is certified to teach the course and sets a schedule that meets the local requirements.

Instructors with the League of American Bicyclists' Effective Cycling program were recruited and received additional training on teaching the curriculum, becoming certified to train classes of teachers around the state. It is expected that 25-30 Effective Cycling Instructors (ECI) will be necessary to accomplish the initial training. ECIs receive compensation at a rate of $US35 per teacher for a one-day classroom session. This sum is paid by the TxDOT grant.

Market Reach:

Texas is a big state with a low population density.

Figure 1 shows that Texas has an area equivalent to France and Belgium combined but has only 20 million population as compared to approximately 70 million in France and Belgium. The Texas Education Agency divides the state into 20 regions with each region having an Education Service Center (ESC) staffed with curriculum specialists. The regions vary widely in population density with Region IV, in Houston, Texas having 25% of the student population of the state.

The only delivery mechanism capable of reaching all of the 600,000 children in the 10-12 year-old range is through the school system.

To achieve universal coverage of bicycle education requires acceptance of the discipline by both public and private school systems. Bicycle safety programs are available statewide in Florida and North Carolina. Neither of these programs attempts to reach all of the students, requiring the school districts to take initiative in installing the program with government financial support.

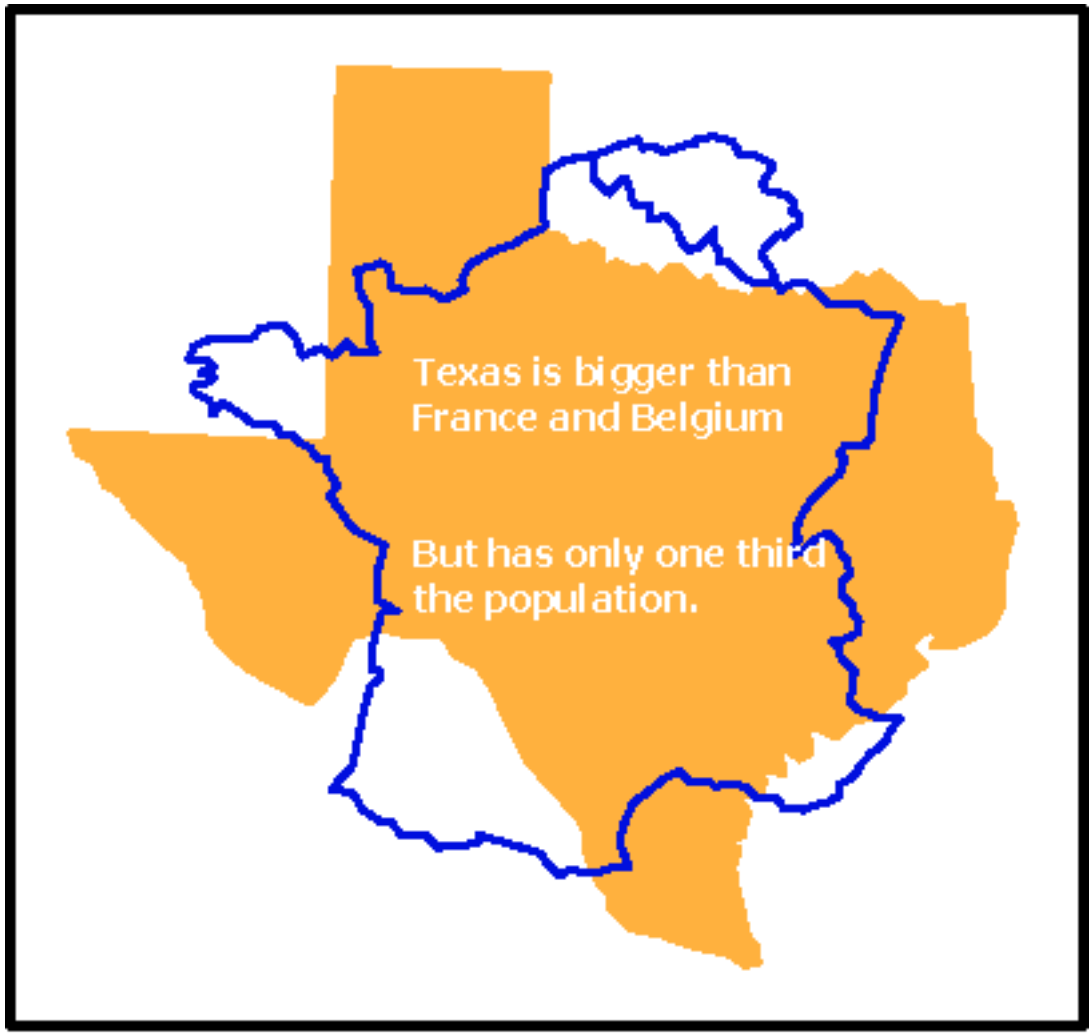

Figure 1: The Size of the Problem

The public school system in Texas has 1.041 independent school districts with 3.656 schools teaching 10-12 year olds and 600.000 students in these two grades. There are approximately 7.000 Health and Physical Education teachers in Texas with a turnover rate of 12% which means over 700 new teachers will have to be trained each year.

Barriers to Introduction:

Aside from the size of the state, the major barrier to introduction of this program has been marketing it to the independent school districts. When administrators and teachers understand the program it is generally accepted. In Texas each school district makes decisions on what programs are introduced. Some school districts allow individual schools to make the decision. Texas school administrators and teachers are judged on the results of student examination grades in four “core” subjects: mathematics, science, english and social studies (history). Schools administrators are reducing the time spent on such subjects as music, art and physical education so additional emphasis may be placed on subjects which are measured.

Figure 2 indicates the difficulty of reaching every Physical Education teacher in the state. 208 school districts represent 80% of the teachers. The remaining 1.035 school districts represent 20%. Some school districts have only one Physical Education teacher. In this environment, getting the non-academic programs into the school curriculum becomes strictly a marketing effort.

Overcoming these barriers required studying the system and modifying the curriculum to meet the requirements of the academic system. All teachers in Texas are expected to teach to a set of objectives known as Texas Essential Knowledge and Skills (TEKS). The original curriculum did not address this issue and limited the appeal of the program.

All teachers in Texas are expected to take part in a measurement and evaluation system known as the Professional Development Assessment System (PDAS). The Texas SuperCyclist Project was modified to conform to the requirements of this system as well. This was done to make the program more acceptable to the school administrators.

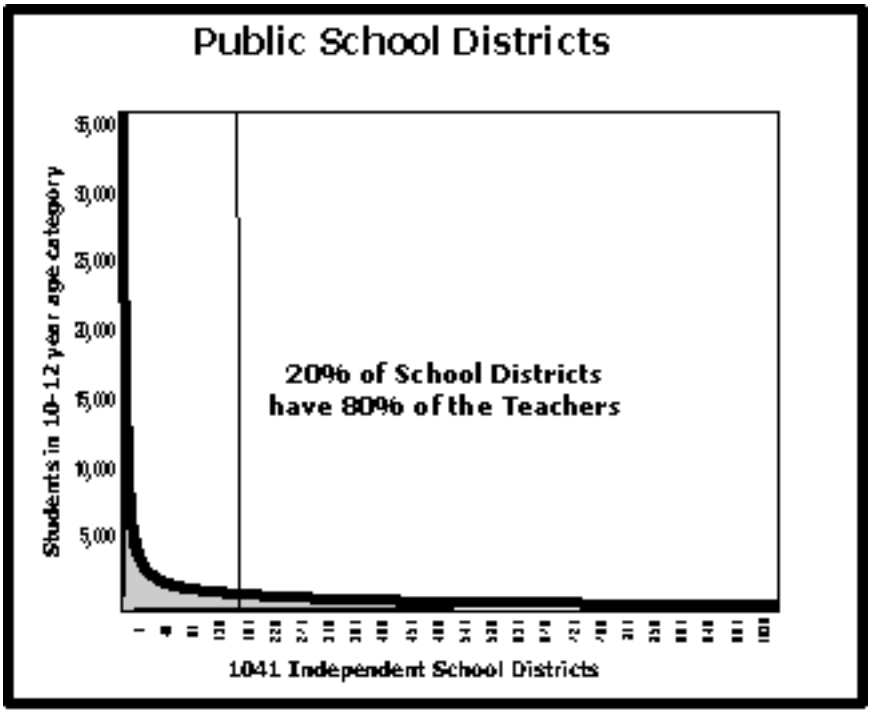

Figure 2: Target Population Distribution

Marketing the Program:

Training began in April 1999 with a test program at a small school district with three schools. The training was successful and resulted in six teachers being certified. Additional training was delayed until TxDOT funding was available in August 1999. During this time efforts were made to encourage the 20 Regional Education Service Centers (ESCs) to schedule training for teachers in smaller school districts. The administrative structure of the Texas school system makes it attractive to work through the 20 ESCs instead of going directly to the 1,040 school districts. The original marketing plan depended heavily upon this course of action.

Figure 3 shows the model originally proposed to train the teachers. Unfortunately, the ability of the ESCs to market the program in large school districts has proven to be limited. After numerous cancellations of programs scheduled at ESCs during Fall of 1999, the marketing objectives were re-focused on the school districts. However, the ESCs will be critical to reach the smaller school districts and achieve objectives of 7.000 teachers trained in three years.

The marketing of the program proposes two overall strategies: 1) a Direct Strategy is narrowly targeted to teachers and administrators; and 2) an Indirect Strategy, which is intended to motivate parents to advocate to the school district's management. Each of these approaches has its unique problems.

A key element in our marketing approach was to choose a highly visible spokesperson for the program. Linda Armstrong, mother of 1999 Tour de France winner, Lance Armstrong, agreed to become involved because she saw the potential of the program to increase the physical activity level of the students.

To determine the primary focus group of schools, the 72 largest school districts with approximately half of the target population in the state were identified. These districts were ranked by district income level and the school districts with the lowest incomes were identified. These 36 school districts became the Primary Focus Group.

As part of the Direct Strategy marketing plan, a direct mail package was developed using a letter from Lance Armstrong's mother, Linda Armstrong, to contact the focus school districts. Attendance at statewide conferences as presenters and exhibitors helped to introduce the program to teachers, administrators, and parents. As a result of this effort, 129 teachers have been certified and an additional 470 are scheduled to be trained before September 30, 2000. The three year grant schedule calls for 3.600 teachers to be trained, but to reach 1 million students over three years the project will be required to raise additional funds to train the remaining 3.400 Physical Education teachers in Texas.

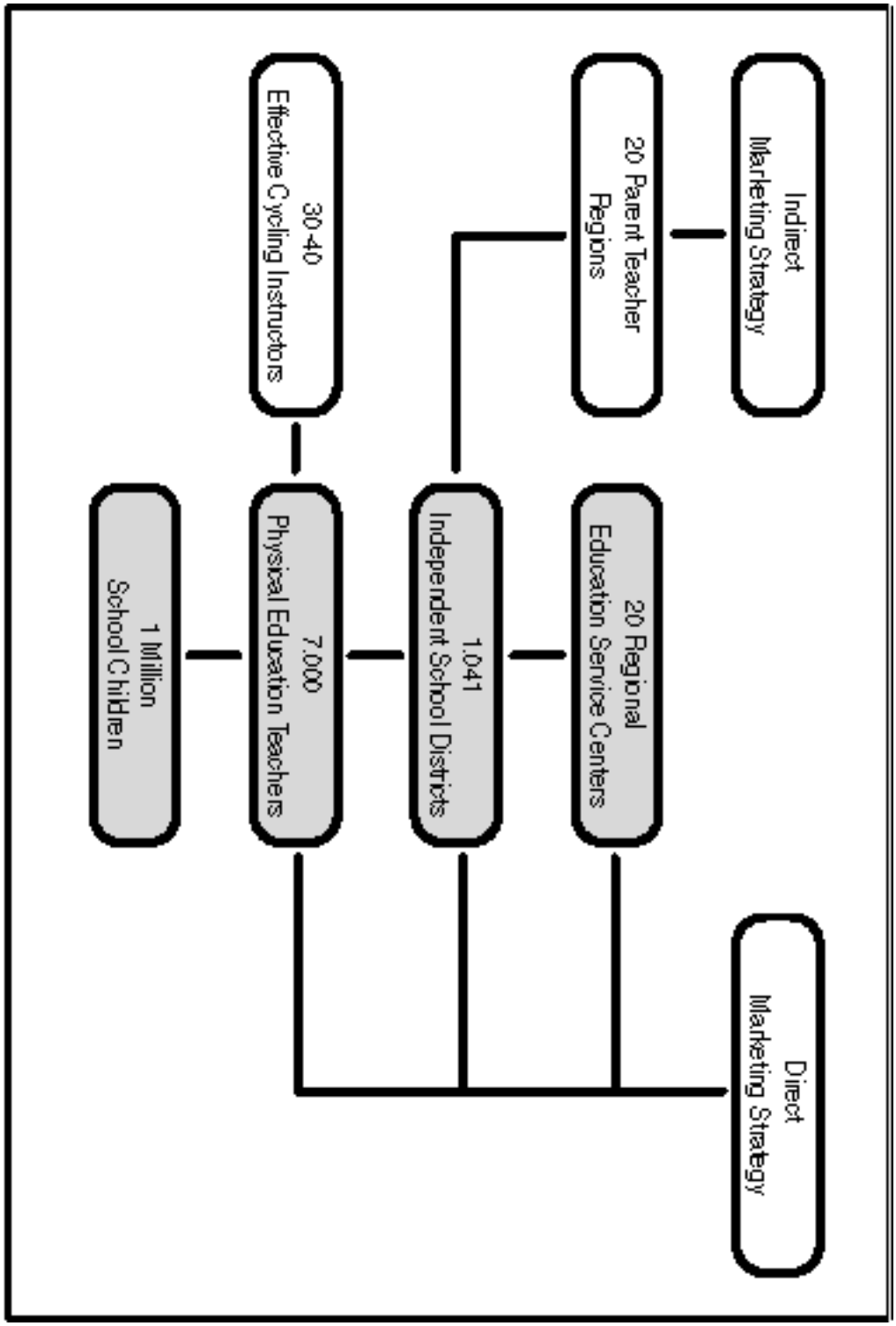

Figure 3: Program Delivery Strategy

Figure 3. Program Delivery System.

Future marketing efforts will include an Indirect Strategy with information directed to the parents of the students. This will be accomplished in part through mailings to the 3.400 chapter presidents of the Texas Congress of Parents and Teachers (TxPTA). Additionally, the message will reach parents through public service announcements and other material distributed by TxDOT and by the Texas Medical Association to physicians.

Partnerships:

To implement the curriculum has required partnering with numerous groups. Among the most important are the Texas Congress of Parents and Teachers, the Texas Association of Health, Physical Education, Recreation and Dance, the Texas Department of Transportation, the Texas Elementary Principals and Supervisors Association, Texas Department of Public Safety, and the League of American Bicyclists.

Results of the Program:

The curriculum has been taught in Austin/Travis County and Longview area schools since 1996. During that period, almost 20,000 students have taken the full course. Since January of 2000, three additional school districts have started teaching the curriculum.

The program has three measures of success:

1. Pre and Post Class assessment of basic bicycle safety knowledge
2. Pre and Post Class assessment of helmet wearing behavior, and
3. Pre and Post Class assessment of trauma data from hospitals.

Working with 10-12 year olds, the average pre- and post-assessment of basic bicycle safety knowledge has shown a 16 percentage point increase. This is based on a 15-question assessment instrument given to all students before and after the class.

In addition, helmet usage is used as a measure of behavioral change. In extensive surveys done after the classes in Travis County, helmet usage in the focus neighborhoods rose from 12% to 46%. The program is too new on a statewide basis to have valid data.

Trauma data are the most difficult to gather and evaluate. However, preliminary results of the Travis County program are encouraging and suggest that significant reductions in crashes and injury can be achieved. County by county trauma statistics were supplied by the Texas Department of Health (TDH) for the year 1998, the latest year for which statistics are available. Over the next three years of the project, trauma data will be gathered and correlated against the school districts that adopt the program for implementation in the schools.

Additional measurements of the success of the program that will be evaluated include the number of students riding their bicycles to school. This measurement will reflect not only a behavioral change on the part of the students but also a change in the view of cycling on the part of the parents.

Conclusions:

Bicycle safety education and training in the schools can increase knowledge of the basic traffic safety rules and laws. Students in the 10-12 year old age range can understand and retain this knowledge.

Bicycle safety education and training in the schools can cause students to change a critical behavior as it applies to wearing helmets. It is postulated that additional behavioral changes such as stopping at intersections and scanning over the shoulder before swerving or turning left may also be affected. Extended review of the trauma data for the affected counties will help to confirm this hypothesis.

Installing a non-academic subject in the Texas school system is difficult and requires partnerships with many diverse interest groups. However, it is possible if the curriculum is properly targeted at the requirements of the education system.

Bicycle safety education can increase bicycle use for transportation thereby increasing health and wellness of the target population.

Notes:

1. Physical Activity

Physical inactivity and poor diet account for an estimated 300,000 deaths per year, second only to tobacco use among preventable causes of death. Physical activity reduces the risk of premature mortality in general, and of coronary heart disease, hypertension, colon cancer, and diabetes mellitus in particular. Regular physical activity in childhood and adolescence improves strength and endurance, helps build healthy bones and muscles, helps control weight, reduces anxiety and stress, increases self-esteem, and may improve blood pressure and cholesterol levels. Positive experiences with physical activity at a young age help lay the basis for being regularly active throughout life. Nearly half of young people aged 12-21 years do not regularly engage in vigorous physical activity, and participation in physical activity declines strikingly as children age. Low levels of physical activity among young people may be one factor responsible for the steep increases in childhood obesity seen in recent years: the percentage of young people who are overweight has more than doubled in the past 30 years.

CDC report on physical activity. http://www.cdc.gov/nccdphp/dash/physicalactivity.htm