

# Chapter One

---

## The What and Why of Career Pathways High Schools

### SCENARIO: JACOB'S STORY

Jacob is an average to above average middle school student who is now entering his high school years. He is outgoing, enjoys social situations, and plays the trumpet. Occasionally he has had difficulty in math but has been able to maintain a C average throughout his middle school math classes. During his freshman year, Jacob has a Freshman Explorations class where he is acclimated to his surroundings and spends time learning good study skills, self-management, problem solving, and teamwork. Jacob also does a great deal of self-discovery through interest and aptitude surveys, personality profiles, learning style inventories, and so forth. Jacob then does six integrated units of study with team members centered on the six Career Pathways his school has designated. The units practice workplace skills, technical skills, and language arts skills. In each unit he, along with his teammates, produces a product or completes a process for presentation. Throughout this exploration, many speakers come into the classroom to talk about the different career paths. The class then takes several field trips to visit various sites where Pathway jobs are visible to the students. Jacob always suspected that he liked medicine (he hopes to be a doctor someday); well, this experience helped Jacob to realize that medicine is a main interest, so at the end of his freshman year he elects the Health Pathway to focus his high school study.

## 4 CAREER PATHWAYS

In his sophomore year, Jacob delves deeper into the medical field. He does a job shadowing experience in a doctor's office and in a hospital emergency room. He is excited about patient care but realizes that the years of schooling to become a doctor seem like a difficult goal. Also, he realizes that he would like to have a closer relationship with patients. Jacob looks into other aspects of health and builds a program around the nursing aspect of patient care. During this time, Jacob is having problems with math. His school sets up a program for him with a math tutor, and Jacob begins to work on building his algebraic math skills. His tutor gears his math lessons toward that which Jacob would be expected to know as a health professional. In his junior year, Jacob completes an unpaid work experience with a home health care company. During the second semester, he takes a health occupation class at the regional career center and becomes a certified nurse's aide. He then continues to work at the home health care company as a paid employee.

Before his senior year, Jacob has a postsecondary plan of going to a community college to become a licensed professional nurse, transferring to a state university that is articulated with his community college to complete his registered nurse training (and that also offers a nurse practitioner master's program). Jacob plans to be a nurse practitioner in six years. In the meantime, he is working on his high school requirements with an emphasis on science. For his electives, he takes early childhood development and psychology. During his four years of high school, Jacob continues to play the trumpet and participates in marching band. He has a great love of music, so for his senior project Jacob sets up a music therapy program with the local nursing home. During his second semester, he dual enrolls in a psychology class at the community college he will attend the following year. Jacob is graduating with good academic skills and a focused, realistic plan. His chances of success go from 30% to somewhere between 80 and 100% (School to Work, n.d.).

### WHAT IS A PATHWAYS HIGH SCHOOL?

So what does this mean for us as educators? What happens in the systems Jacob encounters, how does it happen, and why? To give Jacob and all students a focused high school experience, administrators, faculty members, and the

community must take a long, hard look at their students and their system. We must be aware of and accountable for what happens to our students once they leave our realm, just as we expect the auto industry to be responsible for its cars once they leave the assembly plant. One such system of accountability is the Career Pathways High School system. A Career Pathways High School utilizes the school campus and the entire community to prepare students for life. A Pathways High School uses all the systems within a high school—instruction, counseling, extracurricular activities, remediation, career technical education, discipline, student government, community, and so forth. It also individualizes student learning by gearing its programs and philosophy toward a student's interests and aptitudes.

*In its proper format, a Career Pathways High School will "put it all together" for the student. It is learner centered and self-directed.*

In the chapters that follow, we will take each system within your school and show you how it can be improved and integrated with the Career Pathways Model so that all systems within the school point in the same direction.

This can be accomplished by centering a student's learning and planning around an established set of career paths. A career path is a broad spectrum of careers that share similar characteristics and for which employment requirements call for common interests, strengths, and competencies. The groupings encompass the entire spectrum of career options, providing opportunities for all students and all ability levels (Michigan Department of Career Development, 2001). Each Pathway contains hundreds of jobs at all levels of entry. For example, the Health Pathway consists of careers that center on personal and societal health issues and can include direct and indirect care. In a career ladder, which shows the steps of a career from entry level to ceiling, the direct care ladder will begin with nurse's aide jobs and continue all the way to medical specialists such as brain surgeons.

Career Pathways are derived from Career Clusters and then broken down into Career Fields. This is where it can get confusing for educators because not all organizations, states, or federal programs use the same terms in the same manner. In most frameworks, the highest category can be a Career Cluster, or Industry Sector. The U.S. Department of Education and Office of Vocational and Adult Education (USDE/OVAE) has identified 16 Career Clusters and the National Skill Standards Board 15 Industry Sectors. These Cluster/Sectors are then narrowed down into second-level categories called Career Pathways. Utah, Oregon, Ohio, and Michigan, to name a few, have five to six Pathways; however, they refer to them in such diverse terms as Pathways, Fields, Endorsements, and Clusters. These Career Pathways (our term for all second-level categories) create a more manageable framework for instruction. Pathways can then be broken back out into Career Fields, which reflect occupational categories. To illustrate this, we have charted the USDE/OVAE Clusters and Pathways programs from four states. Please note the inconsistent use of terms throughout the nation. For the purpose of this book and for your understanding as a reader, we use the definition process shown in Figure 1.1.

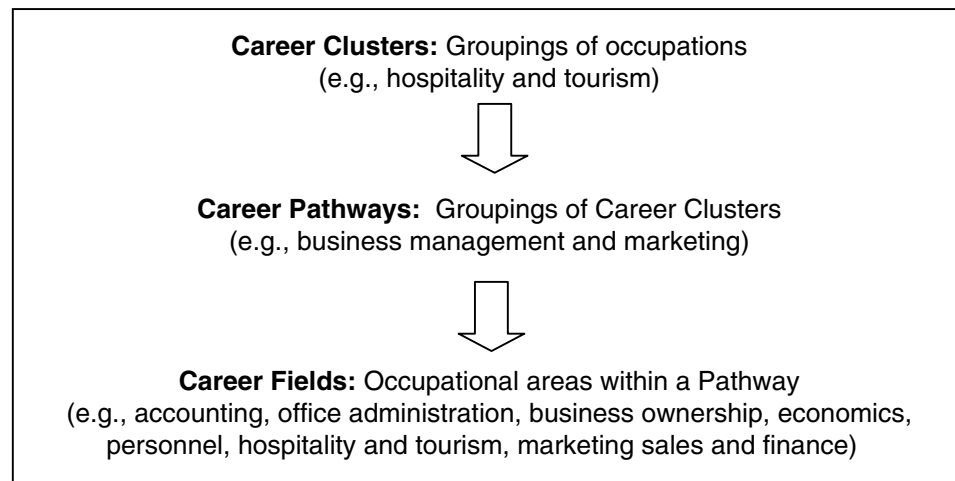
The U.S. Department of Education (2002) states that "Career Clusters link what students learn in school with the knowledge and skills they need for success in college and careers." They have identified 16 "States' Career Clusters" (Table 1.1). Their

*In a Career Pathways High School, the direction of all school systems point toward the development and implementation of individual student plans that focus students' high school coursework to ensure the successful completion of a postsecondary option.*

*"Our sixteen broad Career Clusters will help students enhance the link between the knowledge they acquire in school and the skills they need to pursue their dreams. Without limiting students, Career Clusters help them focus on an area of interest or a possible career path" (Richard W. Riley, U.S. Secretary of Education, USDE, 2002).*

## 6 CAREER PATHWAYS

**Figure 1.1** Career Clusters, Pathways, and Fields: Definitions



Web site states that the 16 Clusters are an ideal way to organize instruction, academics, work-based learning programs, smaller learning communities, magnet and charter schools, and high schools that are restructuring around career themes (USDE, 2002).

*Remember, it is important to choose a Pathways system that works best for your school and your community.*

These 16 Clusters can then be combined in various ways to create broader paths for student exploration and instruction. Table 1.2 shows a sample of how four states condense the Clusters into Career Pathways for students.

It is also important that the Pathways you use cover the gamut of careers, both in your area and nationally, and follow any state-legislated educational programs. Your state may have established a set of Career Pathways to bring consistency to its educational process and economic community. There is a reason why different frameworks organize Clusters in different ways. Each Cluster framework reflects the workplace and the economy for which it is intended (Wonacott, 2001, p. 4). State economies can vary tremendously in what industries and occupations are important (Wonacott, 2001). We encourage you to check with your state's Department of Education to find out how and where they stand on their choice of Career Pathways.

The Career Pathways used in our model are a set of six Pathways developed by the state of Michigan. The six Pathways are a manageable number of groupings to demonstrate our model and work well in the alignment and integration of instruction. This model can be used with any set of career paths or clusters, however. Large high schools may be able to manage more Pathways, but for an average to small high school, Pathways may have to be "clumped" to integrate them successfully with classroom instruction and technology-integrated units. Table 1.3 lists the six Career Pathways used in this book.

**Table 1.1** The Sixteen Career Clusters

<i>Cluster (Pathway)</i>	<i>Definition</i>
Agriculture, Food, and Natural Resources	Planning, managing, and performing agricultural production and horticulture, and landscaping services and related professional and technical services, mining and extraction operations, and managing and conserving natural resources and related environmental services
Architecture and Construction	Designing, planning, managing, building and maintaining the built environment
Arts, Audiovisual Technology, and Communications	Designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services
Business, Management, and Administration	Planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations (Business management and administration career opportunities are available in every sector of the economy.)
Education and Training	Planning, managing, and providing education and training services, and related learning support services
Finance	Planning, services for financial and investment planning, banking, insurance, and business financial management
Government and Public Administration	Executing governmental functions to include governance, national security, foreign service, planning, revenue and taxation, regulation, and management and administration at the local, state, and federal levels
Health Science	Planning, managing, and providing diagnostic, therapeutic, and information and environmental services in health care
Hospitality and Tourism	Managing, marketing, and operating restaurants and other food services, lodging, attractions, recreation events, and travel-related services
Human Services	Preparing individuals for employment in Career Pathways that relate to families and human needs
Information Technology (IT)	Designing, developing, supporting, and managing hardware, software, multimedia, and systems integration services (In addition to career opportunities in the IT industry, IT careers are available in every sector of the economy, from financial services to manufacturing, transportation to education.)
Public Safety and Security	Planning, managing, and providing judicial, legal, and protective services

*(Continued)*

## 8 CAREER PATHWAYS

**Table 1.1** (Continued)

Manufacturing	Planning, managing, and performing the processing of materials into intermediate or final products, and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering
Marketing, Sales, and Service	Planning, managing, and performing wholesaling and retailing services and related marketing and distribution support services including merchandise/product management and promotion
Science, Technology, Engineering, and Mathematics	Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services and research and development services
Transportation, Distribution, and Logistics	Planning, managing, and moving people, materials, and goods by road, pipeline, air, rail, and water, and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment, and facility maintenance

*Note:* Adapted from The Sixteen Clusters, National Association of State Directors of Career Technical Education Consortium. Copyright 2002.

**Table 1.2** Sample State Pathways Chart

<i>Utah's Five Career Fields</i>	<i>Oregon's Six Endorsement Areas</i>	<i>Ohio's Six Career Clusters</i>	<i>Michigan's Six Career Pathways</i>
Artistic	Arts and Communication	Arts and Communication	Arts and Communication
Business	Business and Management	Business and Management	Business, Management, Marketing, and Technology
Scientific	Health Services	Health Services	Health Sciences
Social Humanitarian	Human Resources	Human Resources/ Services	Human Services
Technical	Industrial and Engineering	Industrial and Engineering Systems	Engineering/ Manufacturing and Industrial Technology
	Natural Resources	Environmental and Agricultural Systems	Natural Resources and Agriscience

As previously mentioned, schools can adjust their career paths to match their community needs. In some of our rural schools, agriculture and agribusiness have been combined to make one Pathway. This is because many of the careers and jobs in the area are connected to that Pathway. Also, smaller schools may merge several Pathways such as combining the health and human services field, whereas larger schools may separate the paths such as dividing the health care field into direct and indirect care. This is a process that must be done by the administrator and his or her staff.

Adjusting Pathways to fit a school and community can be illustrated by one of our small rural high schools. This high school combined several Pathways to suit its small size. A farming community, it highlighted agriculture and agribusiness to fit the area's business community and job pool. Its Pathways are as follows:

- Engineering/Manufacturing and Industrial Technology and Business
- Health and Human Services
- Arts and Communication
- Natural Resources, Agriscience, and Agribusiness

Once the Career Pathways are determined in a Career Pathways High School, the work of shifting instruction begins. There are three key changes that will occur:

1. Students will learn about themselves, their interests and aptitudes, and how these relate to school. They will then develop a plan of study and post-secondary choices.

2. Instruction will be geared to a student's plans through the avenues of Pathways Class work and core and elective classes, career technical coursework, and postsecondary articulations.

3. All instructional processes will include the necessary skills for successful employment as set down by the Secretary's Commission on Achieving Necessary Skills Report (SCANS). The SCANS report was presented by a commission established by the U.S. Department of Labor. The commission published the report in 1991 titled *What Work Requires of Schools: A SCANS Report for America 2000* (U.S. Department of Labor, 1991). This report had a significant impact on the 1994 School-to-Work legislation and other federal and state educational funds. The report recommended Five Competencies and a three-part Basic Skills Foundation. The Five Competencies are use of resources, interpersonal skills, use of information, systems thinking, and technology. The three-part educational foundation is basic skills (reading, writing, math, listening, and speaking), thinking skills, and personal qualities.

*The implications of such an instructional shift are huge. It affects how administrators, teachers, parents, and even students view the classroom process and their role within that process.*

## 10 CAREER PATHWAYS

**Table 1.3** The Six Pathways Discussed in This Book

**Pathway**

Arts and Communications

**Definition**

Careers in this Pathway are related to the humanities and performing, visual, literary, and media arts. These include architecture; graphic, interior, and fashion design; writing; film; fine arts; journalism; languages; media; and advertising and public relations.

**Sample Career Categories (Fields)**

Advertising and public relations, creative writing, film production, foreign language translation or interpreting, journalism, radio and television broadcasting

**Pathway**

Business, Management, Marketing, and Technology

**Definition**

Careers in this Pathway are related to the business environment. These include entrepreneurial careers, sales, marketing, computer and information systems, finance, accounting, human resources, economics, and management.

**Sample Career Categories (Fields)**

Accounting, office administration, business ownership, economics, human resources, hospitality and tourism management, computer and information systems services, marketing, sales, finance

**Pathway**

Engineering Manufacturing and Industrial Technology

**Definition**

Careers in this Pathway are related to technologies necessary to design, develop, install, and maintain physical systems. These include engineering, manufacturing, construction services and related technologies.

**Sample Career Categories (Fields)**

Architecture, precision production, mechanics and repair, manufacturing technology, engineering and related technologies, drafting, construction

**Pathway**

Health Sciences

**Definition**

Careers in this Pathway are related to the promotion of health and treatment of disease. These include research, prevention, treatment, and related health technologies.

**Sample Career Categories (Fields)**

Dentistry, hygiene, medicine, nursing, nutrition and fitness, therapy and rehabilitation

*(Continued)*



**Table 1.3** (Continued)**Pathway**

Human Services

**Definition**

Careers in this Pathway are related to economic, political, and social systems. These include education, government, law and law enforcement, leisure and recreation, military, religion, child care, social services, and personal services.

**Sample Career Categories (Fields)**

Education, child and family services, food and beverage service, law and legal studies, law enforcement, cosmetology, social services

**Pathway**

Natural Resources and Agriscience

**Definition**

Careers in this Pathway are related to agriculture, the environment, and natural resources. These include agricultural sciences, earth sciences, environmental sciences, fisheries, forestry, horticulture, and wildlife.

**Sample Career Categories (Fields)**

Agriculture, animal health care, earth sciences, environmental science, fisheries management, wildlife management, horticulture, forestry, life sciences

*Note:* Adapted from the Michigan Department of Career Development (2001).

Some of these paradigm shifts are described in Table 1.4. In a Career Pathways High School, the shift is always to the student as learner and is reflected in its purpose and mission.

The purpose of a Career Pathways High School is threefold:

1. The achievement of high academic skills
2. The development and implementation of a realistic postsecondary plan
3. The development of democratic citizenship

Therefore the mission of a Career Pathways High School is as follows:

*The purpose and mission of a Career Pathways High School is always in direct relationship to the concept of the student as lifelong learner and the driver of his or her own educational process.*

*Every student will focus his or her high school education on a realistic postsecondary plan. The plan needs to match the skills, knowledge, and experience of the student so that it can be completed successfully while allowing the student to become a productive citizen and global resident.*

## 12 CAREER PATHWAYS

**Table 1.4** Paradigm Shifts in a Career Pathways High School

<i>Traditional Paradigm</i>	<i>Career Pathway Paradigm</i>
Students learn information today to be used in their future.	Students learn information and skills to be applied today to build toward their future.
Students must do their own work.	Students work collaboratively to help each other gain the necessary skills and knowledge.
Grades are competitive.	Grades are performance based.
Curriculum is teacher based.	Curriculum is standard based.
Teachers teach and students learn.	Teachers facilitate student learning.
Rules and school culture are the responsibility of school officials.	School culture and climate are the responsibility of everyone and are facilitated by school officials.
Adults and not students know what is best for every child.	Adults act as guides and mentors to help students find their own path and to make their own choices.
Student adult roles and responsibilities begin after high school.	Student adult roles and responsibilities are practiced throughout the high school years through classroom instruction and work-based learning experiences.
Students narrow their career focus after high school in college or another postsecondary environment.	Students have a clear vision and written plan for postsecondary success.
The focus of instruction is on teachers and teaching.	The focus of instruction is on learning and learners.
High school knowledge is given by subject matter with students making subject connections at a later date.	Students see the connection between content areas and between their schoolwork and their personal goals.
Learning happens only in the classroom.	Learning encompasses the whole community and is connected back to the classroom.
Schools are not accountable for students who do not learn.	The learning bar is set for all students and systems are in place for students who encounter difficulties.
Schools are not accountable for students who are unsuccessful in their next educational level.	Schools hold themselves accountable to the educational and employment success or failure of their graduates.
Stakeholders believe their job is to graduate students.	Stakeholders believe their job is to facilitate students in making a successful transition to their postsecondary plan.

## WHY PATHWAYS?

The main purpose of this book is not to make a case for Career Pathways High Schools but to help you implement successful Career Pathways Systems. We do not believe that this can be done unless you and your faculty understand the background of the movement. So let's take a step back and look at several issues that have brought us to this point: the purpose of public education in the United States, current educational and economic trends, the village-child concept, the new field of brain research, state and federal findings, and Career Pathways High Schools' action research projects. All of the above issues add to the puzzle of how and why Career Pathways High Schools make so much sense.

### Purpose of Public Education

Historically, the principal reason for public education was the understanding first given to us by Thomas Jefferson: To perpetuate democracy, the nation must have an educated population.

Therefore, the initial purpose of education was the enlightenment of the population to rule themselves successfully. If public education is to guarantee the continuation of our democracy, it must emphasize citizenship. But what is democratic citizenship? In a Career Pathways High School, democratic citizenship is defined as the belief that a person must practice his or her rights

as a member of a free society, be productive (which in our technical society requires literacy skills), give back to his or her community, and enjoy life, liberty, and the pursuit of happiness (to quote a famous document). In most current traditional high schools, the purpose is to prepare students for college. The focus of today's traditional high school is limited at best and, if we delve deeper, has been unsuccessful in this "narrow" focus.

*I know of no safe depository of the ultimate powers of society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education.*

*Thomas Jefferson (1743–1826)*

*College is not the goal. College is a choice in a plan—it is only a means to an end.*

### Graduate Trends

There are several influential trends that were publicized in the 1990s by both the U.S. Department of Labor and the National School-to-Work Office.

Kenneth Gray, a professor of education in the Workforce Education and

Development Program, College of Education, at Penn State recently published a book titled *Getting Real: Helping Teens Find Their Future*. Gray states, “most teenagers who attempt college fail either by not graduating or by not finding commensurate employment if they do” (Gray, 2000, p. 1). Through his research, Gray has concluded that “postsecondary success requires two ingredients: academic skills and commitment that comes from career focus. Going to college without the commitment that stems from a clearly laid-out plan will invariably lead to failure” (Gray, 2000, p. 1). He gives four reasons for this dilemma:

**Major Trends:**

- *A large number of students who are unsuccessful at college*
- *A large number of students who cannot find employment in their college major*
- *A large number of students enrolled in a community college after earning a four-year degree*
- *A larger number of skilled laborers immigrating from other countries*
- *Youth economically established at increasingly later ages (many researchers have concluded that our youth do not reach economic independence until their late 20s)*

1. Two-thirds of all college students now withdraw at least once before finishing, and 91% of these students never earn a degree (U.S. Department of Labor 1998, cited in Gray, 2000).

2. Although teens said the main reason they were going to college was to get a good job (American Council on Education, 1998, cited in Gray, 2000), few seem to have thought much about the details. Many end up completing degrees that lead to few opportunities.

3. While increasing numbers of college graduates were ending up in low-wage service jobs, the nation’s economy was generating record numbers of unfilled positions for technicians in high-skill/high-wage technical jobs.

4. On discovering they had made a mistake, many young adults became “reverse transfers,” enrolling in one- and two-year technical programs at community and technical colleges even though many already had four-year degrees and even graduate degrees.

This situation will continue as long as the focus is on college, and not on success (Gray, 2000).

Gray is not the only professional “ringing the bell.” The staggering numbers of college dropouts and their lack of gainful employment triggered the National School-to-Work Act and the establishment of the National School-to-Work Office in Washington, D.C. The problem has become so common that comedians make jokes about the “boomerang” effect in which parents send their children out into the world only to get them back down the road! At one of our child’s college graduation ceremonies, the president of the college stated that

the stereotype of graduates without skills was not true—he challenged any company to hire one of his graduates and train them. We thought that was so ironic—wasn't the college experience supposed to have trained them to enter the workforce? The evidence for this trend is staggering. One night, Elaine was sitting with a superintendent at an evening meeting when we had a guest speaker on information and data. In our discussion, the superintendent made a very potent statement: "I understand what the problem is. What I need to know is what can we do about it."

### **The Village Concept**

The "what we can do about it" begins with a village concept. Career Pathways High Schools utilize the entire community as the school campus. Students are involved in the community and experience site-based educational experiences throughout their four years of high school. These experiences are structured and move from general to specific. For example, freshmen take field trips to view all the Career Pathways, while seniors do a focused senior project in their Pathway with professionals in the field. In a Career Pathways High School, *all* students experience the community in a systematic manner that moves from general to specific. This important aspect of Career Pathways High Schools is grounded in the concept that, as the African proverb says, it takes a village to raise a child.

Within the last decade, research has clearly shown the connection between positive adult intervention and student success. Studies conducted by the Search Institute have produced conclusive evidence that the more positive adult role models that students are exposed to and involved with, the more likely they are to succeed in their adult life—and the less likely they are to indulge in risk-taking behaviors. Following is an excerpt from the book *Developmental Assets: A Synthesis of the Scientific Research on Adolescent Development*:

Support may be especially important for adolescents because the physical, emotional, social, spiritual, and intellectual changes they are going through may make it more difficult for adults to feel close to them. How important is support? Numerous studies in the 1970's and the 1980's confirmed that social support is associated with better physical and mental health among young adults (Turner, Frankel, and Levin 1983). A large and growing number of studies since that time also have confirmed that a caring and supportive relationship with an adult remains "the most critical variable" predicting health and resiliency throughout childhood and adolescence (Benard 1991; Garmezy 1993). More recently, a national study of more than 12,000 7th–12th graders reported that a high degree of connectedness to families and school significantly protected youth from seven of eight behaviors risky to their health, such as suicidal thoughts and behavior, violence, substance use and having their first intercourse at a young age (Resnick et al. 1997). Unfortunately, large proportions of young people do not seem to experience either enough support or the right kinds of support in their families, school, or communities. (Scales & Leffert, 1999, pp. 21–22)

## 16 CAREER PATHWAYS

Another research study done for the period of 1989–1998, cited in “Other Adult Relationships and Caring Neighborhoods,” found that students who have positive adult relationships and supportive neighborhoods exhibit the following characteristics:

- Higher grades, more “liking” of school, higher IQ score, higher school completion rates, and higher math test scores
- More prosocial behavior and fewer behavior problems
- Reduced experience of violence
- Less substance use
- Fewer feelings of loneliness, anxiety, or depression
- Greater self-esteem, cheerfulness, and hopes for the future (Scales & Leffert, 1999, p. 27)

One of the main reasons for moving to Career Pathways is the involvement of the community in the lives of students. We share numerous examples of this as we begin to examine each sub-system of the model.

*It is vital to the success of a Pathways High School to make the community an intricate part of the system.*

You will see more clearly as our model unfolds how the community is integrated as a major component of the system.

### Brain Research

Another major area to explore to make the case for Career Pathways High Schools is the current emphasis in education on brain research, which has been called the frontier of the 21st century. Brain research has been able to confirm many of the foundations of learning set down for us by such educational pioneers as Dewey and Bloom.

Key elements of brain research are enmeshed in a Pathways High School and include such important elements as learning through the entire physiology and the importance of spatial learning. Brain research has given us a solid basis for reexamining what we do in the classroom. Kathleen Harris (1996, module 2–7) in *Making Connections: Curriculum Integration Projects* stated the following:

The greatest challenge of brain research for educators does not lie in understanding the anatomical intricacies of brain functioning but in comprehending the vastness, complexity, and potential of the human brain. What we are beginning to discover about the role of emotions, stress, and threat in learning and about memory systems and motivation is challenging basic assumptions about traditional education. Fully understood, this information requires a major shift in our definitions of testing and grading *and in the organizational structure of classrooms and schools.* (Emphasis added)

Brain research continually points to the organization of information in “big clumps,” such as Career Pathways, and then narrowing that information

into smaller, manageable portions. It emphasizes experience and close connections to “real life” and real-life objects. These experiences, such as the work-based experiences of site visits and job shadows, prepares a space or pattern in the brain to which students can “hook” academic information, thus retaining what they have learned. Susan Kovalik, founder of the Integrated Thematic Instruction (ITI) Model,

*Career Pathways High Schools set the stage for using the world as the students' classroom. The Pathways Model sets learning in patterns of Career Clusters and uses academics as the application of skills needed to fulfill students' interest and aptitudes, thus securing education for their individual needs and their future.*

stated in her video, *Intelligence Is a Function of Experience* (Susan Kovalik and Associates, 2001), that all educational decisions must be made from brain research—how the brain learns and stores information. Her areas of effective learning strategies begin with real-life experiences, simulated environments, hands-on experience with an actual area of study (e.g., a frog), and hands-on experience with simulated objects (e.g., a plastic frog). According to Kovalik, visuals (e.g., pictures and movies) and symbols (e.g., numbers) are the information sources that are least understood by the brain.

According to Harris (1996, module 2–13), “Learning in context (application) with emotional investment results in long term retention and transferability of knowledge.” In Chapter 6, we examine in detail the major principles of brain research and how they relate to instruction in the classroom.

## State and Federal Findings

Through the SCANS report (U.S. Department of Labor, 1991), labor market statistics, and other national and state sources, it became apparent that there was a growing gap between the academic skills taught in schools and workforce skills and requirements. The federal School-to-Work Opportunities Act of 1994 was designed to help deal with these growing concerns. The act created three school-to-work components: school-based, work-based, and connecting activities. School-based programs are traditional school academics, work-based activities include students' experiences in the workplace (e.g., job shadowing), and connecting activities are those that make the “connection” between the school- and work-based learning. The act was instrumental in setting aside federal, state, and local funds for education and business partnerships.

Since that time, many states have moved forward with their own educational workforce programs. In Michigan, the Career Development office was established to offer assistance and grants and create regional boards to help close the gap of education and workforce opportunities for students. The Michigan Department of Education, along with the Office of Career Development, has promoted Career Pathways High Schools through their six established Career Pathways. Recently the state's new accreditation program listed three requirements for state school accreditation:

1. All students will read by Grade 3.
2. All students will show one year's growth in one year.
3. All high school students will have focused education centered on a post-secondary plan.

Identifying student-centered high school curriculums, such as Pathways, as part of a state's accreditation program shows the growing priority for such systems. In South Carolina, following a 14-month study, the Governor's Workforce Education Task Force, made up of educators, business leaders, and legislators, called for mandatory Career Clusters. In the October 31, 2001, edition of "What Works in Teaching and Learning," the following conclusion appeared:

Aiming to bridge an "enormous mismatch" between South Carolina's education system and its workforce needs, a governor's task force is calling for the elimination of college prep and tech prep tracks while implementing career clusters to help prepare all students for work. ("South Carolina Task Force," 2001, n.p.)

The task force made several recommendations, including designing schools around Career Clusters and requiring teachers to take courses in applied learning techniques before becoming certified. "Although our schools are making tremendous strides academically, there is still a serious gap between the skills taught in the classrooms and the skills needed in the 21st-century workplace," states Don Herriott, president of the pharmaceutical company Roche Carolina and chairman of the task force. The report further states gaps on several levels:

Only 32 percent of ninth-graders will pursue a two-year degree, while 65 percent of jobs will require one; another 28 percent will pursue a four-year degree, while only 20 percent of jobs will require one; and the remaining 40 percent will pursue "unskilled" jobs, because they dropped out of school or lack skills, while only 15 percent of jobs are considered "unskilled." (South Carolina Governor's Workforce Education Task Force, 2001)

Texas high schools also are beginning to implement Career Pathways programs. Fredericksburg High School has implemented outreach programs for off-campus experiences, work-based training, and mentoring programs related to Career Pathways. The successful program, now in its fifth year, was begun to help close the gap in achievement among at-risk students. As school officials note, "Career Pathways have succeeded in making school more meaningful and relevant to students ("At Texas school," 2001). Students design their classes and electives around their own Pathways choices and therefore are in classes not because their friends are, not because they have to be, but because it fits into their own purpose and plan. Fredrickburg's data clearly support the program's success, showing improved SAT scores and a rise in the number of students pursuing postsecondary options. Also, the students' 92% pass rate on the Texas Assessment of Academic Skills (TAAS) far surpasses the state's average of 78% ("At Texas school," 2001).



## Action Research

To establish whether Pathways was successful in their own school districts, Michigan Intermediate School Districts (ISDs) have completed several action research projects. Following is a synopsis of data collected by Berrien County ISD (2001), reported in their annual education report, after they implemented a Career Pathways Model. Berrien County ISD serves 16 local districts that have from 60 to 6,000 students. It is a diverse county with rural, suburban, and urban districts. The data centers on four claim statements are measured from 1997–2001 and are shown in Table 1.5. Berrien’s data positively reflect that Career Pathways, in line with the national trend data, better prepares students for college, postsecondary programs, and careers while increasing student connections to high school through both improved behavior (attendance) and academic achievement.

In Tuscola County, the Career Pathways Teacher Network conducted a survey on the students’ perception of how school relates to their future (Tuscola Intermediate School District, 2003). Tuscola County is a semirural county located in the “Thumb” area of Michigan. It consists of nine local K–12 districts. The purpose of the survey was to

- determine if the program had an effect on students’ connection to school and their future, and
- help districts understand where students need more connections.

Four districts participated in the survey. The survey was given to two groups of students: 9th-grade students who had taken the Freshman Explorations Career Pathways Class (the first step in our Pathways Model) and 10th-grade students who had not taken a Pathways course.

Eighteen questions were surveyed with results showing gains from 20 to 60% in every area measured. Table 1.6 offers a sampling of survey results.

These action research results are significant when you realize that students in the 9th and 10th grades, in districts that have only just begun to implement the Pathways System, are reflecting this type of knowledge.

## TWO CLOSING SCENARIOS

Following are two examples of students we have encountered whose stories show an integration of the trends and research we have described in this chapter. As you read these samples, we are certain your own student stories will come to mind.

Our first story is about Pam’s plumber. Bill was an average student in high school with good social skills and even better athletic skills. He went to college to play football, but that didn’t work out as he had planned, although he did finish a four-year degree in sociology. Not finding a market for sociologists and not wanting to go on to earn a master’s degree, Bill worked with a local plumber to earn money and pay back his student loans. Bill soon found out he was pretty good at this type of hands-on work. Even though he is not certified or licensed,

---

**Table 1.5** Synopsis of Data Collected by Berrien County Intermediate School District

---

**Claim Statement:**

Career Pathways support enriched curricula and high academic standards.

**Results:**

- High school graduation requirements increased 15%.
- There was a steady increase of students taking an additional third and fourth year of high school mathematics and science.
- There was a substantial increase in the number of advanced placement (AP) course offerings.
- Integrated career-focused curricula have been developed and utilized in 14 schools, creating up to 212 new course offerings.

**National References:**

Aligning traditional curricula with programs that integrate career preparation into traditional coursework raises student achievement, as cited in the national studies “Choosing Success” (1999) and “School-to-Work” (2001).

**Claim Statement:**

Career Pathways students are better prepared to define career goals and make plans for their futures.

**Results:**

- There was a 500% increase in the enrollment of students in career technical education courses.
- There was a 117% increase in the number of students participating in applied learning experiences.

**National References:**

Students enrolled in Career Pathways believe that learning is meaningful, are more knowledgeable about career options, and may select additional schooling and training, thus remaining in school longer because of their career interests (Hughes, Bailey, & Mecheer 2001; “School-to-Work,” 2001; “STW Reporter,” 1998).

**Claim Statement:**

Career Pathways increase student performance and academic achievement.

**Results:**

- There was a 7.7% increase in the number of students attending a postsecondary program.
- The mean grade point average for all students Grades 9–12 increased.
- Overall high school attendance rates increased steadily.
- More students received endorsements on the Michigan Educational Assessment Program (MEAP) with a sixfold increase in math and a fivefold increase in science.

**National References:**

National trends have documented that Career Pathways curricula support and increase academic achievement, attendance rates, overall grade point averages, and graduation rates for high school students (Hughes et al., 2001; “School-to-Work,” 2001).

---

(Continued)

**Table 1.5** (Continued)

Studies have also indicated that Career Pathways System students are more motivated and engaged in schooling than their age peers due to the relevancy of the course content and career focus of the instructional activities (“School-to-Work,” 2001; “Choosing Success,” 1999; “STW Reporter,” 1998).

**Claim Statement:**

Career Pathways prepare students for college, career, and the workplace of the future.

**Results:**

- There was an increase in the use of the workplace as a learning environment.
- There was a 33% increase in the connections between K–12 and postsecondary delivery systems.
- Career and employability skills standards and benchmarks were integrated throughout the K–12 curriculum.
- There was a 9% increase in the number of high school graduates attending postsecondary schools.

**National References:**

Students learning work-related skills such as job search strategies as part of their career program of studies are better prepared for the world of work and for postsecondary programs (“Choosing Success,” 1999; Hughes et al., 2001).

Bill still does most of the plumbing work in our small town. He is good, reliable, and pleasant, and we need a plumber, so no one is terribly concerned about the details. When he works on construction sites, he works under a licensed plumber. No doubt Bill will earn his license one day, but right now he is making a good living for himself and his young family. He is 28 years old and just settling into a career. When he comes to work, we have great conversations about social issues and society; however, we pay Bill because he fixes the plumbing. If Bill had attended a Career Pathways High School, his experience would have been different. He could have pursued his interest in sociological processes while developing a skill. Bill could have participated in an apprenticeship program during his last two years of high school, giving him a head start in his career and the opportunity to be involved in labor and union issues. How can we recreate a different high school scenario for Bill?

Mila is a 35-year-old mother of two with a business degree. She had two business jobs, one in bookkeeping and one in data entry. While raising her small children, she had become involved with her church’s youth group and realized that she really enjoyed and could relate to young people. Finding that she wanted to work with people, Mila decided to return to college to become a high school English teacher once her own children entered school. Mila, later in life, finally discovered that she only felt that she was making a contribution to society when she was working with youth. If Mila had attended a Career Pathways High School, her experience would also have been different. In Freshman Explorations, she would have realized that because of her personality and interests, she needed work that directly involved people, most likely in the human

## 22 CAREER PATHWAYS

**Table 1.6** Tuscola County Survey Results

<i>Student Question</i>	<i>Non-Pathways Students</i>	<i>Pathways Students</i>
My teachers connect what they teach to the world of work or careers.	16%	74%
My teachers connect what I learn to my Career Pathway or my career interest and skills.	10%	63%
Things I learn at school will help me when I have a job or career.	45%	86%
My school provides opportunities to learn about skills used in work-related situations.	29%	77%
My school teaches work-related skills and has projects in problem solving, teamwork, technology, and employability skills.	28%	79%
My Career Pathway will be written in my portfolio or other school records.	22%	70%
My school teaches “people” skills such as problem solving, teamwork, presentation, and organization that will be useful on the job.	36%	84%
I have learned about a broad range of careers at school.	18%	80%
At my school we learn how to explore different careers and what it will take to have a career in a particular field.	17%	83%
I have had the opportunity to listen to workers in different career fields.	28%	75%
I know the type of careers that might be of interest to me based on my interests and abilities.	55%	87%

*Note:* From Tuscola Intermediate School District, 2003.

service area. In her sophomore and junior years, she could have explored a variety of human service careers (presumably working with youth) and would already have had a plan and direction by the time she entered college. Instead, at the age of 35, she is back in school working toward a second degree while raising two children.

We know every reader can add to this list of stories from his or her own experiences, and from those of family, friends, and students. The question is, how could we as educators have helped Mila and Bill do their explorations and use their high school experience to better prepare them for their future? Could we have saved them several years of economic instability and personal confusion? We believe the answer is yes.

## IN REVIEW

- Career Pathways High Schools are learner-centered and self-directed; they require teachers to shift from being knowledge givers to knowledge facilitators.
- A Career Pathway is a broad spectrum of careers that share similar characteristics; the employment requirements for these careers call for common interests, strengths, and competencies. A successful grouping of Career Pathways must encompass the entire spectrum of career options.
- It is key for your school to choose the Pathways system that works best for you and your community.
- The purpose and mission of a Pathways High School is always in direct relationship to the concept of students as lifelong learners and drivers of their own educational processes.
- The mission of a Career Pathways High School is that every student will focus his or her high school education on a realistic postsecondary plan. In designing the plan, the skills, knowledge, and experience of the student must be considered so that students can successfully complete their plans and become productive citizens and global residents.
- Many major labor market trends in the past several decades have led to the establishment of governmental policies to connect academic and workforce learning.
- Research in the areas of adolescent development, brain-based learning, workforce development, and student surveys have all supported the success of the Career Pathways System.