

THE NEW VOCATIONALISM: A DEWEYAN ANALYSIS

By

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In loving memory of my mother and father, Ernestine and Laurance Dow, who, like Dewey, believed that education was a lifelong process, I dedicate this dissertation.

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THE NEW VOCATIONALISM: A DEWEYAN ANALYSIS

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This study used the philosophical work of John Dewey to examine the "new vocationalism" promoted by the National Center for Research in Vocational Education (NCRVE) at the University of California at Berkeley during the 1990s. Arguing that vocational education had incorporated Deweyan principles during the last half of the 20th century, researchers at NCRVE cited the thinking of John Dewey as inspiration for their work in developing a framework for vocational education reform. After a brief review of the evolving vocational education debate between the social efficiency and democratic progressives, the study began by tracing Dewey's educational development with particular attention to his work at the University of Chicago Laboratory School and outlined his theory of vocational education. It then analyzed NCRVE publications to identify foundational elements of the new vocationalism and measured them against Dewey's theory.

The study documented five integrated elements of the new vocationalism: 1) career academies, 2) Tech Prep programs, 3) all aspects of the industry (AAI) curriculum,

4) constructivist pedagogy, and 5) student internships with business partners. These elements use expanded teacher roles and an integrated curriculum approach that reflect Dewey's ideal of "education through occupations." The academy gives the new vocationalism its form; Tech Prep, its scope; and AAI, its academic substance. Analysis of Dewey's work and that of the NCRVE indicated that the conception of the new vocationalism as an active, student-centered, collaborative investigation of industrial society led by expert teachers was consistent with Dewey's notion of vocational education as a process of reflective thinking leading to intellectual and social growth. However, the NCRVE emphasis on students learning specific job skills for immediate paid employment by business partners was in conflict with Dewey's desire to eliminate economic stress from occupations being studied. The study suggested that an increase in the number of highly trained teachers with more time for cooperative planning and increased financial resources and expanded meaningful work opportunities for program completers were crucial for the success of the reform. It concluded by suggesting some areas where qualitative and quantitative research could help policy makers understand the effectiveness of the new vocationalism as a holistic national school reform movement.

CHAPTER 1
TWENTIETH CENTURY EDUCATIONAL REFORM: THE PROGRESSIVE
DEBATE

Introduction

The conversation about what constitutes democratic education in America is a long and storied debate, one that continues to this day. At the beginning of the 20th century, John Dewey, David Snedden, and Charles Prosser, three powerful voices for educational reform, argued that the traditional educational curriculum, particularly at the secondary level, should be updated to include vocational education, or what they called "scientific-technical" studies (Wirth, 1966, p. 285). All three men agreed that the schooling of the day had become sterile and needed to become more relevant to the social and economic realities of the industrial age. The three men had different definitions of relevance, however, and these differences led to different conclusions about the purposes of schooling and the organization of instruction. Nowhere were these differences more clear or more heated than in the area of vocational education, which was to say, the education befitting America's working class. Snedden and Prosser drew their vision of schooling from industry and the organization of industrial society. Dewey, as we shall see, drew his conceptions of education from what he took to be the demands of an emerging industrial democracy.

Snedden and Prosser advocated two separately organized secondary school systems that educated students according to their perceived potential. One system of liberal schools would move children with high ability through a liberal studies curriculum and

on to college; the other system of vocational schools would move students through vocational programs and into the industrial workforce. David Snedden (1924) described a new industrial, socially efficient society symbolized by the smoothly flowing assembly line. He modeled both schools and society after the modern factory where individuals performed separate and specialized tasks but accomplished common goals. He challenged educators to examine their role in developing such "social efficiency." "The most formidable current problem of educational science is this: How far should we educate people to be alike, and how far dare we educate them to be different from each other?" (p. 195). Snedden, Prosser, and other administrative progressives argued that training students to work in specific occupations while teaching them workplace ethics would "produce individuals who were trained for a specific role in society and who were willing to work cooperatively in that role" (Spring, 1990, p. 201). To their mind, increased wages from these skilled jobs, more leisure time, and a cooperative spirit would allow individuals to participate more freely in democratic life.

John Dewey (1915, 1916a) disagreed and proposed an alternative conception of social efficiency. For him, democracy offered a model for schooling that was much more compelling than the factory. Indeed, factory work that did not spark worker interest and encourage growth was, in Dewey's view, mere drudgery. Dewey (1916a) believed that the only true freedom was intellectual and that workers and students alike should have the chance to develop "industrial competency" (p. 119), by which he meant a critical understanding of management, marketing, production, and distribution, the fundamental elements of an industrial society. An efficient society, he said, offered its citizens meaningful work and developed in them the "competency to choose and make [their]

own career" (p. 119). In an age of rapid industrial evolution, training students for "too specific a mode of efficiency" (p. 119) was, Dewey argued, self defeating. The better alternative was to educate young people for "civic efficiency or good citizenship" (p. 120) by teaching students the process of reflective thinking and giving them the confidence "to make [their] own choice[s] intelligent" (p. 121). In contrast to Snedden and Prosser's "indoctrinational approach" (Gregson, 1992, p. 63) based on the reform school model (Kliebard, 1986; Wirth, 1966), Dewey (1916a) argued for a school that fostered democratic living and reflective thinking, one that encouraged students to consider values, attitudes, and responsibilities and then to act on them. He saw "education through occupations" (p. 309) as a way to build on students' intrinsic interests, motivate students to expand their intellect, and encourage political and social activism. Such an approach actively applied by all members of society would, Dewey suggested, improve the quality of democratic social life in America.

The Snedden and Prosser social efficiency paradigm and the Dewey social democracy paradigm offered competing visions of the American educational future at the turn of the 20th century. The Snedden and Prosser vision became codified in the 1917 Smith-Hughes Act and dominated vocational education policy in the first half of the century (Camp & Hillison, 1984; Carnoy & Levin, 1985; Kantor, 1988; Shor, 1988). Within the comprehensive high school, educational reformers developed a dual track system, one academic track leading to college and a second vocational track leading to industrial work (Kliebard, 1986; Lazerson & Grubb, 1974; Wirth, 1972). To that point, no other school reform effort had garnered such widespread popular and political support

or had become so widely implemented in American schools (Kliebard, 1986; Spring, 1990).

Nevertheless, Dewey's vision had not been totally eclipsed, and the economic uncertainties of the 1970s prompted national leaders to review educational policy. There were signs that Dewey's thinking had been influencing vocational education practitioners as early as the 1960s, and by the late 1980s and the early 1990s, a paradigm shift had occurred (Pratzner, 1985; Wirth, 1989, 1992). Authors and advocates of the Carl D. Perkins Vocational and Applied Technology Act of 1990 and the School-to-Work Opportunities Act of 1994 (e. g., Benson, 1997; Gray, 1996; Gregson, 1993; Grubb, 1995; Grubb, Davis, Lum, Plihal, & Morgaine, 1991; Martinez & Badeaux, 1992; Rosenstock, 1991; Wirth, 1992) moved away from the traditional categories of vocational education and advocated a liberal vocational education more consistent with Dewey's democratic principles. These legislative acts supported Dewey's (1916a) notion of "education through occupations" (p. 309), not training for specific jobs (Finch, Schmidt, & Faulkner, 1992).

Since its inception in the mid 1960s, the National Center for Research in Vocational Education (NCRVE) had been developing curriculum, training vocational teachers, and developing programs to insure equity and program access for minorities and students with disabilities. In the late 1980s, the Center changed its mission and began monitoring the evolution of vocational programs organized around integrated occupational themes. Scholars from the Center had contributed language to both pieces of reform legislation, and NCRVE researchers began talking about an "emerging vocationalism" (Gray, 1996, p. 91), which Benson labeled the "new vocationalism" in a

paper written in 1992 that was eventually published in 1997 (Benson, 1997, p. 201). In that paper, Benson emphasized Dewey's (1900, 1902/1990) theme of integration. Later, his colleague, Norton Grubb (1995), adopted Dewey's (1916a) conception of "education through occupations" (p. 309) to describe the movement. During the final decade of the 20th century, the new vocationalists remained productive (establishing and researching programs), prolific (writing numerous reports, grants, and calls for vocational reform), and effective (winning grants and establishing the efficacy of their programs).

Purpose of the Study

Since 1990, proponents of the new vocationalism have established hundreds of experimental career academies and Tech Prep programs, but they never coordinated their efforts into a national reform movement. Working quickly and often at the behest of business leaders and politicians, the new vocationalists did not have the time or the opportunity to examine their work, find themes, or look for underlying principles. These educators remained a loosely affiliated group of like-minded, get-on-with-it practitioners. Most recognized commonalities in their work, and a few traced common themes back to Dewey; but none had the time or inclination to put their philosophical house in order. Researchers at the NCRVE documented many of these programs and advocated their replication as the beginning of a "new vocationalism" (Benson, 1997, p. 201) inspired by Dewey's expanded notion of vocation and his commitment to democracy as a method of associated living. Nevertheless, they have not organized the elements of successful programs into a framework for school reform nor grounded current innovations firmly in Dewey's educational philosophy. The purpose of this dissertation is to identify the foundational elements of the new vocationalism as defined by the NCRVE and then to measure them against Dewey's theory of vocational education.

Significance of the Study

Social and economic conditions today are similar to those at the beginning of the 20th century. The same competing conceptions of vocational education that marked the turn of the 20th century continue to battle today. Both the social efficiency advocates and the new vocationalists have equated higher levels of academic attainment with increased national economic productivity and an improved standard of living for all Americans. Administrative progressives in the mold of Snedden and Prosser have argued for school curricula that emphasize work ethics and character education and use teacher-proof curriculum packages, rigorous high school graduation requirements, and high-stakes exit testing. Proponents of social and economic efficiency call for a vocational education that teaches high-tech knowledge and skills and prepares high school students for either a technical postsecondary education or the world of work. They focus on at-risk students who too often leave school without a diploma or a marketable technical skill and find themselves floundering in the labor market (Jobs for the Future, 1990; Rosenbaum et al., 1992; Veum & Weis, 1993). Social efficiency advocates fear these students will enter the ranks of the unemployed, create a drain on the social welfare system, and contribute to economic and social inefficiency. These vocationalists, like their forebearers at the turn of the last century, believe such students need a school program that will teach them a marketable skill for immediate use. They see a work world divided into two distinct classes, thinking managers who design the work and control its flow and the laborers who follow management's directives. The future managers move through the liberal arts curriculum, and the remaining labor pool prepares for work by moving through practical, specialized vocational training. Following the Snedden and Prosser model of separate

trade training, proponents of economic efficiency are calling for more resources to modernize the existing specialized vocational programs.

In contrast, democratic progressives see a very different economic future. They envision an economy that blurs the distinctions between workers and managers. In such an economy, workers and managers alike think for a living and need an education that prepares them for adaptation, collaboration, and abstract thought. They see an uncertain future where individual success in a global economy demands a flexible, adaptable mindset, one that allows individuals to retrain many times during their work lives. The new vocationalists argue that a person's success and happiness in the 21st century depend on a high level of education that promotes thinking as a way of life. They see more integration and team building at the workplace and are agitating for an educational experience that is more closely linked to the changing reality of the business community. Proponents of the democratic position call for a rigorous, integrated curriculum for all students, one that uses the study of occupations as a vehicle for intellectual and social development. They want highly skilled teachers to use a variety of instructional strategies, authentic dilemmas, and social activism to challenge students across the school.

By the final decade of the 20th century, business leaders and educational policy makers were questioning the efficacy of traditional industrial education and reconsidering the ideas of John Dewey. Deweyan supporters decried the loss of American economic productivity as a "failure of democracy" and called on the nation to remedy the "fragmentation of modernism" (Kincheloe, 1995, pp. 11, 13). Like Dewey, these educators argued that the social efficiency paradigm was immoral because it ignored the

"wholeness of human beings" and their multiple roles in a democratic society (Chesneaux, 1992, p. 120). Kincheloe (1995) stated that democratic citizens need to respect each other as individuals whose "labor is dignified and whose right to develop their full human potential is guaranteed" (p. 11). He went on to suggest that conservative business and educational groups had co-opted the notion of democratic education and redefined it as "the training ground for corporate needs" (Kincheloe, 1995, p. 16). The challenge of the Deweyan progressives was to create a coalition of business and educational leaders who believed that social efficiency grew out of the developed minds of well-rounded individuals and that American industrial democracy needed students and workers schooled in the art and science of problem solving and collaborative decision making.

By 1990, in contrast to prior education policy makers, leaders at the NCRVE were revisiting the Deweyan view. In considering this vision of vocational education, Linda Darling-Hammond (1997) suggested that "with the addition of a few computers, John Dewey's 1900 vision of the 20th century ideal is virtually identical to current scenarios for 21st century schools" (p. 39). NCRVE personnel (Beck, 1990, 1991; Benson, 1997; Dornsife, 1992; Grubb et al., 1991; Martinez & Badeaux, 1992) began to advocate a vocational approach based on integration and community building. At the same time, cognitive scientists (Caine & Caine, 1994; Gardner, 1993; Jensen, 1996) were reinforcing Dewey's notions of intrinsic interest, learning by doing, and authentic problem solving as keys to increased academic achievement for all students. NCRVE scholars understood the changing sociotechnical character of contemporary society and believed that the next generation of workers would need social, technical, and classical academic knowledge

and skills to be successful. They argued that a democratic education, one that matched all students with qualified teachers and a curriculum that blends classical academic and contemporary vocational knowledge and skills, maximized students' options and provided them hope and possibility. As NCRVE researchers documented new vocational programs and began to challenge the vocational education community to reflect on current practice, they began to look more and more to Dewey for inspiration and guidance. During the last 5 years of the 20th century, researchers at the NCRVE began to look at their findings as a possible roadmap for comprehensive school reform (Andrew, 1996ab; Andrew & Grubb, 1994; Grubb, 1995; Bragg, Kirby, Puckett, Trinkle, & Watkins, 1994). However, the organization was reconfigured before a school reform model had been developed.

Historical Context

School reform has been a continuous process throughout the 20th century. The industrial revolution and the attending social upheaval at the turn of the century called into question the value of the common school experience. By 1900, as America became more urban, high school students from working class and immigrant families outnumbered their middle-class schoolmates (Lazerson & Grubb, 1974, pp. 21-23). Believing that formal schooling was essential for upward mobility, educators reexamined educational practice. Large numbers of "over-aged youth" (Lazerson & Grubb, 1974, p. 22) were marching slowly through school, and still larger numbers were dropping out before acquiring either an adequate education or a marketable vocational skill. Progressive reformers called for a "democratic educational system" (p. 26) that matched the curriculum with students' backgrounds, needs, abilities, and goals. According to Lazerson and Grubb (1974), the progressives got their wish. By 1917, "curricula

differentiation, categorization of students by future economic roles, and the adjustment of the curriculum to the economic demands of the marketplace became the defining characteristics of public education" (p. 25).

Education for social efficiency became both the mantra and the mission of public school reformers, and students became "socially and serviceably efficient" based on their "ability to perform a job well and to get along with others" (Spring, 1990, p. 202). One such reformer, William Bagley (1905), demanded that "every subject of instruction, every item of knowledge, every form of reaction, every detail of habit must be measured by [the social efficiency] yardstick" (p. 60). During the first two decades of the century, advocates of social efficiency sowed the seeds of specialized vocational education across the country, and a political ground swell for trade training developed. Charles Prosser, in his role as the Executive Director of the National Society for the Promotion of Industrial Education (NSPIE), became the de facto author of the 1917 Smith-Hughes Act, and the social efficiency model of specialized vocational education championed first by Snedden and solidified by Prosser gained political support, public confidence, and ongoing federal funding for the next 50 years.

The Snedden and Prosser trade-training model was more in step with the social efficiency thinking of the time than were the reforms demanded by another progressive, John Dewey. Dewey (1897/1972, 1916a) wanted schools to be simplified communities in which students underwent "embryonic" (1897/1972, p. 97) experiences of democracy, work, and community life. He pleaded for genuine vocational education. Such an education, he argued, would produce workers with "industrial intelligence" (1940, pp. 131-132; 1914/1985a, p. 94) and a knowledge of social problems and conditions.

Genuine vocational education would develop the "intelligent initiative, ingenuity and executive capacity" students need to become "masters of their own industrial fate" (Dewey & Dewey, 1915, p. 42). Dewey challenged educators to organize liberal and industrial studies around occupations.

Social Efficiency Paradigm

For most of the 20th century, a social efficiency model governed vocational education. According to this paradigm, schools are agents of the state that produce social control through appropriate job training and discipline. The social efficiency paradigm got its impetus from the test-and-sort technology that followed the introduction of the IQ test in 1916 (Kliebard, 1986). Ten years earlier, Edward L. Thorndike (1906) had declared that "no high school is successful that does not have in mind the work . . . its students will have to perform and try to fit them for it" (p. 180). Proponents of the "social efficiency paradigm" drew on the psychological precepts of Edward Thorndike (1901, 1913) and Lewis Terman (Terman & Merrill, 1937), the sociological principles of Edward Ross (1901), and the scientific management theory of Frederick Taylor (1911). Their educational goal was to measure each student's academic potential and to match that potential to an appropriate career track.

Social control. The industrial explosion at the beginning of the 20th century frightened American intellectuals. Threatened by change and industrial unrest, social reformers redefined the goals of education to include not simply socialization, but social control. Schools would prepare the young for the new discipline of industrial work.

Edward Ross, a Stanford sociologist, and Fredrick Taylor, the father of scientific management, worried that individuals might not withstand the strains of capitalism and

the pace of economic development. Winner-take-all individualism, Ross (1901) predicted, would produce workers driven by "personal ambition . . . lust for power . . . willingness to turn the world upside down to get the fame, or . . . fortune" (p. 3). Ross and like-minded social critics believed the families and churches would not, by themselves, produce efficient workers or model citizens. In their formulation, schools would supplement family and church and become America's most powerful instrument of social control. Teachers would instill "the habit of obedience to an external law" (Ross, 1901, p. 164). Ross suggested that certified teachers were better models for children than their own parents. Children will copy adults' behavior, he said, and it behooves the state to provide the best possible role models for the young. "Copy the child will, and the advantage of giving him his teacher instead of his father to imitate, is that the former is a picked person, while the latter is not" (Ross, 1901, pp. 164-165). To combat the moral dangers of capitalism, Ross proposed that schools focus less on the development of individual intellect and more on social control, and his disciples redesigned the school program to achieve that goal.

Taylor (1895, 1903, 1911) believed workers could not think for themselves and that it was folly to assume that they could. Instruction was necessary, he said, because individuals were morally flawed, lazy, and shiftless. They became productive workers and good citizens only when they lived within scientifically verified, tightly regulated social constraints. The purpose of schooling therefore was to prepare the young for the discipline and rigor of adult work.

Taylor's industrial goals were to increase output and lower production costs. Time and motion studies convinced him that motivated employees working in a scientifically

managed environment would produce more than average workers in a traditional factory. Taylor broke tasks into their smallest components, each element being so simple as to make thinking unnecessary. Managers ordered those components in an efficient and rigid sequence. Taylor admonished managers, "If [workers] won't do what is right, make [them]" (as cited in Copley, 1923, p. 183).

Men like Snedden and Prosser looked to Fredrick Taylor, "the prophet of the new order in industrial society" (Kliebard, 1986, p. 95), for inspiration and guidance. They believed his scientific management theories applied to factories and schools alike. The primary purpose of both was to increase social and economic efficiency (Kincheloe, 1995, p. 7; Kliebard, 1986, pp. 89-122; Simon, Diplo, & Schenke, 1991, pp. 3-5; Wilds & Lottich, 1966, pp. 366-376). The curriculum, Taylor insisted, must connect to adult activities and contribute to an orderly society. Describing the social efficiency movement of the early 20th century, one educational historian observed:

Efficiency became more than a byword in the educational world; it became an urgent mission. That mission took the form of enjoining curriculum-makers to devise programs of study that prepared individuals specifically and directly for the role they would play as adult members of the social order. To go beyond what someone had to know in order to perform that role successfully was simply wasteful. Social utility became the supreme criterion against which the value of school studies was measured. (Kliebard, 1986, pp. 89-90)

Educational science. The social efficiency advocates sought a Tayloristic science of measurement and standards that could be applied to American schools. The emerging field of psychology, particularly the work of Edward Thorndike (1901, 1913) and Lewis Terman (Terman & Merrill, 1937), provided such a science. Thorndike believed that human intelligence was determined at birth and could be measured by tests. In his view, social efficiency could be achieved by using tests to measure a person's talents and then scientifically match those talents to the needs of the community. Thorndike likened the

mind to a machine composed of millions of individual stimulus-response connections, each one with its own unique, discrete message. The more connections one had and the stronger those connections were, according to Thorndike, the more intelligent one was. He believed that individuals could strengthen those connections by repeating them often to earn a favorable reward, and these "fundamental laws of change became his basic methods of instruction" (Spring, 1990, p. 181). Thorndike's theory became the rationale for the mechanical drill and practice methods common to early 20th century classrooms.

The mind, as Thorndike envisioned it, was not a single unit of individual potential, but was rather made up of "multitudinous separate individual functions" (Thorndike & Woodworth, 1901, p. 249). His study of those mental functions convinced him that there was little transfer between discrete mental processes. "Improvement in any mental function," he wrote, "need not improve the ability in functions commonly called the same name. It may injure it" (Thorndike & Woodworth, 1901, p. 250). Thorndike suggested that the theoretical mental operations of memory, perception, reasoning, and observation were "fictions" that "should be discarded" by educators and policy makers (Thorndike, 1913, pp. 363-365). Instead, he argued that these disconnected mental faculties could be organized by a scientifically designed curriculum within which courses were broken into lessons with specific objectives. However, according to Thorndike's research, a particular academic program had little to do with increasing a person's intellect. Students with high native intelligence gain the most during an academic year, said Thorndike, "whatever studies they take" (Thorndike, 1924, pp. 94-95).

Along with developing general intelligence tests, Thorndike created specific scales to measure basic-skills achievement while Lewis Terman adapted Alfred Binet's general

intelligence scale. Both Thorndike and Terman believed these tests accurately measured students' potential and indicated a student's character and work ethic. Appropriately tracked students, Thorndike believed, would do well in school and lead useful and happy lives. They would be congenial, well adjusted, and "engage in harmless enjoyments" (Wilds & Lottich, 1966, p. 357). He argued that gifted students destined for leadership positions in the community deserved special attention while the masses needed to learn "reasoned dependence, the ability to recognize their own limitations and the quality of leadership in others" (Thorndike, 1914-15, p. 412). With the help of his scientific tests, Thorndike believed, teachers could place students in developmentally appropriate educational programs.

As educators accepted psychology as a valuable educational science, educational engineers took their place in schools and district offices. Armed with the methods and tools of educational psychology, these social-control experts built an educational bureaucracy patterned after factory production. "The problem before the high school," wrote Thorndike in 1906, "is to give the boys and girls . . . who deserve education beyond a common school course such a training as will make them contribute most to the true happiness of the world" (p. 180). Educational statistics, particularly I.Q. scores, became not just diagnostic tools, but a mechanism for social categorization, regulation, and control (Gould, 1981; Kliebard, 1986, 1992; Wirth, 1972).

Trade training. Educators who accepted the social control paradigm and practiced social control through social efficiency dominated school programs for much of the 20th century. Edward Ross's theories of social control lived through his academic lineage. David Snedden, a student of Ross at Stanford who later studied with both Dewey and

Thorndike at Columbia, became the Commissioner of Education for the Commonwealth of Massachusetts in 1909 and immediately appointed one of his former students, Charles Prosser, Deputy Commissioner for Vocational Education. Together, these two men used academics and politics to shape secondary education for the first half of the 20th century (Kliebard, 1986; Wirth, 1972). Both men mixed sociological principles and Taylor's management theories in their efforts to industrialize the secondary school curriculum.

In a 1914 address to the National Education Association, Snedden (1914) argued that the school had to replace the home and the shop as the agency for vocational training in light of the new demands of the 20th century: "It is a matter of easy demonstration that the workshop, the home, and other non-school agencies are unable, under modern conditions, to meet the demand for an efficient vocational education" (p. 150). He went on to suggest that only through a dual system of education could the needs of liberal and vocational education, "two unlike types of instruction," be met.

Vocational education differs from general, or liberal, education fundamentally as regards its essential aims, and that therefore it will differ also, fundamentally, as regards to means and methods of instruction. It is further contended that vocational education and liberal education cannot be effectively carried on, so far as regards a given group of pupils, in a way which permits of a considerable blending of the unlike types of instruction. To attempt this is to defeat the aims both of liberal and vocational training. (p. 152)

Snedden (1914) saw the secondary school as the place where students develop genuine "vocational capacities [and] interests" (p.152) and prepare to become productive workers. Any other cultural education, he believed, could be done during one's leisure time. Snedden closed his address with a call for efficiency of vocational education so as not to produce a class of "dilettantes."

One of the essential conditions of genuine efficiency in either liberal or vocational education is a considerable degree of concentration on the part of the pupil on the one type or the other, so far as regards the expenditure of his time and energy in

any given time. This vocational training, however, must be so adjusted as regards time and concentration as not to produce in the youth the spirit of the dilettante. Long periods must be devoted to it, and the product must be of a definitely valuable nature. (p. 152)

Despite the objections of Dewey and other democratic progressives, Snedden's (1921, 1923, 1925) curriculum conception carried the day. Snedden (1921) envisioned a vocational education program composed of "a thousand definite educational objectives" (p. 79) broken into tiny conceptual units designed and organized for specific "case groups" made up of like-minded individuals (Snedden, 1923, p. 290). Snedden's curricula ideology was consistent with the growing class of scientific curriculum specialists like Irving Bobbitt and W. W. Charters. Writing in the first modern book devoted entirely to curriculum theory, Bobbitt (1918) tied curriculum to social efficiency.

The central theory is simple. Human life, however varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class, they can be discovered. This requires only that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, attitudes, habits, appreciations, and forms of knowledge that men need. These will be the objectives of the curriculum. They will be numerous, definite, and particularized. The curriculum will then be that series of experiences which children and youth must have by way of attaining those objectives. (p. 42)

Snedden (1924) applauded Bobbitt's use of activity analysis and added his conception of the "lotment" (the amount of work that students can accomplish or the intellectual ground they can cover in a typical work-week) (p. 761) to his educational model. Snedden likened the efficient school to Taylor's efficient factory. According to Kliebard (1986), a Snedden school was "almost a caricature of Taylor's vision of a factory" (p. 113).

During their tenure as state and national educational leaders, Snedden and Prosser adapted scientific curriculum, testing, and management theories to fit their doctrine of

social efficiency. They used these tools to fashion schools that met the needs of industry. They argued that the junior high school should perform the initial sorting and categorizing of students by aptitude, interest, and career path. Once categorized, homogeneous student groups could then try programs based on their interest and choose one for more specialized study in high school. Snedden and Prosser argued for a separate system of vocational schools for working-class students operating parallel to academic schools for their counterparts in the middle and upper class. Snedden argued that individuals have a bi-polar relationship with the world as both producers and consumers. In his view, vocational education fostered the knowledge and skills of production while liberal education developed a more intelligent consumer of goods and culture (Wirth, 1972). The two courses of study, he insisted, could not coexist in one school. Thus, Snedden gave Prosser the task of developing a system of vocational schools in the major industrial centers of Massachusetts. These men also promoted an indoctrinational pedagogy to transmit work values through work-specific, practical content (Drost, 1977; Gregson, 1992, 1995; Kantor, 1988; Lazerson & Grubb, 1974; Snedden, 1977). Thus, Prosser and Snedden became the leading advocates of secondary vocational education as "trade training" (Lazerson & Grubb, 1974, p. 20).

School as a Taylorist bureaucracy. Snedden, Prosser, and like minded Taylorists did more than transform educational policy; they shaped the school system to enforce that policy. The comprehensive high school with a differentiated curriculum emerged as the new model of American education. A new class of educational experts, now armed with theories of social order and control, a mechanistic notion of mind, and statistical measurement tools for combating bureaucratic inefficiency, reorganized the school plant,

streamlined administrative procedures, sorted students by native intellectual ability, and industrialized the curriculum. Reflecting the prevailing vision of the future world of work, the new curriculum model was simple; students would select a program of study based on the occupation to which they aspired or for which they were suited (Gray, 1996). For the small group of students who would enroll in higher education and prepare for a professional career, the classical curriculum remained. For individuals preparing to enter the work force, educators modernized the curriculum to include commercial education for those seeking clerical occupations, industrial education as preparation for skilled craft trades, and agriculture for those students who would remain on the farm. Teachers would deliver these programs with a transmissive pedagogy, one that inculcated the work ethics, practical skills, and knowledge congruent with the social efficiency paradigm (Gregson, 1991, 1992).

Reformers came to accept the high school as an institution of mass education, and the classic liberal arts became the curriculum for an intellectual elite (Kliebard, 1986; Peterson, 1985). The Smith-Hughes Act of 1917 codified and expanded this new vocational model. Authored in substantial measure by Charles Prosser during his tenure on the Commission on National Aid to Vocational Education (Spring, 1990), the legislation created a Federal Board for Vocational Education, and Prosser became the first Executive Director (Miller, 1985; Wirth, 1972). The bill added home economics to the model. It provided federal funding for commercial, industrial, agricultural, and home economics programs and specified funds for training teachers of those subjects. Yet, it was the 50-25-25 rule that established the autonomy of vocational education in the comprehensive high school (Hayward & Benson, 1993). Under this provision, students

who took one course from a teacher paid with vocational education dollars were required to spend 50% of their time in "shop work," 25% in closely related subjects, and 25% of school time in "academic course work." According to Hayward and Benson (1993), "this rule became a universal feature of state plans from the 1920s to the early 1960s," resulting in an enrollment of 3.4 million students supported by \$176 million in local, state, and federal funds by 1957 (p. 8).

Prosser's energetic championing of the Smith-Hughes bill led every state in the union to adopt the provisions of the legislation within a year (Wirth, 1972). Many states created a distinct State Board of Vocational Education, and the 50-25-25 rule created a clear and wide educational division between vocational and academic programs. Thus, many scholars recognize the 1917 Smith-Hughes Act as the beginning of vocational education in the United States (Kliebard, 1986; Spring, 1990; Wirth, 1972). For the next 60 years, the structure and pedagogy of the social control model of education endured virtually unchanged. Supported by legislation that increased program funding while adding provisions for retraining veterans and homemakers, vocational programs added teachers, bought the latest equipment, and enrolled more students. Students entered vocational programs believing these programs would prepare them for success in the world of work. The public believed the curriculum and pedagogy of trade training was compatible with American goals and values and provided fair access to the American dream. To many scholars, vocational education, when evaluated in terms of implementation and national support, was the most successful educational curriculum reform in the 20th century (Kliebard, 1986; Spring, 1990; Wirth, 1972).

The Great Disruption

Economic downturn. In the mid 1960s, the nation's economic prosperity began to decline, and the federal government looked to vocational education for remedies. The Vocational Education Act of 1963 earmarked funds for specific programs. In the spirit of President Johnson's Great Society and war on poverty, many of these set-asides were to help minority students, the poor, and the disabled gain access to vocational training. This new emphasis marked a political shift away from support for pure industrial training toward social service policy. The 1968 Amendments expanded funding for exemplary sociovocational programs, cooperative education, and work-study. Thus, in the words of Haywood and Benson (1993), "the seed was planted for regarding vocational-technical education as a haven for underprivileged minorities" (p. 2). In an attempt to encourage higher educational aspirations for particular student groups, the U. S. Congress created in 1965 the NCRVE at Ohio State. For the next 20 years, Center personnel developed vocational training programs and offered reeducation and career counseling for all types of students, "regardless of sex, nationality, native language, handicap, economic status, age, place of residence or other special circumstance" (Hopkins, 1986, p. 39). NCRVE personnel also conducted staff development through its National Academy as well as engaged in curriculum development, field research, and program evaluation.

The American public did not immediately recognize the weakening productivity growth and educational policy shift of the 1960s and 1970s (Krugman, 1994). Even with hindsight, economists admit that no one knows precisely what led to the "stagflation" (Krugman, 1994, p. 4) of the 1970s. At the time, however, the Arab-Israeli war and the resulting oil embargo of 1973 were indicted as probable culprits. As the oil shortage drove energy prices up, American economic productivity declined and incomes

stagnated. U. S. Department of Labor statistics showed median family incomes increased almost 3% a year between 1947 and 1973 and then remained flat throughout the '80s ("National Income," pp. 7-33). According to Krugman (1994), "In 1991, the typical family had a real income only 5% higher than its 1973 counterpart" (p. 4). Families with heads of households under age 34 experienced a real income decline between 1979 and 1991. During this period of recession, production ran ahead of demand, and retail inventories mushroomed. Subsequently, manufacturing companies closed assembly lines and laid off workers.

Government response. Once again, the Congress tried to legislate a remedy. In 1976, the Committee on Vocational Education Research and Development (1976) of the National Academy of Sciences reported "that the \$250 million spent by the U. S. Office of Education on vocational education research and development during the last 10 years had not produced a "documented, widespread impact" (p. 1). The report reaffirmed the need for "at least one national vocational R & D center, which should receive long-term support for addressing national and regional problems, including those identified by the center" (p. 5). Soon after, Congress passed the Education Amendments of 1976. This bill not only allocated funds for improved planning and program development at the state and local level, but also mandated a National Assessment of Vocational Education (NAVE) every 5 years. Finally, these amendments mandated the creation of a NCRVE as a Program of National Significance and required the Center to perform six categories of activities:

- applied research and development in vocational education,
- leadership development through an advanced study center and in-service education,
- dissemination of results of Center activities,

- development and provision of national planning and policy development information for vocational education,
- serving as an information clearinghouse for research and program improvement activities supported under the Act, and
- development of methods of program evaluation including studies of program completers and leavers. (Oversight of Vocational Education, 1983, pp. 4-5)

The first NAVE completed in 1980 found that the federal legislation to that point had been too ambiguous. The assessment suggested that the government was trying to do too much with too few resources and that disadvantaged minorities were underrepresented in programs that could lead to career employment (Haywood & Benson, 1993). Business leaders had generally supported vocational education since the passage of the Smith-Hughes Act of 1917. However, by the mid 1980s, in an economic atmosphere of deregulation, corporate mergers produced massive layoffs of frontline workers and, for the first time since the Great Depression, middle managers. The business community faced strong global competition and began to suggest that vocational programs were not providing students sufficient intellectual preparation for a high performance, learning oriented workplace (National Academy of Science, 1984; Committee for Economic Development, 1985). American workers lacked the will, skill, and academic wherewithal to be competitive in a new, high technology economy. The National Commission on Excellence in Education (1983) produced *A Nation at Risk*, a reform manifesto that challenged the country to meet the growing international economic competition by preparing a well-educated, world-class labor force. The message struck a responsive chord, and the report became an instant national best seller. Poor performances by American students on the Second and Third International Mathematics and Science Studies compared to America's international trading partners seemed to

reinforce the business community's contention that the schools, particularly the vocational education programs, were not preparing students for the competition and complexity of the new economy. According to Kearns and Doyle (1988), "Evaluations of secondary vocational programs also failed to find that they helped most participating students get jobs" (pp. 13, 73-76).

Congress responded with the Carl D. Perkins Vocational Education Act of 1984. This bill placed more emphasis on improving programs and creating easier program access for disadvantaged populations. It allocated money to promote cooperation between the public and private sectors, to provide advanced technology training, and to retrain and upgrade the current workforce. Still the money from Perkins represented less than 1% of the total public school spending in 1985, and less than half of that went to vocational-technical program improvement (Haywood & Benson, 1993, pp. 6-10). Provisions in the bill led to a separation of secondary vocational-technical programs from the regular curriculum and created the misconception that vocational-technical education was "the logical means for solving the problems of disadvantaged youth" (Haywood & Benson, 1993, p. 7).

Public reaction. The world of work was changing, and the public did not understand either the full nature of those changes or their ramifications. People, anxious about their futures and opportunities for their children, worried that high school graduates were no longer eligible for high paying jobs (Gray, 1996, p. 98). They saw jobs disappearing in the traditionally high paying, manufacturing industries and other sectors of the economy associated with traditional vocational programs. The public concern grew as they saw an economic disparity between high-skilled occupations and the fast-

growing, low-paying service sector. As the income potential for workers with computer and information management technology skills steadily improved, the income potential for non-skilled and low skilled service personnel stagnated and continued to decline well into the economic boom of the 1990s. The public began to realize that high-paying jobs in the new economy would require years of technical training or college preparation, and students moved from vocational education to college preparation. Between 1982 and 1990, the national enrollment in college preparatory programs increased by 10%. Among 1991 high school graduates, 63% went on to higher education, compared to 49% in 1980. In a 1992 national survey of high school seniors, 85% said they planned to earn a baccalaureate degree and 30% had already decided to attend graduate school. (U. S. Department of Education, 1993, as cited in Gray, 1996, p. 89). The Higher Education Research Institute (1994) reported that the single most important reason college freshmen gave for going to college was "to be able to get a good job" (as cited in Gray, 1996, p. 89). As the public sensed that the nature of work was changing, college degree programs became the vocational training program of the 1980s.

Call to Arms

While the economic future of the 1980s and 1990s became increasingly uncertain, politicians and business leaders called on the schools to provide more education to all students (Marshall & Tucker, 1992; Secretary's Commission on Achieving Necessary Skills, 1991, 1992a). They lobbied schools to make the curriculum more relevant to students' lives, and they championed instructional methods that focused on applied learning as well as content coverage. The business community understood the need for a work force that could adapt to the fast-paced changes in an economy dominated by fluctuating niche markets. Workers needed technological literacy, good communication

skills, and ingenuity to compete for jobs and be productive. The new business basics extended beyond the work ethic and the 3 Rs. They now included generative thinking, communication skills, collaboration skills, and computer literacy (Grubb et al., 1991; Hamilton, 1990; Hull & Parnell, 1991; National Center on Education and the Economy, 1990; Raizen, 1989). American business began to forge a closer link to public education in order to ready a labor force that could meet the demands of global competition. The business community lobbied politicians and rallied the general populace with a call for across-the-board educational reform including vocational education.

The energy of reform powerfully affected the NCRVE. From 1965 to 1988, the Center had been centralized at Ohio State University (OSU), and its mission and organizational structure had never been seriously challenged. After OSU had successfully competed for renewal of funding against the University of Tennessee in 1982, lawmakers from Tennessee and other interested constituencies called for a review of the procurement process. Testifying before the Senate Subcommittee on Education, Arts, and Humanities of the Committee on Labor and Human Resources, Dr. Marla Peterson, Dean for Research at the University of Tennessee, suggested that the U. S. Department of Education was going against the wishes of Congress by choosing "to use procurement procedures that have the effect of a sole-source procurement" (Oversight of Vocational Education, 1983, p. 9). She argued that renowned research institutions did not bid for the contract because they perceived a bias toward the status quo: "A variety of circumstances have contributed to the creation of a situation in which strong research universities simply recognize their efforts will not be given proper consideration" (p. 11). Dr. Peterson recommended that Congress fund a limited number of regional research centers

that would complement work done at a national center (Oversight of Vocational Education, 1983, pp. 9-12).

The politicians were listening. To spur greater competition for NCRVE funding in the next funding cycle, the Department of Education made planning grant money available to encourage more research institutions to complete the grant application. In the end, three universities, including OSU, competed for the Center, and the University of California at Berkeley won the \$30 million grant with a controversial, decentralized center design. The Berkeley application outlined a consortium of research institutions to include, along with Berkeley, the University of Illinois, University of Minnesota, Columbia University Teachers College, Virginia Polytechnic Institute and State University, and the Rand Corporation. So, after much political wrangling and a legal battle, the academic consortium led by new Director Charles Benson moved the NCRVE from Columbus, Ohio to Berkeley, California in June 1988 ("Berkeley Consortium," 1988; Hanley, 1988; "Ohio State sues ED," 1988).

New Vocationalism

The themes of integration and articulation guided the thinking of the new NCRVE consortium. Vocational reform educators focused on two approaches: (a) curricular integration of vocational and academic subject matter to produce activity-based learning and high level lessons for students; (b) curriculum articulation across grades 10-14 and a smooth transition from high school to postsecondary education and on to work (Hull & Parnell, 1991; Parnell, 1985). In an unpublished speech at the American Vocational Association Annual Conference in December 1988, Director Charles Benson outlined six guiding principles for the work of the organization:

- Understanding employability as broadly conceived and career focused

- Integrating academic and vocational education for all students
- Emphasizing program outcomes as well as program access
- Attending to postsecondary and adult vocational education through articulation in the K-14 concept
- Involving practitioners in research and researchers in practice
- Collaborating with mainstream research in education and social science. (National Center for Research in Vocational Education, 1989, archived speech outline)

These principles outlined a new mission for the Center (NCRVE, 1989, 1990, 1991, 1992, 1993, 1994, 1995). Center personnel set out to "rethink what vocational education should be" and to "integrate vocational education with nonvocational education theory and practice"(NCRVE, 1989, p. 1). They wanted to reinvigorate vocational education and help it "shape (rather than react to) debates over the role of all education" (NCRVE, 1990, p. 1). To that end, the Center staff worked to understand the knowledge, skills, and dispositions necessary for workplace success, how students can best learn those things, and how those abilities can be used more productively at a work site (NCRVE , 1992, p. 1). In 1992, NCRVE Director Charles Benson (1997) crafted a vision of a "new vocationalism" (p. 201) that unified curriculum integration, authentic instruction, and program articulation. Congress embraced Benson's holistic conceptual framework in The School-to-Work Opportunities Act of 1994 (STWOA).

By 1995, the NCRVE had redefined itself as a "change agent" (NCRVE, 1993, 1994, 1995), and the organization adopted the language and goals of systemic change in its mission statements. These statements questioned the viability of the national economy and asked how a business-education coalition could use vocational education to shift the economy toward high skills and high performance. When confronting programs that were not striving for those goals, the Center asked how those programs could realign, what

incentives could be used to stimulate program reform, and how the Center could determine if reform had occurred (NCRVE, 1993, p. 2).

The NCRVE had long recognized the need for a philosophical framework for vocational education. In the foreword to *Principles and a Philosophy for Vocational Education*, Dr. Melvin Miller (1985), writing as a residential scholar at NCRVE, argued that vocational education had used disparate and often intuitive principles to guide its policies and practices. Practitioners and policy makers played prominent roles in the development of vocational education, but "vocational educators have avoided philosophy as an abstract activity not likely to produce practical outcomes" (Miller, 1985, p. 2). Miller (1985) argued that vocational educators needed a philosophy of vocational education to frame their thinking and guide their practice.

[Philosophy] helps the vocational educator sort out competing alternatives and provides a basis for a final course of action. Philosophy also provides guidelines for practice, contributing to decisions about program development, selection of learning activities, curriculum, goals, resource utilization, and identification of other essential needs and functions in vocational education. (p. 3)

As the NCRVE became more decentralized and its research effort more scattered, its leaders believed that a philosophical foundation could be fashioned from its research reports and working assumptions. In 1991, the NCRVE funded a project titled *The Philosophical Foundations of Vocational Education*. Directed by Vernon Howard at the Philosophy of Education Research Center at Harvard University, this 1-year project set out to "address the fundamental philosophical questions in vocational education, with the objective of deepening our understanding of what is involved in the integration of vocational and academic studies" (NCRVE, 1991, p. 13). The goal was to stimulate philosophical discussion among practitioners and to write a monograph that discussed "philosophical questions central to the integration of vocational and academic education"

(p. 13). NCRVE officials, although diverted by their research and the operation of a complex organization, knew they needed a philosophical foundation, and some NCRVE scholars recognized that they could find that foundation in the principles of democracy and in the work of its most articulate 20th-century advocate, John Dewey.

Many NCRVE scholars (Bragg, Layton, & Hammons, 1994; Grubb, 1995, 1996; Haywood & Benson, 1993; Miller, 1985) invoked the thinking of Dewey as inspiration for creating a new vocational paradigm. Bragg, Layton et al., (1994) noted: "Few words could provide more insight or inspiration than [Dewey's]. For us, Dewey's teachings [shaped] our thoughts about the future of education" (p. 20). Norton Grubb (1995), Site Director at Berkeley, adopted Dewey's phrase "education through occupations" (1916a, p. 309) in the title of his 2 volume work on restructuring the American high school. In the introduction to Volume 1, he wrote, "I like to think that the reforms envisioned in these pages are ways of returning to Deweyan ideals, ways of moderating the dualisms . . . that Dewey so opposed" (p. 4). Grubb paid tribute to Dewey's vision of education as contextual, activity based, and collegial and articulated the Center's commitment to continuing Dewey's work. "Dewey never had the opportunity to implement his vision, wrote Grubb, "but we still do" (1995, p. 4). Jeannie Oakes, Site Director at RAND, after speaking at the annual John Dewey Society Symposium at the 2002 meeting of the American Educational Research Association (AERA) in New Orleans, explained Dewey's influence on the NCRVE consortium's work:

We did not look to Dewey for specific teaching practices or curricula. We returned to his writing to remind us of what was possible, what a school community could look like when everyone in a school is committed to the real work of democratic education. (J. Oakes, personal communication, April 1, 2002)

Yet, those NCRVE leaders who pointed to Dewey seldom looked beyond his important book, *Democracy and Education* for their inspiration. They did not ask if their new conception of vocational education was consistent with the depth and breadth of Dewey's thinking.

Although NCRVE Director Charles Benson wrote the "new vocationalism" concept paper in 1992, and much of his thinking formed the substance of the 1994 STWOA (Benson, 1997, p. 201; Phelps, 1993), the concept has yet to be fully developed. The decentralized nature of the Berkeley NCRVE consortium has contributed to a fragmented vision of contemporary vocational education. The consortium's broad research agenda resulted in research reports on various elements of the vision emanating from different institutions at different times. Although the Center had a Director of Dissemination, the conceptual task was monumental. Program details remained disconnected, and some details never made it into the secondary school reform conversation. Although the potential still exists for creating a focused, national vocational education reform effort, the "new vocationalism"(Benson, 1997, p. 201) lacks philosophical analysis, and the vision needs clarification.

Conclusion

The contemporary history of American education is a story of reform movements led by progressive educators. The setting and characters have changed, but the school improvement theme has remained constant. Early in the 20th century, progressive educators like Snedden, Prosser, and Dewey agreed American schooling needed to be more relevant and more intellectually stimulating and that social efficiency was a desirable goal for a democratic society. Snedden and Prosser defined social efficiency differently from Dewey, however, and that, in turn, led them to different conceptions of

schooling, curriculum, and instruction. Indeed, it led them to very different conceptions of society. Even though the push for a separate system of vocational high schools did not succeed, social control advocates led by Snedden and Prosser generated political support and federal funding for separate vocational programs in comprehensive high schools. Vocational practitioners, convinced that the social and economic efficiency approach worked equally well at work and in school, sorted students into appropriate programs and taught them specific industrial skills. At the same time, teachers in the liberal studies, college preparatory program taught academic content and thinking skills to the next generation of managers. Dewey's plea for an integrated program for all students organized around occupations and aimed at developing students' capacity for critical thinking and making intelligent career choices fell on deaf ears. The notion of social efficiency as an industrial construct remained pervasive throughout the nation's schools for more than half a century.*

In recent years, however, a different conception of efficiency, one closer to that of John Dewey, has moved to the fore. Like Dewey, some vocational educators (e.g., Larry Rosenstock and faculty members of Rindge School of Technical Arts, Cambridge, MA and Patricia Clark and faculty members of Oakland Health and Bioscience Academy, Oakland, CA) around the country see the need for an education that emphasizes flexible thinking and problem solving as the generic vocational skills of a rapidly evolving global

* Causal chains are most often a convenient fiction. Life is not so neatly linear, and there seldom is a legitimate first cause. Ideas like social efficiency, schooling, democracy, society, and human nature are of a piece and do not fall into logical lines like dominoes. Writers line them up to see them and their relationships more clearly. Once an earnest student constructs a domino line of ideas, any idea can, with a nudge, cause the line to fall in convenient sequence.

economy. Their program goals extend beyond specific job training; they emphasize reflective thinking, capacity building, problem solving, and social action. In the late 1980s and early 1990s, when the NCRVE was transforming itself from a training organization to a change agent agitating for vocational education reform, creative vocational approaches that embodied a Deweyan conception of educational reform, like those in Cambridge and Oakland, caught the attention of NCRVE scholars. Researchers saw the potential of career academies, career magnet programs, and Tech Prep programs to revitalize a stagnant vocational education. Scholars at NCRVE, supported by public and private grants, set out to describe these creative programs and pull them together into a "new vocationalism" (Benson, 1997, p. 201) that could garner public support, generate federal funding, and transform American business into high skills, high performance workplaces. Benson and his colleagues at the Center knew that it was the strong theoretical foundation from thinkers like Ross, Taylor, and Thorndike that had spawned public confidence and produced the earlier enduring vocational reform. A search to provide a solid foundation for the current reform effort led NCRVE researchers to revisit Dewey's work for inspiration and guidance. Dewey's conception of efficiency as human development and civic responsibility has come into favor, and his work was playing a prominent role in other comprehensive school reform conversations.

The NCRVE was reconfigured in 1999 before the consortium could complete its theoretical work. The new organization is the National Research and Dissemination Centers for Career and Technical Education. The National Research Center for Career and Technical Education is housed at the University of Minnesota, and the National Dissemination Center for Career and Technical Education returned to Ohio State. In the

following chapters of this dissertation, I am continuing the NCRVE effort to clarify the vision of contemporary vocational education and identify its philosophical underpinning. Miller (1985) argued that vocational practitioners have often resorted to a "vulgar pragmatism" (p. 1) and allowed past experience to dictate new policy and programs.

Experience--mainly untested in an empirical sense--has built on experience. Preferred practices have emerged to be emulated by succeeding generations of practitioners. Opportunistic strategies, in some cases, have replaced preferred practice with only limited goals being achieved in an often mindless fashion. (pp. 1-2)

It seems both natural and appropriate to use John Dewey's pragmatic philosophy of experience as a way to thoughtfully consider vocational education reform. Recognizing the power of Dewey's philosophy as warrant for the new vocationalism, in the next chapter I trace Dewey's development as an educational thinker to find the source of the Center's inspiration. I pay particular attention to Dewey's years at the University of Chicago when he developed the Laboratory School because those years shaped Dewey's educational thinking. Chapter Three draws together particular elements from Dewey's general theory of education to create a practical theory of vocational education for use as an analytical tool. In Chapter Four, I review the research reports of the NCRVE to clarify Benson's (1997) vision of a "new vocationalism" (p. 201) and identify its fundamental elements. An analysis of the new vocationalism on the basis of Dewey's theory of vocational education is the work of Chapter Five. Finally, in Chapter Six, I review the results of the analysis, point out some of the logical implications of accepting a Deweyan model, and suggest some areas for further investigation.

CHAPTER 2 JOHN DEWEY: THE PROGRESSIVE EDUCATOR

Introduction

Many scholars have argued that vocational education has been the most successful reform initiative of the 20th century. No other reform has earned such widespread popular and political support or become so widely implemented in American schools (Kliebard, 1986; Lazerson & Grubb, 1974; Wirth, 1972). John Dewey was one of three powerful reform advocates for modernizing school curricula to include "scientific-technical" studies (Wirth, 1972, p. 285). Along with David Snedden and Charles Prosser, Dewey argued that traditional schooling had become dull and mechanical, and these three progressive educators sought changes in curriculum and pedagogy that reflected the technological reality of a new century. However, these men had fundamental disagreements about the form and substance such changes should take.

In sharp contrast to the trade training approach of Snedden and Prosser, Dewey offered a model of school as a democratic community where students explored their callings while participating fully in community life. Dewey viewed an isolated school life as wasteful and challenged the efficacy of the narrow social efficiency model promoted by Snedden and Prosser to produce well-rounded citizens ready for democratic life. As the NCRVE consortium developed their vision of a new vocationalism at the end of the 20th century, they looked to Dewey's thinking for inspiration and guidance. In the remaining sections of this chapter, I review Dewey's work in search of the philosophical

and educational formulations that guided his educational thinking and continue to inspire and guide the work of contemporary educational reformers.

A Biographical Sketch

Childhood Influences

Like many scholars before and since, John Dewey cited the influence of two university teachers along with that of his father as being pivotal in his development. Dewey grew up in Burlington, Vermont, the son of a moderately successful, yet well respected, businessman. Possessing little formal education, Dewey's father, Archibald Dewey, had gained an appreciation for classical literature and shared passages from Milton, Shakespeare and others with his children. It was Archibald's character and the time John spent with him in the store, not time in school, that had profound and lasting effects on John's early development (Wirth, 1966). Dewey's daughter, Jane (1951), explained the significance of those boyhood experiences:

By the time [John] reached manhood and became a teacher himself, the growth of cities and the extension of work done by machines had interfered with the invaluable supplements to school education provided by active educational responsibilities and intimate personal contacts with people in all walks of life, which occurred spontaneously in his boyhood. The realization that the most important parts of his own education until he entered college were obtained outside the schoolroom played a large role in his educational work, in which such importance is attached, both in theory and practice to occupational activities as the most effective approaches to genuine learning and to personal intellectual discipline. (p. 9)

The sense of community and the strong personal relationships that Dewey experienced in his youth laid the foundation for an educational philosophy that was to frame his life's work.

University Experience

Dewey entered the University of Vermont at 15. Oddly, it was a course in physiology that stirred his intellectual interest in philosophy. While in this course, Dewey confronted a stark dualism between a physical world of "interdependence and interdependent unity" as described in Huxley's *Elements of Physiology* (Wirth, 1966, p. 7) and a spiritual world of intuitive, disconnected, absolutes that were supposed to regulate human thought and conduct. This campus religious climate of "Scottish intuitionism" based on "certain ultimate and unexplainable principles that are intuitively recognized as true" (Dykhuizen, 1952, p. 565) created for Dewey an uncomfortable separation between body and soul, nature and God. Adams and Montague (1930) suggested that Dewey internalized this schism as "divisions by way of isolation of self from the world" (p. 19), and he developed a desire to resolve this split which he felt as "an inward laceration" (p. 19). This problem propelled Dewey on a life long search for a unifying philosophy. "Subconsciously, at least," wrote Dewey, "I was led to desire a world and a life that would have the same properties as had the human organism in the picture of it derived from the study of Huxley's treatment" (cited in Adams & Montague, p. 19).

This new drive changed the character of Dewey's university experience. His new focus led him to graduate as Valedictorian from the University of Vermont with the highest marks ever recorded in philosophy (Eastman, 1942, p. 282). During a 2-year stint as a high school teacher following graduation, Dewey continued his philosophical questioning, often reflecting on his own religious conviction. A nagging question haunted him: "Whether he really meant business when he prayed" (Wirth, 1966, p. 8). In answer to that question, Dewey had a "mystic experience" that seemed to integrate his sense of

empiricism with his religious faith. Years later, Dewey (1934) wrote *A Common Faith* and described his new faith as "natural piety":

The sense of dignity of human nature is as religious as is the sense of awe and reverence when it rests upon a sense of human nature as a cooperating part of a larger whole. Natural piety is not of necessity either a fatalistic acquiescence in natural happenings or a romantic idealization of the world. It may rest upon a just sense of nature as the whole of which we are parts, while it also recognizes that we are parts marked by intelligence and purpose, having the capacity to strive by their aid to bring conditions into greater consonance with what is humanly desirable. (pp. 25-26)

Over time, Dewey came to believe that individuals were responsible for using their experience in cooperation with the environment to improve the quality of the human social condition.

After a short tutorial in philosophy with H. A. P. Torrey at the University of Vermont, Dewey enrolled at Johns Hopkins in the fall of 1882. Here he met George Sylvester Morris who introduced Dewey to the thinking of Hegel. Hegel's description of an integrated reality resonated with Dewey as it was consistent with Dewey's desire for an organic conception. Dewey was attracted to the "synthesis of . . . the divine and the human" as well as "the dissolution of hard and fast dividing walls" (Adams & Montague, 1930, p. 19). Although Dewey moved away from Hegel in the coming years, the Hegelian work helped Dewey begin to integrate with a dialectic style his own conception of society as an organic community that posed issues to be answered by resolving false dichotomies. Morris helped Dewey win a fellowship for the next year, and after studying logic with Charles Peirce and "the new psychology" with G. Stanley Hall, Dewey completed his doctoral dissertation, *The Psychology of Kant*, and graduated in 1884 (Wirth, 1966).

The Teacher-Scholar

University of Michigan

Upon graduating, Dewey accepted an appointment at the University of Michigan (UM) where his friend and mentor, George Sylvester Morris, had become Chairman of the Department of Philosophy. Interrupted only by 1 year at the University of Minnesota, John Dewey spent 10 formative years at UM. During this period, he published his first book, *Psychology*, which he later repudiated (Wirth, 1966), married Alice Chapman whose deep interest in philosophy stimulated his own, fathered two children, and became the Chairman of the Department of Philosophy after the death of Morris. Here Dewey continued to blend his interest in experimental psychology with his philosophical questioning as he began to consider public education as a fertile field for investigation.

Under the leadership of President James Angell, UM had moved away from admission by competitive examination, and students graduating from any secondary school program that met the university's academic requirements were admitted. Dewey served as an investigator on a faculty committee that visited high schools to evaluate programs and instructional quality. He quickly saw the need for an organization through which high schools and colleges could collaborate on issues of mutual interest and believed that the Michigan Schoolmasters Club could be such a group. He became an active member and served as vice president of the organization in 1887 and 1888 (Dewey, 1951, pp. 7-9).

Public school as research interest. One such mutual interest was the teaching of morals and ethics in the high school. Dewey saw a need to teach this subject matter at all levels, but he particularly wanted to bring discussions of ethics alive in the upper elementary and secondary grades. In an essay titled "Teaching Ethics in the High

School," Dewey (1893) argued against the traditional practice of teaching "moral rules and distinctions" and for the study of ethical relationships: "Ethics, rightly conceived, is the statement of human relationships in action. In any right study of ethics, then, the pupil . . . is studying the ways in which [individuals] are bound together in the complex relations of their interactions" (p. 56). Dewey went on to advocate the use of dilemmas and simulation to help students answer the question "not what to do, but *how to decide* what to do" (p. 61). He wanted students to get in the habit of developing mental models, "a sympathetic imagination for human relations in action" (p. 61), and applying such models to situations discovered in literature, history, and other subjects:

Such a study of ethics as I am pleading for will play at once into the study of literature and history, while the latter will constantly introduce new material, new problems, new methods, for the ethical imagination—the imagination that is occupied with making real for the individual the world of action in which he lives. (p. 61)

Curriculum criticism. Dewey intuitively understood the interconnectedness of the elementary and secondary school programs. The quality of students' secondary school experience depended on the education received in elementary school. Dewey studied schools and concluded that elementary school programs did not build on children's natural learning processes. Disenchanted with poorly conceived programs and methods as well as the poor articulation between grade levels, Dewey set out to discover an alternative that would integrate pedagogical, psychological, and philosophical ideas (Wirth, 1966).

Dewey turned to G. Stanley Hall, one of his early mentors, and the rapidly growing child-study movement for inspiration. Hall extolled the virtues of science as "the culmination of the process of evolution" (Kliebard, 1986, p. 50) and suggested that the scientific study of the child could and should lead to prescriptions for transforming

school life. Dewey supported such scientific study but questioned the efficacy of demanding immediate application. He was particularly critical of the "sentimental primitivism" that prevented a meaningful blend of aesthetic and scientific interest in the child. Dewey (1897a) argued that an overly romanticized view of "lost innocence" and the desire of adults to return to a free and spontaneous nature were getting in the way of real scientific investigation. He acknowledged that the "crowning motive for scientific study" was the aesthetic interest in the child but suggested that "the return to nature . . . must be literal and not sentimental" (p. 26). Dewey challenged the trend toward teaching children based on predictions about the nature of societal development, advocating instead for an education that integrated students and nature:

We cannot . . . educate the child for special membership on the basis of habit, routine, or tradition. The society for which the child, today, is to be educated, is too complex, makes too many demands upon personality to be capable of being based upon custom and routine without the utmost disaster. We must educate him by giving him the widest powers and most complete tools of civilization. Only a study, only the knowledge, of what those powers are and how to master them, and what would instrumentally aid or hinder in their development, and how, is in any way adequate to the task. (pp. 26-27)

Dewey staked his position against a tracked curriculum based on the perceived societal roles of particular groups of students. Instead, he envisioned a school that allowed all students to experience a complex social life through which they would learn the social value of knowledge and the interdependence of society (Kliebard, 1986; Spring, 1990; Wirth, 1966).

University of Chicago

Dewey's work in the Michigan public schools convinced him that pedagogy was an important area of inquiry. A former UM colleague, James Tufts, who had moved to the newly founded University of Chicago, recommended Dewey for the chairmanship of the

Department of Philosophy. In fact, the job description evolved into Chairman of the combined Departments of Philosophy, Psychology, and Pedagogy. Dewey had come to believe that the developing isolation of the child study movement from its roots in psychology had weakened its effect, evidence that pedagogy needed to be firmly grounded in psychology. A job that implied a kindred understanding and the "exciting quality of the faculty at Chicago" were deciding factors in Dewey's decision to move to Chicago (Mead, 1930, p. 101; Wirth, 1966, p. 16).

Chicago Laboratory School

The complex Chicago metropolis coupled with President Harper's vision of the university as both a center for social inquiry and a resource for practicing teachers must have been highly energizing for Dewey. He was also concerned with providing his own children with a richer educational experience than was possible in a public school system that Joseph Mayer Rice (1893) had labeled "the least progressive" (p. 200). In fact, when asked what motivated him to focus on educational philosophy and found the laboratory school, Dewey replied, "It was mainly on account of the children" (Mayhew & Edwards, 1936, p. 446). Dewey's children eventually enrolled in the laboratory school.

Plan of organization. Within a year of arriving at Chicago, Dewey had conceived a plan for a University Primary School and had circulated an organizational plan that confronted the problem of integrating individual development with the need for a coordinated social environment. Dewey believed that a school structured as a miniature community in which developing students met authentic challenges and made genuine contributions to the community's growth would provide the needed developmental experience. Dewey (1895) rejected the notion that school was simply "preparation for something else, or for future life (p. 224), arguing that education was "a process of living

and not a preparation for future living" (Dewey, 1897a, p. 292). He envisioned school organized around things of "value to the child in the present" with teachers guiding students toward "an intellectual command of the modern world" (Kliebard, 1986, p. 65). Teachers would have the freedom to experiment with curricula and pedagogy, to test educational theory with real teachers and real students. Dewey was creating a laboratory where philosophical constructs could come alive, be challenged, and be put to good use through the efforts of psychology and education. Dewey (1916a) explained the connection between philosophy and education, "By the educative arts, philosophy may generate methods of utilizing the energies of human beings in accord with serious and thoughtful conceptions of life. Education is the laboratory in which philosophic distinctions become concrete and are tested" (p. 378). In contrast to the overly sentimentalized, indulgent curriculum of Hall's child study movement or the fragmented, prepackaged humanist curriculum advocated by William Torrey Harris, Dewey searched for a curriculum with a coherent principle or philosophy that could "represent and present, with a certain degree of symmetry, all the intrinsic factors in human experience" (Dewey, 1899/1966, p. 189).

Occupations. In January, 1896, Dewey's school opened with a curriculum that was still to be worked out. Dewey (1895) was struggling to resolve his ultimate educational problem: "to coordinate the psychological and social factors" (p. 224). His initial curriculum looked similar to the culture-epochs curriculum advocated by the National Herbart Society, of which Dewey was an active member (Kliebard, 1986). Dewey admitted that it contained elements of the recapitulation theory, but he argued that no one subject provided the school's curriculum unity. The cohesive force came from

"occupations" (Dewey, 1902, p. 219), those dominant activities any social community requires to grow and develop. In an essay titled "Interpretation of the Savage Mind," Dewey (1902) urged people to consider intellectual activity in terms of those activities an individual or a society engages in to gain control of the environment:

The occupations determine the chief modes of satisfaction, the standards of success and failure. Hence, they furnish the working classifications and definitions of value. . . . So fundamental and pervasive is the group of occupational activities that it affords the scheme or pattern of the structural organization of mental traits.

(pp. 219-220)

The recapitulation in Dewey's curriculum was not that of the historical stages of human development; it was instead the evolution of these fundamental social occupations. By studying the development of these occupations while participating actively in them, students could integrate individual and social ends. A student could "become gradually acquainted with the structure, materials, and modes of operation of the larger community; while, . . . , [participation] enables [one] individually to express [oneself] through these lines of conduct, and thus attain control of [one's] own powers" (Dewey, 1896b, p. 418).

Student engagement. The dilemma for teachers was how to stimulate student engagement. Dewey (1896a) suggested that students possess intrinsic interests, what he called "urgent impulses and habits" (p. 33), that, when directed "in a fruitful and orderly way" (p. 33) in the proper environment, would stimulate action. He argued that students did not benefit from the study of uninteresting subjects made palatable by "sugarcoating" (p. 33), nor did students' habits need to be strengthened through unpleasant mental effort. The teacher needed simply to locate a child's intrinsic interests, create an environment "of actual experience" (p. 33) conducive to social interaction, and help students discover

personal "desired ends as motives to effort" (Dewey, 1900, p. 348). Kliebard (1986) suggested that Dewey saw a child as "a striving, active being capable of intelligent self-direction under the proper circumstances" (p. 56). Those circumstances were highly social. According to Mayhew and Edwards (1936), Dewey believed that "the process of mental development [was] essentially a social process, a process of participation," and he stated, "the aim [of the school] was [to develop the] ability of individuals to live in cooperative integration with others" (p. 467). He hoped that the occupations chosen for study would appeal to students' intrinsic interests and stimulate intellectual striving.

Pedagogical purpose. Organizing the school curriculum around fundamental social occupations also served a pedagogical purpose. Dewey (1900/1990) continually emphasized that his goal was not occupational skill training or using occupations to keep children busy. Rather than emphasize the building of routines that would become "unconscious and mechanical" (p. 134), he envisioned using occupations to maximize student consciousness of their educational experience. Students would blend "personal experimenting, planning, and reinventing" with the study of an occupation's historical development:

The first requires the child to be mentally quick and alert at every point in order that he may do the outward work properly. The second enriches and deepens the work performed by saturating it with values suggested from the social life, which it recapitulates. (p. 134)

Dewey chose occupations that clearly connected school activity to the out-of-school experiences of the pupils, particularly those of the home. Dewey looked for occupations that met the basic human needs:

The activities selected for school life . . . should be basic, that is those that provide for fundamental needs such as food, clothing, or shelter. Such activities are genuine and timeless. Their reality excites the interest of the child and enlists his effort, for

they are what his elders do, have done, and must continue to do. (as cited in Mayhew & Edwards, 1936. p. 256)

The occupations also conformed to the reigning psychological stage theory of child development. Dewey (1900/1990) believed that the occupations allowed students to move through four developmental stages: constructive, investigative and experimental, social, and expressive. He argued that "the fundamental point in the psychology of an occupation is that it maintains a balance between the intellectual and the practical" (p. 133). For Dewey (1900/1990), the character of an occupation differed from that of a trade because "its end is . . . in the growth that comes from the continual interplay of ideas and their embodiment in action, not in external utility" (p. 133). Teachers could then use the occupations as a vehicle for developing scientific principles about the interdependence of plants, animals, and people. Students would come to understand that learning was not an activity restricted to the school but one that was pervasive throughout the environment. In Dewey's mind, the occupations were justifiable as a means of producing a liberal educational experience.

In educational terms, this means that these occupations shall not be mere practical devices . . . but active centers of scientific insight into natural materials and processes, points of departure whence children shall be led out into a realization of the historic development of man. The occupation supplies the child with a genuine motive; it gives him experience at first hand; it brings him in contact with realities. It does all this but in addition it is liberalized throughout by translation into its historic and social values and scientific equivalences. (pp. 19, 22)

Through the process of recapitulation, an occupation was transformed from a set of activities into a vehicle for understanding social value and responsibility. As students moved into secondary school, they would encounter more intellectual, specialized studies derived from the fundamental occupations. Such studies would involve controlled laboratory experiments and field studies. Dewey realized that his instructional approach

was difficult and untried. To achieve his goal of a rich educational experience that was both liberal and scientific, Dewey began with a general design that was to be developed and modified through the actual efforts of individuals participating in a genuine educational community. Dewey believed that his theories were well grounded in the reality of human situations, and he had confidence that his teachers could move students to deeper and broader intellectual understanding of themes in history, science, and communication using the milieu of occupations (Kliebard, 1986; Spring, 1990; Wirth, 1966).

Core subjects. The basic academic building blocks were valued at Dewey's school; they simply were not taught in isolation. Dewey believed that active participation in the social occupations exposed students to reading, writing, and arithmetic in their natural context and provided the needed impetus for student learning at the developmentally appropriate time. Dewey was particularly critical of the way reading was taught in public schools, believing that curricula and methods had not adapted to the proliferation of newspapers, magazines, telephone, and telegraph as means of communication. He believed that isolating reading as a subject and making books "reading lessons" reduced the activity to a mechanical exercise. Dewey (1898b) stated, "When the bare process of reading is thus made an end in itself, it is a psychological impossibility for reading to be other than lifeless" (p. 322). At the lab school, the three Rs occurred naturally as needed during construction projects, cooking, or raising animals. The challenge for the teachers was to find "those things in the direct present experience of the young which were the roots out of which would grow more elaborate, technical, and organized knowledge in later years" (Mayhew & Edwards, 1936, pp. 468-469).

History, geography and science were also important elements of the Dewey curriculum. He believed that history and geography provided the context of time and place for students' present experience. For Dewey, history and science were manifestations of ways of thinking, and through the study of these disciplines in the context of the social occupations, students could do history and science, not study about it.

Wirth (1966) described Dewey's style of analysis as the "genetic method" (p. 138). To better understand a current complex process or problem, students would trace its history through its successive developmental stages. Dewey believed that students' interest in the historical evolution of a given occupation would grow naturally out of their present participation. The approach to history was not to dwell on chronology or learning a "mound of facts"; it was instead one of investigation, discovery, and invention. Teachers used projects to simulate authentic societal problems and role-played social situations. The school's approach was to emphasize the industrial, economic, and social aspects of history and to integrate history and science. Dewey saw history, particularly industrial history, as "an indirect sociology" that focused on man's struggle with the natural world, a struggle made easier by applied science. Quoting from Dewey's "Lectures for the first Course in Pedagogy" at Chicago, Wirth (1966) reported Dewey's understanding of the natural affinity between history and science. "History has the most intimate connection on the one side with man's constructive activities, and on the other side with the development of natural science, and cannot be arbitrarily severed from these things educationally without great loss of meaning" (p. 141).

Indirect learning through reflective thinking marked science at the lab school. Science was both the what and the how of human functioning, work to be done, not information to be learned. Scientific activity was movement along a continuum of human experience. Teachers not only concerned themselves with content and method, but they had to attend to the way students were assimilating and organizing those experiences during social interaction. Dewey (1938) believed that students benefited as much from collateral learning as from the specific lesson at hand, and it was the teacher's responsibility to take advantage of all teachable moments to create a lasting attitude of life long learning. According to Dewey (1938), "The most important attitude that can be formed is that of desire to go on learning" (p. 48). It was by continually reconstructing and reordering experience, Dewey (1902/1990) acknowledged, that his students were developing knowledge that they would later "psychologize" (p. 202) into abstract intellectual resources.

Abandon the notion of subject-matter as something fixed and ready-made in itself, outside the child's experience; cease thinking of the child's experience as also something hard and fast; see it as something fluent, embryonic, vital; and we realize that the child and the curriculum are simply two limits which define a single process. Just as two points define a straight line, so the present standpoint of the child and the facts and truths of studies define instruction. It is a continuous reconstruction, moving from the child's present experience out into that represented by the organized bodies of truth that we call studies. (p.189)

Reflective thought. Informal social relationships between teachers and students notwithstanding, the discipline of scientific method was required. Writing in *School Science and Mathematics*, Dewey (1909) made the point that students should adopt the skepticism of the scientist, accepting scientific laws as conditional explanations for organic relationships. The laws, he explained, bring continuity and order to chaotic experiences, and scientific method provides the "intellectual integrity, sincerity, and

power in all fields" (p. 291). Using that power to challenge those laws, teacher and student can collaborate to develop gradually a "new type of mind" (p. 292).

This new mind engaged in a complete act of reflective thought. Dewey (1916a, 1910/1933) delineated five phases of reflective thinking stimulated by a felt difficulty and culminating in a unified, resolved situation. Phase one was the sensory suggestion, a feeling of discomfort that ached for relief. In the second phase, the direct experience of felt difficulty becomes intellectualized as a problem that must be solved, stimulating one to collect data and develop one or more hypotheses in phase three. Phase four involves elaborating each hypothesis by activating prior knowledge and connecting each hypothesis to what one already knows. Through this process, general principles are derived and alternative courses of action present themselves. In the final phase, one moves to either mental or overt action (1916a, pp. 139-151; 1910/1933, pp. 106-118). Although the process appears linear, it has no definite beginning and is in fact recursive at every stage. Dewey (1910/1933) assumed that many experiments would fail and that such failures "suggest . . . what modifications should be introduced in the hypothesis. . . . Nothing shows the trained thinker better than the use he makes of his errors and mistakes" (p. 114).

Reflective thinking required teachers to be both expert in their content specialties and at the same time students of teaching. Good teachers, Dewey believed, constantly reflect on student experiences and adjust their instruction to stimulate curiosity and guide developmental progress. Teachers and students at the Dewey school were constantly doing science as they participated in an "education of, by, and for experience" (Dewey, 1938, p. 29) consistent with Dewey's (1916a) technical definition of education: "that

reconstruction or reorganization of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience" (p. 76). The process was a "continuous spiral" (Dewey, 1938, p. 79) that allowed students to connect their present experience to its history and to new information from which future problems would arise.

The governing pedagogy was constructivist, and teachers guided and coached students as they inductively explored the world around them. Communication in words and mathematical symbols grew out of authentic problem solving as students applied the genetic method to all disciplines. Morton White (1943) suggested that "Dewey took the constructivist theory of mathematical concepts . . . and worked it into a genetic or evolutionary approach" (p. 68). Dewey's teachers collaborated on lesson designs and field studies, team teaching when appropriate, often coaching individuals, and creating situations for students to demonstrate mastery (Dewey, 1897c; Kliebard, 1986; Mayhew & Edwards, 1936; Wirth, 1966).

For Dewey (1904), good education happened when creative teaching stimulated the interests of involved students. He described that process also as a blend of art and science. No "teacher-scholar" could be successful using only "extemporized inspirations" (p. 8). There is a general method composed of psychological principles and behavioral strategies that has been proven effective by the past experiences of others in similar situations. However, Dewey (1916a) believed great teachers mastered the "classic methods" of instruction and then transformed them when confronting new conceptual problems. Good students also understood the basics of research method and could adapt them to the nuances of a particular investigation. He argued that students at all ability

levels needed chances to be creative. Schools that failed to provide such opportunity fostered mediocre performance.

How one person's abilities compare in quantity with those of another is none of the teacher's business. It is irrelevant to his work. What is required is that every individual shall have opportunities to employ his own powers in activities that have meaning. Mind, individual method, originality (these are convertible terms) signify the *quality* of purposive or directed action. (p. 172)

Dewey went on to elaborate "attitudes" that would enhance the reflective thinking method. He suggested that individuals should confront subject matter with "directness," not allowing any negative feelings of embarrassment or self-consciousness to deflect mental energy away from the task at hand. In Dewey's (1916a) words, "Diverted energy means loss of power and confusion of ideas" (p. 173). A student or a teacher must approach experience with "confidence;" Dewey called it "unconscious faith in the possibilities of the situation" (p. 174). He believed that the community of a school must create an environment where the investigations trigger intrinsic interest and motivate all community members to engage experience with focused attention, not with a "divided and complicated attitude" (p.174). Individuals must approach each new situation with "open-mindedness," that ability to entertain suggestions and relevant information from any source that may shed light on the problem under consideration. Teachers and students grow intellectually when they maintain a "childlike attitude" of exploration. Dewey (1916a) explained:

Intellectual growth means constant expansion of horizons and consequent formation of new purposes and new responses. These are impossible without an active disposition to welcome points of view hitherto alien; an active desire to entertain considerations which modify existing purposes. (p. 175)

Dewey (1916a) also advocated a "single-mindedness," what he described as "completeness of interest, unity of purpose" (p. 176). By collaboratively designing the

course of study, students and teachers build on student interest and community value to create an environment of urgency. The individuals can then immerse themselves in the work because of its worth, and they assume the "intellectual responsibility" of seeing the project through to completion and accepting the consequences of that action (pp. 175-179). Thus, the instructional style is an integral part of the situation being studied. It is both individual and social. The method works within the community environment to create an atmosphere of experimentation, efficacy, purpose, and responsibility and establishes conditions that stimulate intrinsic interest and encourages reflective thought.

Integration of humanities and science. Students at the Dewey school were always asked to make sense of their experiences and did so by acting out classic literature and creating stories, plays, and poetry. While Dewey looked to literature for classic social themes and conflicts to be genetically explored, he was constantly guarding against passive learning and had some concern that too great a focus on literature in isolation at the expense of scientific investigation would result in such passivity. In a critique of William Torrey Harris's *Psychologic Foundations of Education*, Dewey (1898a) put his concern in the form of two rhetorical questions:

Is it not somewhat artificial to make grammar and language study the chief repository of the structure of the intellect, to the neglect of that magnificent logical apparatus exhibited in modern modes of investigation and verification? Can the average child best lay hold of and realize the laws of reason through the study of a relatively dead product in language, or through their constant personal use in the discovery and statement of truth? (pp. 13-14)

He made the case that scientific and technical studies could be taught in such a way as to be as humanistic as literature. Dewey (1916a) advocated the complete act of reflective thinking aimed at unraveling the complexities of the natural and social world, an

approach that he believed resolved a false dichotomy between the humanities and the sciences.

To be aware of the medium in which social intercourse goes on, and of the means and obstacles to its progressive development is to be in command of a knowledge which is thoroughly humanistic in quality. One who is ignorant of the history of science is ignorant of the struggles by which mankind has passed from routine and caprice, from superstitious subjection to nature, from efforts to use it magically, to intellectual self-possession. (p. 228)

Dewey called for an approach to humanities that was less esoteric and more grounded in contemporary experience. He argued that scientific inquiry applied to all academic disciplines, liberated human intelligence, and elevated the human spirit, goals that were particularly meaningful in Chicago in the early 1900s. In Dewey's (1916a) words, "Any subject matter that accomplishes this result is humane, and any subject matter which does not accomplish it is not even educational" (p. 230).

Secondary School

Dewey certainly intended to expand his laboratory school to include a secondary program. Although his program would include only the high school years, Dewey (1897b) believed that "the secondary period really extends to the end of the present sophomore year of college" (p. 75). During this period, students would move from participating in more concrete experiences of the elementary school to considering more abstract general principles. Study would become more focused, and students would assimilate the content necessary to understand the central themes governing the intellectual disciplines. However, a student's success at this level depended on the quality of the elementary school:

If the elementary period has been adequately lived through, so that the child has secured positive experience in all these directions, has had an intellectual hunger kept alive and quickened, and has acquired working use of the main lines of

investigation, there is no doubt that a very large amount of technical generalization and of special detail, can easily be acquired in a comparatively short time. (p. 75)

Curriculum debate. Formulating a high school program was a challenge given the great social upheaval in Chicago and across the country at the opening of the 20th century. Dewey argued that industrialization and urbanization had fragmented society and called into question the tenets of the American high school. He acknowledged the power struggles between the classicists and the vocationalists and decried the quick embrace of the latest school reform. Dewey believed that educational change, while necessary, was being made in a mechanical, fragmented way. He suggested that the high school was the integration of two traditions, the elementary school focused on human development and the university committed to the creation of new knowledge (Wirth, 1966). As such, the high school was forced to balance the demand for more education and training as personal development with its commitment to the traditions of higher learning. Dewey framed the issue in terms of the curriculum. In a 1902 speech entitled "Current Problems in Secondary Education," Dewey raised the questions of which subjects should be taught at the secondary level and how much time should be given to each. He closed his remarks by suggesting that the future issue would be

less and less a question of piecing together certain studies in a more or less mechanical way . . . and more and more a question of grouping studies together according to their natural mutual affinities and reinforcements for the securing of certain well-marked ends. (p. 24, as cited in Wirth, 1966, p. 206)

The underlying issue was the definition of a democratic education in these new social conditions. Dewey (1913) saw the need to integrate the more technical studies into the high school program in a way that unified the school community. He saw great potential for "industrial education," if handled properly, to "do more to make public education truly democratic than any one other agency now under consideration" (p. 374).

At the same time, he feared that "wrong treatment will as surely accentuate all undemocratic tendencies in our present situation, by fostering and strengthening class divisions in school and out" (p. 374). Dewey saw the creation of a separate vocational school system as "wrong treatment" and supported a comprehensive high school (Kliebard, 1986, Lazerson & Grubb, 1974, Spring, 1990; Wirth, 1972) that made high quality progressive education available to every student. The question remained open as to what the substance of that education would be.

In 1931, at the Inglis Lecture on Secondary Education, Dewey revisited the question of curriculum that he had raised in 1902. In a paper titled "The Way Out of Educational Confusion," Dewey (1931b) looked at the proliferation of courses in both the technical and academic areas and saw chaos. He found no unifying theme and no visible relationship between the liberal and technical studies. As knowledge expanded, so did the course offerings without any consideration for their intrinsic worth. Along with specialized content, courses contained cross-references, interdependencies, and interconnections that Dewey believed could be utilized to extend knowledge and develop the fundamental guiding principles of any academic discipline. Dewey saw a natural world where the parts were becoming increasingly interdependent and an education system that was not acknowledging that new reality.

In a situation where the skills of arts and the subject matter of knowledge have become interwoven and interdependent, adherence to the policy forming the studies of secondary and college instruction on the basis of many isolated and independent subjects is bound to result in precisely the kind of confusion we have at present. (pp. 17-18)

Dewey recognized the tension between specialization with its "consequent isolation" with the need that exists in all institutions for social interaction. He argued that the real value in specializing, of becoming expert, was the more efficient interaction that

could then occur. Dewey feared that in the quest for technological mastery, educators and students alike had lost sight of the integrated nature of experience. In describing the technical course offerings, Dewey (1931b) pointed out that "in operation they are often immensely specialized in detail. But back of the operations there lies a concentration of knowledge derived from many sources, and integration of many processes which originated in separate arts" (p. 17). In both the classical and vocational curricula, students were being exposed to a static organization based on specialization and were kept from experiencing the processes of social interaction that marked the search for new knowledge.

Dewey was trying to heighten the awareness that all education had increased vocational utility as well as being a liberalizing experience. Applied science was becoming more pervasive, and all students needed a better grasp of its complexities and a clearer understanding of its potential. He was convinced that studying in one's chosen vocation could free the mind, blur the boundaries between academic disciplines, and unite the vocational and the cultural arenas. The sooner the high schools and colleges adjusted their curricula and administrative organization to reflect this new reality, the sooner they would become catalysts for social growth. Dewey (1931b) argued that when the schools do what they can do well, "they will become more genuinely practical as well as more liberal" (pp. 29-30).

Although Dewey opposed a narrow vocational education that focused on specific skill sets (Dewey, 1940; Kliebard, 1986; Lazerson & Grubb, 1974; Spring, 1990; Wirth, 1966, 1972), he recognized the intellectual substance contained in industrial occupations. At the same time, he saw the potential for workers to become mechanical extensions of

their machines and thus lose initiative, intelligence, inventiveness, and skill. If America was to become a true industrial democracy, there needed to be a new kind of general education based on the fundamental processes contained in industrial occupations. Overlaid on that foundation could be more specialized technical training for particular occupations. Liberal education, Dewey (1916c) suggested, must become "less nostalgic" (p. 412) if it was to be relevant to an industrial society.

Integration of curriculum and instruction. Traditional scholars must be willing to consider different organizational arrangements of knowledge and alternative instructional methods. Dewey (1931b) suggested that the "project" or "problem" method (p. 36), if not trivialized, could provide authentic ways to integrate concepts and create a desire for new knowledge. He placed great responsibility on the teacher to develop projects that were complex enough and long enough to be truly educative.

Educators should assume their educational responsibility. It is possible to find problems and projects that come within the scope and capabilities of the experience of the learner and which have sufficiently long span so that they raise new questions, introduce new and related undertakings, and create a demand for fresh knowledge. (p. 36)

Using problems as themes allowed students to draw material from any field necessary and restructure it for use, thus breaking down the barriers between liberal arts and technical science. Identifying the problem and then acting to complete the project allowed students to be intellectually and overtly active. In short, students were developing aims, engaging in complete acts of thought, and moving toward assimilating the abstract knowledge of an expert. Such activity was the way students learned outside the school, and Dewey (1938) was returning to his theme of developmental continuity, movement along the "experiential continuum" (p. 33), by connecting school life to that of the world at large (Dewey, 1931b, 1938).

As another way to combat the fragmentation of subject matter, Dewey (1931b) suggested that schools could maintain course titles while reorganizing the content to take advantage of natural connections and to emphasize meaning and application. Through such integration, "theoretical subjects will become more practical because [they will be] more related to the scope of life; practical subjects will become more charged with theory and intelligent insight. Both will be vitally and not just formally unified" (pp. 38-39).

Students could then leave school with a sustainable "abiding intellectual interest" and not look back at school as a meaningless interlude. "If a student does not take into subsequent life an enduring concern for some field of knowledge and art, lying outside his immediate profession preoccupations, schooling for him has been a failure, no matter how good a 'student' he was" (p. 38).

Semivocational education. Dewey's approach to a new educational paradigm was semivocational. He had no interest in schools graduating mere technicians. He believed that secondary school should encourage exploration and provide a wide range of vocational experiences. At the same time, students needed to be well grounded in the traditional academic disciplines as they adjusted intellectually to adulthood. According to Wirth (1966), Dewey's goal "was an education that would equip students to emerge from schools with a broad understanding of the nature of industry and technology, a respect for the dignity of work, and an awareness of the social implications of change" (p. 230). The curriculum would include work in economics and organizational management to produce a new breed of working man that could elevate his role and reduce the gap between the social classes. This new worker would have the intellectual strength to think critically, judge independently, and evaluate the quality of his experience with an eye toward social

progress. At the same time, he would be compassionate and understand the interconnectedness and interdependence of the modern industrial society. Dewey (1931a) proclaimed:

Education must cultivate the social spirit and the power to act socially even more assiduously than it cultivated individual ambition in the past. Competitive motives and methods must be abandoned for cooperative. Desire to work with others, for mutual advantage, must be made the controlling force in school administration and instruction. (p. 15)

To produce the new breed required a new education, described by Dewey (1932a) as "the laboratory education" (p. 60). The laboratory method emphasized focused mental activity and physical action, contact with real materials and technical equipment, and the development from concrete specific situations to the general abstract laws that constitute an academic discipline. Dewey believed that a laboratory experience, while particularly valuable in the biological and physical sciences, could be used productively across the curriculum to "[arouse] the curiosity of pupils and [to equip] them with the methods for finding out things" (p. 60). It put the responsibility for learning on the students themselves and then gave them the tools for discovery "through search, through inquiry, through testing, through observation and reflection" (p. 61). Dewey hoped that individuals trained as thinkers would then come together to solve the social problems of the day.

Society . . . will be able . . . to get the benefit of the vast resources of all its members. Public education will then also be public . . . in the sense that it really trains all individuals for some kind of social service. After all, it is through vocations of one sort or another that society is ultimately served. This new education will also give the promise and the potentiality of a new type of culture, one in which old barriers will be broken down, and in which learning and the pursuit of knowledge will be regarded as public trusts exercised for the benefit of society. (p. 62)

Dewey (1932b) recognized that American culture was changing rapidly and that the emerging industrial culture was "collective and corporate" (p. 500). He believed that education had a social duty, "not to perpetuate the existing social order" (p. 498) but to improve it. To do so would take courageous, energetic teachers who worked with students to develop an "honest critical intelligence" (p. 498) so that students could face the reality of a constantly shifting, unstable society with a positive, energetic spirit. Writing in 1932, Dewey expressed the danger that Americans were too stuck in the "intellectual cement" of collective thinking at a time when "collective thinking—the ideas that are organic to large numbers—was so stupid, so incredibly incompetent" (p. 500). Personal ambition and accumulation of wealth were not challenged in schools even as the American economy was collapsing. Teachers succumbed to pressure to stay politically silent. For education to serve its proper function, Dewey explained, teachers, particularly secondary teachers, had to deconstruct social reality with their students (pp. 495-497). Only through this socially meaningful collaboration could teachers help develop a new breed of worker prepared for the fast paced, rapidly evolving socio-technical experience of the future.

The Reflective Philosopher

Dewey left the University of Chicago in 1904 with the lab school still in its infancy. A secondary program had not been developed, and teachers were still developing and testing theories of curriculum and instructional practices. When Dewey assumed a new position in the Department of Philosophy at Columbia University, he turned his full attention to his philosophy of experience and did not again actively participate in primary or secondary school education. He did, however, continue to be a reflective thinker. He had departed from Chicago when his educational thinking was still in the data collection

and hypothesis testing phase. At Columbia, Dewey turned his attention to elaborating his notions of democratic education as a unique experience demanding a unique companion educational process.

Post Chicago Reflections

Dewey's focused action culminated in what Kliebard (1986) called Dewey's (1916a) "magnum opus in education," *Democracy and Education*. This work was a recapitulation and synthesis of the Chicago experience as well as a summary of the psychological and philosophical concepts described earlier in *The Child and the Curriculum* (1902/1990) and *How We Think* (1910/1933). Wirth (1966) has suggested that Dewey's conviction about the need for abstract thinking to interact with nature and human problems provides the key to understanding Dewey's focus on education. Unfortunately, that focus on the natural world when the philosophical interest was metaphysics caused other philosophers to dismiss Dewey's work without reading the one book that most clearly articulated his philosophy (Wirth, 1966). Dewey's 1938 publication of *Education and Experience* was also linked to Chicago as it reiterated and reinforced the reasons for his radical departure from the pervasive curriculum and pedagogical theories of that time. These four major works taken together consolidate and connect Dewey's views on the nature of education as directed experience, the role of the school as an element of such experience, and the nature of the teachers and students as reflective thinkers.

Special Role of School

Dewey understood the special responsibility of the school as a controlled environment that filtered human experience and clarified the aims of intellectual and social development. That responsibility involved the transmission and the transformation

of culture, defined by Dewey (1916a) as "the capacity for constantly expanding the range and accuracy of one's perception of meanings" (p. 123). To accomplish this end, wrote Dewey, the school must simplify the environment into the fundamental features that can be understood and generalized from by young people. The school can then purify the environment by focusing the community's attention on the positive elements of society, society's "best," that can serve as a foundation for a better future. Dewey (1916a) described this process as reinforcing "the power of this best" (p. 20). Finally, it was incumbent on the school to balance the different elements of the social environment so that no student would be limited by ethnicity or socioeconomic position and that each individual would have positive images of possibility and hopefulness. The role of the school environment was crucial to a young person's developmental process. In Dewey's (1916a) words, "The development within the young of the attitudes and dispositions necessary to the continuous and progressive life of a society cannot take place by direct conveyance of beliefs, emotions, and knowledge. It takes place through the intermediary of the environment" (p. 22).

School as Culture

The best of schools created a social community that engaged all members in the development of the community culture. For Dewey, this genuine experience allowed students to develop theories by connecting events and gauging their significance. It was the evaluation of cumulative events that produced meaning and fostered real learning. This process brought together teachers and students with common concerns about meaningful issues and engaged them in a research effort. Dewey (1916a) equated the reflective thinking process with research and suggested that no thinking activity should be discounted. He argued that "all research is native, original, with him who carries it on,

even if everybody else in the world already is sure of what he is still looking for" (p. 148). He understood that the communication among community members about both the research process and products created a large fund of social knowledge that moved the community forward. Thus, for Dewey, the school environment was the crucible within which social insight and interest were generated (Dewey, 1916a, 1938).

The school experience was for Dewey (1916a) a subset of education. He described education as "the process of forming fundamental dispositions, intellectual and emotional, toward nature and fellow men" and philosophy as "the general theory of education" (p. 328). As such, the educational process was one of "criticizing existing aims" (p. 329) and evaluating the worth of contemporary values using the scientific method of reflective thought. Dewey saw human experience as a series of social hypotheses that were constantly being tested and reconstructed through the educational process. "By the educative arts, philosophy may generate methods of utilizing the energies of human beings in accord with serious and thoughtful conceptions of life. Education is the laboratory in which philosophic distinctions become concrete and are tested" (p. 329).

One conception was democracy as a new model of social interaction. In Dewey's (1916a) words, "A democracy is more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience" (p. 87). Dewey believed that democratic living required schooling that educated people to a new social reality. Not only was society industrial, it was interconnected and interdependent. Citizens needed to recognize that there were more social contacts, more clashes among groups with mutual interests. At the same time, people needed to recognize broad mutual interests as a way to

establish positive cultural norms. Greater social interaction also meant more frequent change in social values, and individuals needed the ability to observe, reflect, and adjust. Dewey's "education through occupations" (p. 309, 310) with the attending method of reflective thought seemed to be an appropriate educational process.

Education as Continuity

Dewey (1916a) was continually trying to resolve the dualisms in American education, and the notion of theory and practice was one. He saw education as a continuous process of creating, evaluating, and reconstructing experience on the way to developing laws of living. For him, process, the education of knowing, led to products, education as knowledge, that were always open to question. Thus, education was not linear and finite but recursive and continuous. It was the active participation in this process that created "reasonable" individuals.

'Reason' is just the ability to bring the subject matter of prior experience to bear to perceive the significance of the subject matter of a new experience. A person is reasonable in the degree in which he is habitually open to seeing an event which immediately strikes his senses not as an isolated thing but in its connection with the common experience of mankind. (p. 343)

Education needed to be broad and focused on meaning making. It must not be overly specialized and mechanical. Consequently, Dewey could not endorse the trade training approach of traditional vocational education nor a dual trade school system. Dewey thought of vocation as a calling that matched personal aptitude with meaningful activity. He considered any purposeful human activity done for a meaningful length of time an occupation and understood it as an "organizing principle for information and ideas" (p. 309). Dewey's notion of education as growth demanded that a school community expand a student's perspective and provide multiple exploratory opportunities. Schools were not places to engage in occupationally specific technical

training. According to Dewey, "The dominant vocation of all human beings at all times is living—intellectual and moral growth" (p. 310). Such growth can best happen in an environment that encourages students to set aims, where teachers and students are involved in continuous growth by participating in research and problem solving across a broad array of topics, and where the resulting knowledge leads to better quality social interaction (Dewey, 1916a, 1938).

Conclusion

John Dewey's life covered the better part of two centuries, and from the age of 20 until his death, he read and wrote philosophy. Dewey experienced social efficiency schooling as a student in Burlington schools and as a teacher in Oil City. He was born at the dawn of American industrialism and participated in the rural-to-urban migration that the industrial economy required. In his formative years, he watched old certainties dissolve under the weight of war, industrial growth, materialism, and Darwinian theory. In the intellectual company of William James, Oliver Wendell Holmes, and Charles Pierce, Dewey struggled to build a philosophy that accepted uncertainty as the only certainty. As he moved into the university community, Dewey began to equate all warranted experience (and education as a special kind of experience) with human development. For Dewey, education organized and directed experience toward clear and important ends, individual and social growth. At Chicago, Dewey built a laboratory school for that study and staffed it with teacher-scholars committed to their disciplines and to the science of psychological development.

Dewey believed that an efficient society was one that fostered independent thinking, community activists. For Dewey, no child was too young to participate fully in a microcosm of community life, and he used the fundamental occupations of the home

and contiguous community to give the school community its form and substance. He encouraged teachers to build on students' readiness for abstraction, to use the project method to investigate these occupations and translate them from concrete activities to meaningful generalizations. Through this pedagogical process, students and teachers would confront meaningful community problems together, socially construct new meanings, and act on their understanding to solve community problems. This level of student participation in setting community goals, the expanded value of occupations as curriculum, and the student-centered pedagogy set Dewey's progressive reform agenda apart from that of Snedden and Prosser.

Dewey's thinking about education challenged other progressive educational leaders during the first half of the 20th century. His notion of social efficiency and his method of social control contrasted sharply with the Snedden and Prosser model. Dewey championed a democratic education that was inclusive and thoughtful at a time when the country was in the mood for education that was specialized and mechanical. Dewey lobbied for a semivocational approach, believing all students needed to develop industrial intelligence in order to participate fully and freely in a fluid industrial democracy. However, it was not until the country faced an economic crisis of productivity and product quality that business leaders, politicians, and educational leaders began to consider Dewey's educational framework as a viable alternative. Believing there was a relationship between educational attainment and economic productivity and hoping to improve the quality of education for all students, reformers looked for ways to increase the rigor and relevance of both the general education and vocational education programs. "Thinking for a living" (Marshall & Tucker, 1992) became an educational and business

slogan, and educational leaders looked at Dewey's educational theory as a way to promote better quality thinking throughout the schools.

The thinking of researchers at the NCRVE in the early 1990s resonated with Dewey's philosophy of experience and his notion of education as a continuous process of human development. Some of these scholars believed that certain vocational programs had begun to incorporate a Deweyan approach as early as the 1960s. So, they set out to see what those programs looked like and to develop a framework for changing vocational education nationwide. Benson's (1997) "new vocationalism" (p. 201) was inspired and guided by Dewey's curricula and pedagogical ideas. By taking the stance of change agent, the NCRVE had adopted Dewey's notion of thoughtful action, and Center personnel began to agitate for a vocational education that was more inclusive, more intellectually rigorous, and more flexible. Had Center scholars continued to explore Dewey's thinking, they would have developed a more specific theory of vocational education based on Dewey's work.

Although Dewey debated the vocational education issue with David Snedden and publicly repudiated the German apprenticeship system as wrong for American public education, he did not develop a full theory of vocational education. Dewey did, however, use vocational education to illustrate larger economic or political topics. By searching the full breadth of Dewey's work and pulling together his several references to vocational education, I have found a skeletal philosophy of vocational education. I have not only tried to assemble the bones of that skeleton, I have tried to add muscle by applying Dewey's philosophy of general education to his less complete thoughts on vocational education. In the next chapter, I present my product, a pragmatic theory of vocational

education. It provides new vocationalists what they have so long lacked, a philosophical grounding for their work. In later chapters, I will measure the new vocationalism against this pragmatic theory.

CHAPTER 3 DEWEY'S PROGRESSIVE THEORY OF VOCATIONAL EDUCATION

Introduction

Architects of the new vocationalism working for NCRVE in the 1990s have been inspired by the thinking of John Dewey (1916a), referring most often to his discussion of vocational education in *Democracy and Education*. That statement of Dewey's general education theory is firmly rooted in his philosophy of experience, and, although it is not immediately obvious, his practical theory of vocational education is a logical subset of that general theory. A complete discussion of Dewey's conception of experience is beyond the scope of this dissertation; however a brief description of relevant components of that conception will lay the foundation for Dewey's theory of vocational education.

Power of Language

As a philosopher, Dewey paid special attention to language. Opting not to develop new vocabulary to discuss his philosophy, Dewey chose, instead, to give common language expanded meaning. Wirth (1972) has suggested that Dewey's "accordion usage" (p. 190) of such terms as "vocation" and "occupations" has led to some misunderstanding of his views on vocational education. That is, sometimes this New England philosopher narrowly used "vocation" and "occupation" to refer to the types of work available in an industrial society. At other times, and without due notice, he expanded their meaning to describe any continuous and purposeful human activity. Throughout my discussion of Dewey's theory, I have tried to signal the specific and expanded meanings of key terms in Dewey's philosophical vocabulary.

Dewey (1916a) suggested that humans are blessed with many vocations or "callings" (pp. 306-310) and that an occupation was any meaningful activity occupying an individual's life, providing continuity, and fostering development. NCRVE scholars have seized on Dewey's understanding of education as a series of interdependent relationships. Bragg et al. (1994) pointed to Dewey's desire to create an educational system "that could establish connections between curriculum areas within schools, and between schools and their communities" (p. 21). Viewing individuals as complex thinkers and social beings, both Bragg et al. (1994) and Grubb (1995) focused on Dewey's (1916a) broad notion of an occupation as "a continuous activity having a purpose. Education through occupations consequently combines within itself more of the factors conducive to learning than any other method" (p. 309). These scholars have embraced the notion that all students possess many talents to be nurtured and have been inspired by Dewey's (1915) language to develop a vocational education that provides multiple avenues for development.

The world in which most of us live is a world in which everyone has a calling and occupation, something to do. Some are managers and others are subordinates. But the great thing for one as for the other is that each shall have had the education which enables him to see within his daily work all there is in it of large and human significance. (as cited in Bragg, Layton et al., 1994, p. 21)

After considering different visions of a preferred vocational reform and consulting the thinking of prominent philosophers (Bragg, Layton et al., 1994), the new vocationalists at NCRVE turned to the work of John Dewey as their guide for reconceptualizing education. "Still relevant today," wrote Bragg, Layton et al., (1994) "are these words spoken by Dewey in 1916":

This educational reorganization cannot be accomplished by merely trying to give a technical preparation for industries and professions as they now operate, much less by merely reproducing existing industrial conditions in schools. The problem is not

that of making the schools an adjunct to manufacture and commerce, but of utilizing the factors of industry to make school life more active, more full of immediate meaning, more connected with out-of-school experience. (as cited in Bragg, Layton et al., 1994, p. 23)

Foundation of Experience

Coming out of the Hegelian tradition, Dewey spent his academic career working to resolve the false dualisms that divided "evident and intrinsic facts of existence" (Geiger, 1958, p. 9). Dewey (1916b) argued that there was nothing intrinsic about the mind-body, individual-social, ends-means, and concrete-abstract schisms accepted by the philosophy and psychology of his day. He replaced such dialectic conceptions of experience with one that was continuous and holistic. Writing in *Experience and Nature*, Dewey proposed using the term *experience* as "a cautionary and directive word" (as cited in Ratner, 1928, p. 15) to guard against the discontinuity that grows out of selective empiricism that arbitrarily values some aspects of experience while devaluing others. Dewey's notion of experience included a complicated "transaction" between humans and their environment, an existence that emphasized connection instead of separation.

Dewey (1934/1986) understood that while all experience is created equal, some portions of experience are bland or cut short. Other portions run their "course to fulfillment" (p. 35) and can be bounded. At that point, general experience has been organized into "an experience," one that can be segregated for analysis and evaluation while maintaining an organic connection to the whole. Such an evaluation would determine whether or not an experience was "educative:"

The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative. Experience and education cannot be directly equated to each other. For some experiences are mis-educative. Any experience is mis-educative that has the effect of arresting or distorting the growth of future experience. (Dewey, 1938, p. 25)

An experience can be deemed educative, Dewey (1938) explained, to the degree it expands one's possibility for having richer, more meaningful experience in the future (pp. 25-26).

An educative experience is an active process of positive individual and social growth, each experience tied to ones before and ones yet to come. Dewey (1938) understood this process to be both individual through attitude and habit formation and social through environmental and cultural transformation:

In a word, we live from birth to death in a world of persons and things that in large measure is what it is because of what has been done and transmitted through previous human activities. When this fact is ignored, experience is treated as if it were something that goes on entirely inside an individual's body and mind. It ought not to be necessary to say that experience does not happen in a vacuum. There are sources outside an individual which give rise to experience. It is constantly fed from these springs. (p. 40)

Dewey assumed that the growth experience was "full and balanced" and that the "chief moral end-in-view" (Geiger, 1958, pp. 52-54) was more growth, or in Dewey's (1902) words, "the continuous reconstruction of experience" (p. 184). Dewey's general theory of education was the prescription for guiding individuals in that process. Accepting Dewey's (1940) assertion that "popular education has always been largely vocational" (p. 126), in the following sections I have identified elements of Dewey's general theory that, when taken together, constitute a practical theory of vocational education.

Beginning with the End in Mind

For Dewey, the ultimate goal of educational experience is the continuation of that process to expand one's personal and cultural understanding in ways that invite and enrich still further and fuller experience. Such a process is multifaceted, allowing individuals to develop as many of their callings as a lifetime would allow. A person's type of employment could be one of those callings if it was educative, meaningful, and

non-exploitative. Schooling that focuses exclusively on training for employment to the exclusion of other callings and to the constriction of work to routinized habit would, in Dewey's view, be narrow, restrictive, and mis-educative. Dewey acknowledged that the 20th century was becoming increasingly technological and materialistic. He worried that American industrialism was creating a feudal society marked by "fossilized" economic classes. Individuals in such a society, Dewey (1916c) lamented, had few "common interests and experiences" that might unify them into a common community (pp. 409-410).

In Dewey's (1916c) mind, "social democracy" was in danger, and he called on American schools to "plant and nurture . . . opportunity, free exchange of ideas and experience, and [the] realization of the purposes which hold men together" (pp. 410-411). He argued that individuals must be guided to see the commonalities of experience that bind them in and to a democratic society. In Dewey's words, "In a complex society, ability to understand and sympathize with the operations and lot of others is a condition of common purpose which only education can procure" (p. 411). He feared that practical and technical "training" for robotic work devalued human initiative and social responsibility and put democracy at risk.

Dewey (1916/1985c) envisioned a democratic society of reflective thinkers, "habituated to think in terms of problems and of the struggle to remedy them" (p. 194). Such citizens would develop a social vision and an action plan. Reflective thinkers change their environment and their destiny by giving actions meaning and by creating an image of possibility out of present conditions. "A thinking being will perceive that certain given facts are probable signs of a future rain and will take steps in the light of this

anticipated future" (p. 18). Dewey knew that individuals learned through doing and that the aim of industrial education should be to involve students in civic and economic communities. The goal of vocational education was not mere training for work but rather, more ambitiously, to develop students' "industrial intelligence" and, in time, to transform the industrial order. For Dewey (1940), industrial intelligence included

a knowledge of the conditions and processes of present manufacturing, transportation and commerce--so that the individual may be able to make his own choices and his own adjustments, and be master, so far as in him lies, of his own economic fate. (p. 131)

Writing in *Democracy in Education*, Dewey (1916a) argued that social and civic efficiency are legitimate aims of education. Doing productive work and earning a living, he argued, would be a meaningful, educative experience if individuals could develop "industrial competency" (p. 119), a collection of knowledge and skills that promoted flexibility and career choice. That same education would also help students make intelligent choices, encourage them to participate in the political process, work to solve social problems, and gradually transform the industrial system. In a democracy, Dewey suggested, the term *social efficiency* had special significance. "Social efficiency as an educational purpose should mean cultivation of power to join freely and fully in shared or common activities" (p. 123). Under those circumstances, Dewey believed social efficiency and cultural development became synonymous.

Along with his more general statement of aims, Dewey also suggested some more specific goals for industrial education. In a 1918 speech to the Vocational Education Association of the Middle West, Dewey (1918/1988) suggested that a reorganization of education must focus on developing a system "pervaded by a democratic spirit" (p. 61) and aimed at universal social service. He argued that such a focus would enhance

technical expertise. Dewey warned against adopting European standards, particularly repudiating the German system that emphasized "methods of discipline and of teaching which . . . produce docility" (p. 61). He advocated, instead, an educational approach that would not only increase "industrial efficiency [and] industrial resourcefulness," but also "the adaptability of social cooperation" (p. 61). Dewey's proposal comprised four basic elements: "physique, economic efficiency, social competency, and a trained capacity for the consumption and employment of labor" (p. 62).

Dewey (1918/1988) first made the connection between a healthy, fit citizenry and the economic productivity of a community. He argued that individuals needed to understand such related issues as personal hygiene, public sanitation, and physical fitness. Communities with an aware populace would, in Dewey's view, waste less money and energy battling individual and social ills. Next, Dewey offered a program of "economic efficiency" (p. 63). Such a program would develop individuals' natural aptitudes for the "fundamental processes of industry" (p. 63) while encouraging individual initiative and providing a variety of experiences. The emphasis would be on efficiently organized skill training that replaced the deadening influence of mechanical, rote work with the self-respect that came with knowing that one was doing work of "actual practical use" and meeting "actual social needs" (p. 64). Dewey suggested instruction in "agriculture, various kinds of farming, various kinds of productive industry, manufacturing distribution, and household management of different forms" (p. 63).

For Dewey (1918/1988), education was fundamentally social and democratic, and he proposed developing a socially competent citizenry ready for "civic efficiency" and imbued with a "cooperative spirit." He advocated running industries "as much as possible

on a democratic basis," training individuals "in and for groups" and establishing norms of sharing and responsibility at all levels of the industrial process:

This means of course putting individuals in positions of responsibility as rapidly as they are prepared to take it, to give them the experience of directing, of leading as well as being led, so as to initiate the individuals into . . . the mysterious secrets of trade management and of the marketing of goods; taking men out of the haphazard industrial education that individuals now get, whether in school or in labor itself.
(p. 64)

Dewey argued that by creating a new class of industrial citizen trained to work cooperatively, society could successfully socialize industry to work more for social responsibility and less for private profit.

Dewey's (1940) final aim was for improved detection and development of individual tastes, capacity, and ability for the benefit of self and usefulness to others. Believing that the accepted use of standardized tests to sort and sift individuals "into definite classes" promulgated mediocrity (p. 164), Dewey proposed immersing individuals in rich and varied educational experiences. Guided by teachers capable of identifying individual needs, capacities, and powers and developing habits of reflective thought, students would learn the skills and values of community building. Then, and only then, should society "concentrate our specialized resources upon a full training of these selected capacities" (Dewey, 1918/1988, p. 8). In this way, Dewey explained, individuals will make more efficient use of educational experience to blend personal happiness and social usefulness into the development of a vital social democracy.

In sum, Dewey's (1902) aim for industrial education was logically consistent with his general aim of "continuous reconstruction of experience" (p. 184). He acknowledged the pervasive influence of developing technology on individuals and communities, embraced it, and argued that the educational process needed to incorporate technological

understanding into all aspects of the educational experience. At the same time, he wanted the transaction between individuals and the emerging technocracy to be rich and complex, one that would develop individual and collective talents by spreading new knowledge to all members of society and would transform the industrial order to strengthen America's social democracy. In Dewey's (1929) words,

The sum total of these changes . . . would create an industrial order in which the present exaggeration of profit and gain would be enormously reduced. We should have business whose consequence was service. But the motive would not be so much service as established, customary opportunities for a freer, fuller and richer life. . . . Agitation for more humane and reasonable motives in conduct of business has its place, but that place it seems to me is part of a wider process of education that will modify attention to the opportunities of the social situation. (p. 744)

Playful Problem-Solvers

The belief that individuals entered the world with unique capacities and powers for transaction with the environment was a fundamental principle of Dewey's educational theory. Dewey (1916a) conceived of human intellect as one's "ability to develop" (p. 42) through interaction with nature and with social groups. Intellect grows out of experience, described by Dewey as the interactive process of behavior. From this point of view, Dewey (1950) said,

experience becomes an affair primarily of doing. The organism does not stand about, Micawber-like, waiting for something to turn up. . . . The living creature undergoes, suffers, the consequences of his own behavior. This close connection between doing and suffering or undergoing forms what we call experience. (pp. 82-83)

Dewey understood that human beings had the capacity to adapt to and change their environment. He saw in children an innate gift for social intercourse that allowed them to make sense of their surroundings even before the power of language allowed clarification, detail, and nuance. He saw also a natural adaptability as children learned from an experience and used that new knowledge to cope with the difficulties of a new

situation. Such interdependence and plasticity enabled individuals to absorb their culture, reflect on the quality and results of their transactions, and modify their thinking and behavior. Dewey (1916a) described this metacognitive process as developing "a habit of learning" (p. 45).

For Dewey, learning was a natural habit of mind that needed only to be nurtured and reinforced. He saw children as innately curious, driven by an intrinsic interest in the nature of the world around them. Writing in *The School and Society*, Dewey (1900/1990) identified five categories of impulses that made up the educational resources of a child. First was the social impulse, the desire of a child to be in close proximity to other people and to understand self in the context of others. This understanding became heightened, according to Dewey, as the language impulse developed into complex social expression and expanded meaning making. The constructive impulse allowed children to use play and concrete model building to investigate new ideas and social conceptions, and Dewey suggested that this investigative impulse would naturally evolve into an appreciation for experimental science. Finally, Dewey identified an expressive impulse, "the art instinct" (p. 44) as a desire to communicate the fullness of an idea through imagery instead of language (1900/1990, pp. 43-47).

Dewey believed these impulses could coalesce through reflective thinking and develop into the scientific method. Dewey (1910/1933) saw problem solving as the catalyst for thinking, and he observed children acting as immature investigators of natural phenomena and social issues. Children often used the trial and error methods of scientists and acted on trial and error results. He believed that children needed to be guided in their use of this innate power of learning, engaging the world playfully at first, and then

moving to a more disciplined, but still creative and engaging, forms of inquiry and problem solving. Through this process, Dewey (1950) suggested, individuals gained internal control, enhanced their ability to participate more fully in the educational process, and gained new meanings about themselves, their community, and the world.

"The chief business of life at every point is to make living contribute to an enrichment of its own perceptible meaning" (pp. 145-147). Dewey looked to the school community to provide the necessary direction for the educational business of life.

Embryonic Community Life

In an ideal world, Dewey explained, education would flow naturally from the home and community and be directed by parents as reflective thinkers. Each home would have a laboratory, and students would investigate physical and social processes in the context of a supportive and nurturing family. Barring that ideal, the school was the next best institution to guide children's development. Dewey understood that American culture was continually evolving and that it was impossible to predict its future. He defined the school as a "form of community life" that provided multiple opportunities for full student participation. "Education . . ." Dewey (1897a) said, "is a process of [purposeful] living and not a preparation for future [life]" (p. 87).

At the same time, Dewey understood the term "readiness." He believed that students would progress naturally along a developmental continuum if schools simplified social life to the students' level of understanding. Student learning depended on linking the new school experiences with home experience. Such linking, he said, was the "only way of securing continuity in the child's growth." Dewey thought that the school must simplify the environment into the fundamental features that children could understand, first in their particulars and later as a sense of generalities. The school would purify the

environment by focusing the community's attention on society's most positive elements to engender social and moral growth. Dewey (1916a) described the value of attending to these fundamental "goods": By selecting the best for its exclusive use, [the school] strives to reinforce the power of this best" (p. 20). Finally, schools must balance elements of the social environment so that narrowly defined ethnicities or socioeconomic classes would not limit students' life chances. In this balanced environment, Dewey believed, individuals would be motivated by possibility and hope. To the degree the school was intimately connected to home and community, the school environment would enhance and direct a young person's development. Dewey (1915) described a "true school" as

a place where the children of the neighborhood shall become healthy, happy, and competent both economically and socially, and where the connection of instruction with the life of the community shall be directly recognized both by children and parents. (p. 207)

That connection became clear through the school's curriculum and instruction organized around the fundamental occupations of the community.

Occupations as Curriculum and Method

The social aspects of learning and culture building were always at the forefront of Dewey's thinking. He described students as social individuals, the school as a social institution, and society as "an organic union of individuals" (1897a, p. 77). Dewey believed that the activities of the school should flow naturally from those of the home and connect to the more complex socioeconomic arrangements of society. By organizing the school program around the fundamental "occupations" of any social organization, Dewey (1900/1990, 1916a, 1938) believed the school could appeal to the intrinsic interests of students and explore the essential physical and social processes of community life. Here Dewey (1916a) was using an expanded notion of occupation to include any purposeful

activity that occupies an individual's time and space in the continuous process of experience.

Occupation is a concrete term for continuity. It includes the development of artistic capacity of any kind, of special scientific ability, of effective citizenship, as well as professional and business occupations, to say nothing of mechanical labor or engagement in gainful pursuits. (p. 307)

Within this expanded understanding, Dewey sometimes used the terms *vocation* and *occupation* interchangeably to refer to an individual's *special calling* through which one could achieve happiness. "An occupation is the only thing which balances the distinctive capacity of an individual with his social service. To find out what one is fitted to do and to secure the opportunity to do it is the key to happiness" (p. 308).

Dewey envisioned this exploration to begin in the elementary school with students playfully exploring the essential occupations of running a home (gardening, cooking, weaving, sewing, elementary construction, etc.). Students would then use a more sophisticated scientific method in the middle and secondary grades, and include the development of expertise in the scholarly and technical disciplines at the university level. Dewey (1916a) emphasized that his aim was the liberalizing effect of "education through occupations" rather than trade training.

Education through occupations consequently combines within itself more of the factors conducive to learning than any other method. It calls the instincts and habits into play; it is a foe of passive receptivity. It has an end in view; results are to be accomplished. Hence it appeals to thought; it demands that an idea be steadily maintained, so that activity cannot be either routine or capricious. (p. 309)

He argued that there was "no succession of studies in the ideal school curriculum" (1897a, p. 79) so occupations were an effective mechanism for organizing facts, exploring the evolutionary process, and giving intellectual and social meaning to key ideas.

Dewey (1900/1990, 1916/1985b) agreed that many of the fundamental ideas of the 20th century were scientific and economic and that it was incumbent on the school to reveal the scientific content, the economic import, and the social value of the occupations being studied. He suggested that school communities should search for the "factors of scientific and social importance in present day industry and in a common democratic life" and then build an educational system based on those principles.

The first thing which has to be done by a system of industrial education in an industrial democracy is to study the most important processes of today in farming, manufacturing, and transportation to find out what are the fundamental and general elements which compose them, and thereby develop a new kind of general education on top of which the more special and technical training for distinctive vocations may be undertaken. (Dewey, 1916/1985b, p. 141)

This approach was far more valuable in the long term than focusing on the immediate "bread and butter" value of a particular occupational skill set.

Occupations in the school shall not be mere practical devices or modes of routine employment, the gaining of better technical skill . . . , but active centers of scientific insight into natural materials and processes, points of departure whence children shall be led out into a realization of the historic development of man. (1900/1990, p. 19)

Dewey argued that all the primary academic subjects could be connected to the study of occupations, and students would learn the facts and skills necessary for social intercourse and problem solving at their appropriate level of readiness. Geography and history situated the occupation in space and time, philosophy provided the method of reflective thought, the physical and biological sciences grew naturally out of the social occupations, and literature and the arts evolved as expressions of the range of human experience. For Dewey (1916a), the history of man was "recapitulated" through the fundamental societal occupations, the study of which should be integrated and thematic. Armed with the full intellectual and social meaning of a vocation, individuals could then

expand their competence beyond technical efficiency to social insight, becoming "in touch with the problems of the day and the various methods proposed for its improvement" (p. 318).

The occupations also provided a natural method of investigation. Dewey noted that labor had "intellectual value" and described the "project" or "laboratory" method as a way to get students actively engaged in the pursuit of knowledge. After reviewing data from his daughter Evelyn's school visits, he cited the work of Henry Wirt in Gary, Indiana as one exemplary model of industrial education that was truly educative. In Gary, Wirt created school laboratories for carpentry, metal work, printing, forging, and home economics, and students worked with master craftsmen to repair and construct school equipment and facilities. The school's power plant became a physics lab where students learned the principles of heat and light while working to keep the school community warm and well lit. Dewey was particularly impressed with the multiage grouping of students and the emphasis on showing students "how the work of the world is done." He understood that learning the process of the work was the educative experience and that it "ceases to be educative the moment it becomes thoroughly familiar and automatic (Dewey & Dewey, 1915, pp. 256-257).

Dewey and Dewey (1915) also highlighted a cooperative plan in Cincinnati, Ohio as one that merged school and community experiences. Two groups of students alternated: one was in school for a week while the other worked in the community's factories and other places of business. At the end of the week, the groups exchanged places. In this school, the community was the laboratory where students developed their understanding of both technical and social processes. Again, Dewey emphasized that

while students emerged from the program as skilled workers, the school's goal was more expansive. "The aim is to give the pupil some knowledge of the actual conditions in trade and industry so that he will have standards from which to make a final intelligent choice" (Dewey & Dewey, 1915, p. 284).

Dewey (1902/1990, 1916ac, 1910/1933, 1938) argued that industrial education was educative to the degree it attended to the whole person. He understood that by grappling with physical and intellectual problems students developed socially and intellectually. He equated reflective thinking with the scientific method and advocated social action as the final step in the thinking process. His method was cooperative and constructivist, and he encouraged students to review data together, to develop hypotheses, challenge ideas, and test possible solutions. Dewey (1900/1990) described a process of recitation as

pre-eminently a social meeting place; it is to the school what the spontaneous conversation is at home, excepting that it is more organized, following definite lines. The recitation becomes the social clearing house, where experiences and ideas are exchanged and subjected to criticism, where misconceptions are corrected, and new lines of thought and inquiry are set up. (p. 55)

Dewey (1916a) wanted students to produce mental models, evaluate them in terms of their social value, and then to implement the one that improved the quality of community life. Through actively participating in occupational activity, students would routinely adapt to changing conditions and be able to use the power of science and sociology "to develop a courageous intelligence, and to make intelligence practical and executive" (p. 319).

Teacher-Scholar

Guiding students toward that courageous intelligence was the work of the teacher-scholar. Wirth (1972) has suggested that the ease with which the term teacher-scholar is used belies the complexity of the role. Dewey understood teaching to be a blend of art

and science. Good teachers, he believed, had been involved in high levels of scholarship and were constantly developing new insights into their subject and into the science of education. Dewey (1904) expected teachers to know their subject and their students so well that they could attend to students' "inner play of thoughts, images, and emotions [as they respond] to the subject matter."

To be able to keep track of this mental play, to recognize the signs of its presence or absence, to know how it is initiated and maintained, how to test it by results attained, and to test apparent [emphasis in the original] results by it, is the supreme mark and criterion of a teacher. (p. 3)

Dewey envisioned highly educated and enthusiastic teachers leading students into guided inquiry of complex industrial and social problems. Such teachers would be skilled as curriculum developers, researchers, and class facilitators. They would also be, at least by the effect of their work, courageous social activists. Such teachers would be responsible for "the formation of the proper social life" and the "securing of the right social growth" for students (Dewey, 1897a, p. 80). Teacher-led investigations of real and simulated industrial and social problems enhanced students' reflective thinking skills. Dewey (1916/1985b) suggested some much needed, yet politically sensitive, areas of study:

An effective study of child labor, of the sanitary conditions under which multitudes of men and women now labor, of the methods employed in a struggle for economic supremacy, of the connections between industrial and political control, etc., and of the methods of education by which such evils may best be remedied, is a need of any education which is to be a factor in bringing industrial democracy out of industrial feudalism. But to propose this is to invite the attack of those who most profit by the perpetuation of existing conditions. (p. 142)

Along with being courageous, Dewey (1904) explained, good teachers were also inspirational:

They are themselves so full of the spirit of inquiry, so sensitive to every sign of its presence or absence, that no matter what they do, nor how they do it, they succeed

in awakening and inspiring like alert and mental activity in those with whom they come in contact. (p. 17)

One aspect of that spirit was vocational guidance, an effort by the school community, particularly the teachers, to help students match their aptitudes with the appropriate calling. However, Dewey was opposed to any guidance program that slotted students into occupations based solely on the needs of the local job market. He wanted always to provide students with options, to give them the chance to adjust their aims and change direction as they identified and organized their "central concerns." Again, Dewey (1916a) invoked his expanded notion of vocation to look beyond the direct connection to a person's employment, suggesting that all citizens had a myriad of "important callings."

Thinking about "vocations" in this way expanded one's possibility for continued growth:

A calling is also of necessity an organizing principle for information and ideas; for knowledge and intellectual growth. It provides an axis which runs through an immense diversity of detail, it causes different experiences, facts, items of information to fall into order with one another. . . . The citizen interested in his own locality, has a constant working stimulus to note and relate whatever has to do with his concern. He unconsciously from the motivation of his occupation, reaches out for all relevant information, and holds to it. The vocation acts as both the magnet to attract and the glue to hold. (pp. 309-310)

Dewey believed that the role of the teacher included the responsibility for identifying students' capacities, developing them through the challenge of scientific investigation, and then guiding students to vocations that imbued those capacities with intellectual and social meaning. It was through the understanding and acceptance of this complex role along with the creative use of one's own talents of scholarship that teachers found their calling as true artists. At the end of *My Pedagogic Creed*, Dewey (1897/1972) stated,

I believe that the art of thus giving shape to human powers and adapting them to social service, is the supreme art; one calling into its service the best of artists; that no insight, sympathy, tact, executive power is too great for such service. (p. 94)

Conclusion

Dewey's theory of vocational education is a natural extension of his understanding of education as "continuous reconstruction of experience" (1902, p. 184). While Dewey accepted employment as one of many bounded experiences, he was unwilling to advocate a school program that focuses narrowly on preparation for employment. His aim was the transformation of that experience through reflective thought and social action. Dewey's vision was for a population of habitual reflective thinkers committed to the improvement of social welfare through active participation in a socioindustrial democracy. Schools were to be microcosms of such a democracy, places where students, developed their skills and talents, explored their many vocations, and participated fully in all aspects of community life. Under the watchful eye and guiding hand of teacher-scholars, students would analyze the inner workings of business and commerce to better understand the intricacies of industrial society and to identify underlying social problems. By using occupations as organizers of curriculum content and stimuli for problem solving, students would use their "education through occupations" to develop technical and social skills along with a sense of civic responsibility.

Clearly, they will have to cultivate the habit of suspended judgement, of skepticism, of desire for evidence, of appeal to observation rather than sentiment, discussion rather than bias, inquiry rather than conventional idealizing. When this happens schools will be the dangerous outposts of a humane civilization. But they will also begin to be supremely interesting places. For it will then have come about that education and politics are one and the same thing because politics will have to be in fact what it now pretends to be, the intelligent management of social affairs. (Dewey, 1922/1985d, p. 334)

Under these conditions, schools would become challenging, exciting, democratic institutions.

Yet, these conditions did not exist in most American high schools for the first six decades of the 20th century. The social efficiency advocates taught specific skills to future machinists, steam fitters, assembly line workers, farmers, and homemakers. Vocational students learned the skill objectives and the behavioral expectations of the industrial line workers while the college preparatory program emphasized the academic content and thinking skills required for business management. Dewey's concept of "education through occupations" was overshadowed by business leaders' calls for skilled, willing, and disciplined labor. Programs that trained students for specialized jobs triumphed over programs that educated all students for full participation in democratic life.

However, as the post-war economy began to flounder and people began to feel alienated from their work, education and business leaders called for reform. Education, America's cure for every ill, could, reformers promised, revitalize the economy and societal morale. Policy makers began to revisit Dewey's work as high schools began to consider comprehensive reform models, and vocational programs began to evolve toward his vision. By adopting Dewey's (1916a) notion of "education through occupations" (pp. 309, 310) to guide vocational education reform in the late 1980s, NCRVE researchers (e. g., Bragg, Kirby et al., 1994; Bragg, Layton et al., 1994; Bragg et al., 1997; Grubb, 1995, 1996) implicitly accepted his theory of vocational education. In the next chapter, I consider the fundamental elements of the new vocationalism as a framework for educational reform and prepare to test that framework against Dewey's theory of vocational education.

CHAPTER 4
THE NEW VOCATIONALISM: A FRAMEWORK FOR CONTEMPORARY
VOCATIONAL REFORM

Introduction

For much of the 20th century, some influential educational theorists rejected the curriculum and pedagogical concepts of John Dewey in favor of a more practical, social control approach to schooling. Vocational education was guided by the essentialist philosophy of David Snedden and Charles Prosser, men who believed that American youth needed a practical education leading to a trade or vocation. As Prosser and Quigley (1949) explained, "On the whole, organized vocational training is an efficiency device . . . [that] can more efficiently secure social wealth" (p. 12).

During the last quarter of the 20th century, however, Americans' thinking about vocational education changed profoundly. Critics in the 1970s argued that the vocational education curriculum no longer contained relevant content and skills and teachers were out of touch with the labor markets. Marxist scholars (Berg, 1970; Bowles & Gintis, 1976; Lazerson & Grubb, 1974) suggested that vocational education was simply a capitalist mechanism for social reproduction and labor supply regulation. Other critics claimed that vocational education had always been a default curriculum. As such, they argued, it served only students deemed unfit for college, and the program was overly populated with young women, racial minorities, and students from lower socioeconomic classes (Little & Threat, 1994; Lynch, 1997; National Assessment of Vocational Education Advisory Panel, 1994; Oakes, 1985). By the 1980s, the notion of job specific

vocationalism had become outdated; yet, the link between academic achievement and national economic productivity as detailed in a series of national reports was now an accepted tenet of American life.

The Unfinished Agenda

Partly in response to criticisms outlined in the 1983 National Commission on Excellence in Education report, *A Nation at Risk*, the U. S. Office of Adult and Vocational Education (OAVE) convened a National Commission on Secondary Vocational Education (NCSVE). OAVE charged the commission to study the role of secondary vocational education in the context of societal change and the national call for education reform. The commission's final report, *The Unfinished Agenda* (National Commission on Secondary Vocational Education, 1984) argued that the view of vocational education as a vehicle for occupational training had to be expanded to include enrichment of a student's entire educational experience.

Vocational education should be concerned with the development of the individual in five areas: 1) personal skills and attitudes; 2) communication and computational skills and technological literacy; 3) employability skills; 4) broad and specific occupational skills and knowledge; and 5) foundation for career planning and lifelong learning. (p. 3)

The commission called for a collaboration between vocational and general education that would enhance the educational value of all aspects of the school curriculum, making the case that in a balanced, integrated secondary curriculum, all students needed " a mix of both academic and vocational courses" (p. 4). The commission report recommended that educators add more practical, work relevant applications to academic courses and more theory and academic content to vocational courses (NCSVE, 1984). Scholars also supported the move away from entry-level skill development toward exploring life roles,

learning to work in teams, divergent thinking, and problem solving (Copa et al., 1985; Pratzner, 1985).

A New Vocationalism

This push to reinvent vocational education in the 1980s was the first statement of a new vocationalism in the United States (Grubb, 1996; Lynch, 1997). This new vocationalism predicated on integration of academic and vocational skills and knowledge now had to respond to prior school failures and changing demands of the workplace. According to Lynch (1997), the American Society for Training and Development and the William T. Grant Foundation proclaimed that as many as 75% of the current workforce and 50% of the 16- to 24-year-old students still in school were in need of retraining or reeducation (p. 14). Two government reports, *Workplace Basics: The Essential Skills Employers Want* (Carnevale, Gainer, & Meltzer, 1990) and *What Work Requires of Schools* (SCANS, 1991) described new skill groupings and new workplace configurations that demanded "intelligence and ingenuity" (as cited in Lynch, 1997, p. 15) from employees. These and other related education reports emphasized "flexibility, responsibility, self-management, and teamwork among workers and lifelong learning or continuous training to enhance workers' improvement and productivity" (Lynch, 1997, p. 15).

The federal government embraced this new spirit of integration in the 1990 Amendments to the Carl D. Perkins Vocational Education Act of 1984. Section 235 of the amendments mandated that "funds made available shall be used to provide vocational education in programs that integrate academic and vocational education in such programs through coherent sequences of courses so that students achieve both academic and

occupational competencies" (Grubb, 1995, p. 1). Section 240 demanded that state plans detail how such integrated programs would be provided.

Beyond the phrase "coherent sequence of courses," the Perkins Amendments do not define integration, and each reform group defines aspects of integration in terms of its potential to solve specific problems of significance. For some, integration is a means to enhance generic workplace skills (Bailey, 1991; Resnick, 1987; Stasz & Grubb, 1991). Others see it as a way to situate learning in settings that emphasize application (Benson, 1991; Berryman, 1991; Raizen, 1989) and help students see the connection between schooling and real life as an effort at dropout prevention (Collins, Brown, & Newman, 1989; Scribner & Martin, 1991). Some groups are concerned about students' transition from high school to higher education or the world of work (William T. Grant Foundation, 1988, 1992; National Center on Education and the Economy, 1990). These groups view integration as a way to increase the rigor of all academic programs so that no "tracks" deny students the benefits of a good education (Beck, 1990, 1991; Benson, 1991; Oakes, Ormseth, Bell, & Camp, 1990; Oakes, Selvin, Karoly, & Guiton, 1992). Most vocational education advocates accept integration as "organizing the best curricular and pedagogical practices into a single, 'integrated,' high school experience" (Grubb, 1995, p. 9).

The New Vocationalism: A Framework for Reform

NCRVE Director Charles Benson analyzed earlier vocational reform efforts, and in 1992, he crafted an expanded vision of a "new vocationalism" that unified curriculum integration, authentic instruction, and program articulation. Benson (1997) envisioned a vocational education built on three interrelated forms of integration: (a) integration of academic and vocational studies through "career magnet schools" and "career academies" (p. 206); (b) integration of secondary and postsecondary education through "Tech-Prep"

(p. 204); and (c) integration of education and work through "youth apprenticeship" and "all aspects of the industry (AAI)" (pp. 205-206). The broad objectives of this alternative educational approach were first to help more students attain a significantly higher standard of academic proficiency, particularly in the areas of mathematics, science, and languages. Second, the new vocationalism would help more students achieve a level of "occupational proficiency" (p. 201) leading quickly and easily to rewarding and interesting careers. The third and most visionary objective was to empower students to transform the workplace into a "safe harbor"(p. 201) for work as a lifelong learning experience. Benson contrasted work with labor, the former offering both intrinsic and extrinsic rewards during a personal developmental process whereas the latter was simply a survival activity, often lonely and devoid of challenge. He hoped more students would aim for "work worth doing" and think of their work as "a vocation in the spiritual sense" (p. 202).

Congress embraced Benson's holistic conceptual framework in The School-to-Work Opportunities Act of 1994 (STWOA). This bill provided funding for work-related educational programs that embodied five crucial elements:

1. School-based learning, including both occupational and academic instruction
2. Work-based learning coordinated with classroom-based instruction
3. The connection of every high school program to the next postsecondary program in a hierarchy of education and training opportunities, clarifying that these are not just programs for the non-college bound
4. The use of applied teaching methods and team teaching strategies
5. Program performance measures must include student experience in and understanding of all aspects of the industry. (Andrew, 1996a; Grubb, 1995)

In the sections to follow, I have deconstructed Benson's holistic conception and detailed its three fundamental mechanisms for integration: career academies, Tech Prep, and AAI.

Career Academies

Benson (1997) discussed both career magnet schools and career academies in his 1992 paper, and the NCRVE has researched both school organizations (Copa & Pease, 1992; Crain, Heebner, & Si, 1992; Grubb et al., 1991; Heebner, Kiefer, Si, & Crain, 1992; Katz, Jackson, Reeves, & Benson, 1995; Raby, 1995; Stern, Raby, & Dayton, 1992). Grubb et al. (1991) reported that "based on our telephone interviews and observations so far, magnet schools do not appear particularly conducive to integration" (p. 51). Katz et al. (1995) reported that although "career magnets offer the perfect setting in which the integration of academic and vocational education can occur, . . . integrated courses are the exception and not the rule" (p. 127). NCRVE researchers (Grubb et al., 1991) reported that some magnet schools have academies operating within them (p. 45n), and they generally agree that career academies have several advantages over the magnet schools. In addition to optimum size, high levels of commitment by teachers and students, and the connection with private business,

the basic academy structure provides substantial opportunity for both horizontal alignment, as teachers coordinate the topics they teach, and vertical alignment, since teachers stay with a group of students for two or three years and can adjust the sequence of topics over time. In our observations, the faculty in some academies spend a great deal of time together both developing curricula and coordinating their individual courses, and discussing the progress of individual students. The structure of the academies, thereby, facilitates collective responsibility for student achievement, something which is usually missing in the high school. (p. 47)

Successful magnet schools are those where the "academy" is schoolwide" (p. 49).

Grubb et al. (1991) stated the importance of focusing on the academy as a place to integrate vocational and academic education: "We have few real doubts that academies--

if implemented as designed--are more effective than the high schools in which they are located; they have so many important elements that it would be surprising if they were not so" (p. 47n). Therefore, I have focused on the academy model because NCRVE researchers pointed to academies as places where integrated programs are well established.

Academy Movement

The academy movement has a long history. TheodoreSizer (1964) has argued that the dominant form of secondary education in the 19th century was the academy with a focus on the practical arts. NCRVE researchers (Stern et al., 1992) define academies as "schools-within-schools" (p. xii) that feature "close-knit learning community," "a set of partnerships" with the business community, and "integration" of curriculum and instruction (pp. xii-xiii). There are approximately 1,500 career academies operating across the United States (Kerka, 2000). Of the major career academy programs operating in the 21st century, the Philadelphia Academies, the California Partnership Academies, and the National Academy Foundation network are the best known and most studied.

Philadelphia Academies

The career academy movement can be traced to the opening of the Philadelphia Academy in 1969. Initiated by the Philadelphia Urban Coalition, the electrical academy at Thomas Edison High School enrolled 30 students and set out to keep students in school and prepare them for employment (Neubauer, 1986; Snyder & McMullan, 1987; Stern et al., 1992). The success of the program stimulated replication across the city, and the Philadelphia High School Academy Association (PHSAA) was created to support the effort. By June 1991, the Philadelphia Academies enrolled over 2,000 students and the September 1991 enrollment was projected to be 2,700. The goal of 5,000 students by

1996 was met and surpassed, and today the academies serve approximately 7,000 students in 17 high school academies (Philadelphia Academies Incorporated, 2001).

California Peninsula Academies

From the Philadelphia Academies' continued success came national recognition and replication. In 1981 the Philadelphia model was transplanted to the Sequoia Union High School District located just north of Silicon Valley, south of San Francisco, California. The superintendent created two "Peninsula Academies," the computer academy and the electronics academy, in two of the four comprehensive high schools in the district. A 3-year evaluation showed favorable results, particularly in dropout prevention, and a bill to replicate the academy model passed the California state legislature and became law on September 29, 1984. The cornerstones of the academy replication bill were \$25,000 planning grants offered on a grant competition basis to 10 school districts followed by yearly \$50,000 implementation grants to be matched with "direct and in-kind support" from the district and business partners (Stern et al., 1992, p. 42). Over the next several years, the Peninsula Academies won several awards. In 1985, the National Academy of Vocational Education named them an exemplary program. The National Alliance of Business presented them with the Distinguished Performance Award in 1987, and the U.S. Department of Education funded business technology academies in the other two Sequoia district high schools as national demonstration sites in 1989.

However, the results of the 10 replications were mixed. The schools that closely followed the academy model succeeded, but several schools that had not carried out the design dropped the program within the first 3 years (Stern et al., 1992). By 1995-96, there were 42 academies enrolling 5,153 students, and currently California has 287 funded

academy programs serving 18,188 students across the state. Initially, the Partnership Academy legislation called for two-thirds of the academy students to meet "at-risk criteria." The law has since been amended, and, as of January 1, 2002, that percentage was reduced to one-half (K. Shores, personal communication, December 26, 2001).

New York Academies

Concurrently, yet independently, a network of academies was emerging in New York City. Frustrated by the lack of qualified high school graduates to fill the growing number of entry level positions in the financial services sector, the American Express Company and Shearson Lehman Brothers partnered with the New York City public schools to create the first academy of finance in 1982. John Dewey High School in Brooklyn was the site for 35 students to begin the academy experience in February, 1983, and by the following fall, the program had expanded to 200 students in five New York City schools. In September 1985, finance academies opened in Broward County, Florida, Minneapolis and Phoenix, and by 1991, the program had spread to 50 public high schools in 22 cities across the country (Stern et al., 1992, pp. 46-48).

National Academy Foundation

Buoyed by its success with the academy of finance, American Express began a new academy of travel and tourism in New York City and Miami in 1986. This rapid growth led the organizers to propose the creation of a national office to coordinate and oversee the quality of the academy programs, and in 1989, American Express and others formed the National Academy Foundation (NAF) (Schmidt, 1989). The U.S. Department of Education's National Diffusion Network had validated the program making NAF eligible for federal funds for expansion. By 1991, 19 academies were operating in 14 cities. In September 2000, the NAF added the academy of information technology. Currently, the

NAF is the largest network of academies encompassing 480 academies (255 academies of finance, 148 academies of travel and tourism, 57 academies of information technology) in 181 school systems (41 of the 50 largest school systems) in 39 states and the District of Columbia (The National Academy Foundation, 2001; Raby, 1995; Stern et al., 1992).

Academy Model: Common Elements

Schools within schools. Although there is variation within and across the academy networks, successful academies have usually remained close to the original Philadelphia model and tend to share a set of defining characteristics (Raby, 1995; Stern et al., 1992). First, academies are generally schools-within-schools for grades 11-12, 10-12, or 9-12, run by an interdisciplinary teaching team that develops the curriculum and controls the schedule. Academy themes represent careers in which demand is growing and where good jobs exist in the local labor market. A typical academy schedule might include three core subjects of math, English, science or social studies, and a technical class based on the academy theme. The courses integrate academic and technical content and emphasize the relationship between academics and the world of work (Andrew & Grubb, 1992). Teachers can flex the schedule according to the needs of the program and have common planning time for curriculum development and instructional strategy sessions when students are in their regular electives.

Business partners. Business partners from the academy career field help plan and guide the program. The list of corporate partners is diverse and substantial, including CIGNA Foundation, First Union National Bank, IBM, Price Waterhouse, and United Airlines to name a small sample of the Philadelphia Academy partners. Along with providing guest speakers, field trip sites, mentors for individual students, supervisors for senior projects, and opportunities for paid, full-time, summer employment and paid part-

time jobs during the school year, these partners support student participation in diverse academic competitions, including public speaking, environmental technology, robotics, neuroscience, and horticulture to name just a few (Philadelphia Academies Incorporated, 2001). As students move through the program, their goal in the technical class is mastery of the skills and knowledge that will lead to a successful transition, either to a job in the academy field or to higher education in that field or a related one (Grubb, 1995; Hamilton, 1986; Hamilton & Hamilton, 1994; Raby, 1995; Riley & Reich, 1996; Stern et al., 1992).

Target population. Career academies often have a particular target population. Although the foci of many early academy initiatives were dropout prevention and at-risk students as identified by irregular attendance, low grades, too few credits or economic disadvantage, most academies now market themselves to a broad cross section of the student population. Still, academy leaders are working to build a learning community (Andrew, 1996a; Andrew & Grubb, 1992; Grubb et al., 1991; Raby, 1995; Stern et al., 1992) of small classes in which caring teachers build intrinsic motivation, regularly reward effort and developing proficiency, and encourage a high level of parent involvement in all aspects of the program. Academies recruit students and teachers who voluntarily apply to the program, and most try to achieve a gender and ethnic mix that reflects the student population of the academy's sponsoring high school. Most teachers report that the work is harder but more satisfying because of the increased involvement and sense of program ownership and closer student relationships that may last several years (Grubb et al., 1991; Raby, 1995; Stern et al., 1992).

Academy Curriculum

Integration. The organizational theme of a given academy dictates the content knowledge of the curriculum. However, the goal of integrating more subject area knowledge in the core subjects of English, mathematics, science, and social studies with practical knowledge and vocational skills drives program development. The new vocationalism assumes that 21st century work will require a broader understanding of academics throughout the workforce as more businesses become high-performance workplaces (Bailey, 1991, 1992, 1995; Ray & Mickelson, 1993; SCANS, 1992a; Zuboff, 1988). Academies have focused on developing curricula that incorporate "advanced generic skills" (Raby, 1995; SCANS, 1991, p. xviii; Stasz, McArthur, Lewis, & Ramsey, 1990; Stasz, Ramsey, & Eden, 1995). SCANS (1991, 1992b, 1993) reports described a three-part foundation that many academies have adopted: basic skills, thinking skills, and personal qualities (1991, p. xviii).

The basic skills not only include reading, writing, and arithmetic, but also computer technology and communication (Hull, 1991; SCANS, 1991, 1992a, 1993). The curriculum adds technical manuals, graphs and statistics, and production schedules to the required reading list and requires students to use computers to produce business memos, production reports, flow charts, spread sheets, and letters along with essays and term papers. Mathematics courses emphasize application and often integrate algebra, geometry and trigonometry to solve problems related to the academy theme. Students are also required to develop active listening skills and to communicate orally in small groups and before larger assemblies (Andrew, 1996a; Bragg et al., 1997; Olson, 1997; Steinberg, 1998).

Higher order thinking. Twenty-first century workers need to operate more independently in a less bounded environment. They must have a broad understanding of the systems in which they operate and a more abstract understanding of their work (Bailey, 1995; Packer & Pines, 1996; Senge, 1990; Zuboff 1988). Such independence demands greater facility for creative thinking, reasoning, decision making, and problem solving. These thinking skills include recognizing problems, generating new alternative ideas, devising and implementing an action plan, analyzing and reflecting on the data, and making the necessary adjustments. These workers must learn how they learn and then develop efficient learning techniques to acquire and apply new information and skills. The overall emphasis is problem analysis and solution. Raby (1995) described a business academy program that had students "solving everyday business problems by pricing merchandise, maintaining inventories, using reports and business letters, figuring and reporting taxes, interpreting simulated situations, dealing with the government, and participating in both simulated and real job-seeking activities" (p. 87).

Many academy programs make extensive use of computer technology to expand the classroom and work with simulated environments. Computer access to on-line services and libraries help students refine their inquiry skills and give them a sense of control over their own learning. Internet access has expanded the resources available to teachers for curriculum development. In Raby's (1995) words, "Constant use is made of the computer as a teaching and learning tool in all subject areas" (p. 88). Typical computer skills include word processing, keyboarding, constructing databases and spreadsheets, deploying Internet research tools, and using multimedia and email (Andrew, 1996a; Raby, 1995).

Along with fundamental knowledge and skills, academy curricula incorporate the development of personal qualities that enhance personal and community productivity. Many academy teachers encourage students to assume personal responsibility for their success and failure, learn how to set short and long term goals, and develop other motivational attributes necessary for success. The curriculum provides opportunity for students to experience self-management, develop a strong sense of self-esteem, function effectively in collaborative groups, and choose ethical courses of action in authentic contexts (Andrew, 1996a; Raby, 1995; Stern et al., 1992).

Project method. Many academy teachers observed by NCRVE researchers often use authentic projects to integrate knowledge and skills (Raby, 1995; Stern, Finkelstein, Stone, Latting, & Dornsife, 1995). One health academy faced the loss of the school nurse because of district budget cuts. Students formed a Wellness Task Force, surveyed the community about pressing health issues, and enlisted their hospital partners in forming a school health clinic. They then found volunteers to staff the clinic, formed a Health Affairs Committee, and published a regular newsletter on health issues. According to Raby (1995),

This project involved: survey techniques, studies of epidemiology, substance abuse, and teenage pregnancy; persuasive writing; developing a historical perspective on the needs of the community; and determining social responsibility. For each action, the students planned the work, set schedules, selected needed research, shared information, and acted on their conclusions. (p. 91)

Such action-based projects allow students to link academic curricular knowledge with authentic problems in their career fields. In this context, students can acquire and refine the skills used in high performance workplaces (Raby, 1995; Stasz et al., 1995; Stern et al., 1995; Stern et al., 1992).

Pedagogy. In stark contrast to the transmissive pedagogy of the old social efficiency paradigm (Gregson, 1991, 1995), many career academy teachers in the NCRVE sample integrate a constructivist pedagogy (Andrew, 1996a; Andrew & Grubb, 1992; Lynch, 1997; Raby, 1995; Stasz et al., 1995) with the problem oriented curriculum that more closely models the environment and reality of a high performance, innovative workplace. In these academies, the role of the teacher more closely resembles facilitator and coach rather than sole transmitter of knowledge. The traditional disciplinary boundaries are blurred, and teachers adjust the organization of the school day as the needs of the program warrant. Students are active learners, making meaning out of real experiences in an authentic learning environment. In most academies visited by NCRVE researchers, learning is hands-on and interactive, multiple and equally valid perspectives are considered, and acceptable knowledge emerges from face-to-face, social interaction (Andrew & Grubb, 1992; Bailey, 1995; Bragg et al., 1997; Stern et al., 1995).

Cooperative learning is common as students collaborate on projects and design action plans for attacking a recognized problem. There is an emphasis on the learning process, not just the right answer, and teachers point out the presence of ambiguity as a normal condition of the problem solving process. NCRVE observers described academy classrooms as energetic, rigorous, and collegial. Steffe and Gale (1995) summarized such a classroom experience, wherever it occurs, as a community of practice where students and teachers each bring unique background experience to the problem, work together to build on that experience, and make connections that lead to reconstructing collective understanding.

These teachers learn from their business partners what knowledge and skills are needed on the job and then collaboratively develop appropriate experiences for their students (Raby, 1995; Schmidt, Finch, & Faulkner, 1995). Some academy teachers use an integrated senior project or a professional portfolio that allows students to demonstrate mastery (Tsuzuki, 1995). These teachers are moving away from prepackaged curricula to a more integrated, authentic experiential approach. They recognize that "humans' intellectual growth and development are formed through interactions with others as well as by their own individual processes" (Lynch, 1997, p. 25). It is this intellectual development that makes teaching in an academy challenging and satisfying.

Summary of the Academy Movement

In sum, the career academy is the first element of the new vocationalism. The goal is the integration of academic and vocational knowledge and skills to form a rigorous school experience that is directly transferable to the world of work. The hope is that such an experience will produce students who are flexible, adapt easily to new situations and think with a global perspective. While the early academies focused on the at risk student population, that emphasis is waning as educators see the benefits of an academy experience for all students. The strongest academies have business partnerships that provide authentic learning environments for teachers and students, provide mentors for students, and offer real work experiences part time during the school year and full time in the summer. The curriculum is outcome based and uses authentic work problems and situations to organize the knowledge and skills necessary for success in the careers related to the academy theme. Teachers embrace a social constructivist pedagogy that allows students to build on prior experiences and reconstruct meaning through social interaction. In this context, the academy model incorporates the technology found in the

related career fields to prepare students for its widespread use. In the next section, I present Tech Prep as a model of vertical integration leading to a certificate of mastery for a particular technical skill or a college degree.

Tech Prep

Integration of secondary and postsecondary education through Tech Prep is the second component of the NCRVE new vocationalism. Tech Prep is a mechanism for linking secondary vocational education, specifically technical training, to higher education, most often community college. Seen as a revolutionary way to reform secondary school in the late 1980s and specifically funded through the Tech Prep Education Act in 1991, Tech Prep programs spread quickly across the country. Today many of those programs have evolved into career clusters, pathways, academies, and magnet programs (Bragg, 1997; Bragg et al., 1997; Layton & Bragg, 1992).

Origins of Tech Prep. The origins of Tech Prep can be found in recommendations made in 1968 by an Oregon task force charged with improving vocational education in the state. Representatives from the State Department of Employment and the State Board of Education recommended that "occupational education" include the following components:

- Articulation between high schools and community colleges
- A "cluster approach" to occupational program planning
- Exploration of occupations in grades 7 through 10 and the implementation of occupational programs in grades 11 and 12
- Guidance and counseling services throughout all grades (Bragg, Kirby et al., 1994, p. 4)

These recommended elements were reinforced by federal education amendments in the 1970s with particular emphasis on strengthening secondary and postsecondary

articulation (Dornsife, 1992; Kern & Kern, 1993; Kintzer, 1976). By the mid 1980s, the idea of "secondary to 2-year postsecondary articulation" became accepted as "good practice" and the other elements began to coalesce into a technical preparation initiative. In 1984, The *Unfinished Agenda* (NCSVE, 1984) publicly endorsed the "Tech Prep curriculum" (p. 18) as a model for vertical articulation, learning through applied academics and technical studies, and smooth student transition to postsecondary education (Bragg, Kirby et al., 1994, p. 5).

Father of Tech Prep. Scholars have credited Dale Parnell (1985, 1991) with articulating a conceptual framework for a "Tech Prep Model" (Bragg, 1992; Bragg, Kirby et al., 1994; Bragg, Layton et al., 1994; Hoerner, Clowes, Lachowicz, Wehrley, & Hammons, 1992; Law, 1994). In his book, *The Neglected Majority*, Parnell (1985) outlined the 2+2 Tech Prep Associate Degree (TPAD) model that focused on reorganizing the secondary school experience to better meet the needs of students "who would never obtain a baccalaureate degree" (as cited in Bragg, Kirby et al., 1994, p. 5). Instead of getting lost in the comprehensive high schools' general education track, this "neglected majority" would receive a common core of "math, science, communications, and technology—all in an applied setting" (Parnell, 1985, p. 144) in grades 11 and 12. The students would develop a technical specialization during two years of higher education, culminating with a two-year associate degree that, according to Parnell (1985), was "the preferred degree for employers seeking to fill a broad range of mid-level occupations" (p. 145). Parnell later collaborated with Dan Hull (Hull & Parnell, 1991), now nationally recognized as the leader of the TPAD model (Bragg, Kirby et al., 1994, p. 15). Together, they agitated more strongly for TPAD as "the third leg of the

educational stool" (Parnell, 1991, p. 25) along with college prep and pure vocational education. Hull and Parnell (1991) argued that Tech Prep should be rigorous and stress "the five Cs: (1) continuity in learning, (2) context-based learning (applied academics), (3) competency- based teaching, (4) communication between learning institutions (especially high schools and postsecondary institutions), and (5) completion with an associate degree" (p. 26).

Tech Prep as policy. The work of Hull and Parnell had a direct influence on the federal Tech Prep policy of the 1990s. As part of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990, the Tech Prep Education Act [Public Law 101-392, Title III-E] took effect in July, 1991. The law effectively defined what a Tech Prep education program must include to be federally funded. By law, the program must be a combined secondary and postsecondary education program, one which

1. leads to an associate degree or 2-year certificate;
2. provides technical preparation in at least one field of engineering technology, applied science, mechanical, industrial, or practical art or trade, or agriculture, health, or business;
3. builds student competence in mathematics, science, and communication (including applied academics) through a sequential course of study; and
4. leads to placement in employment. (U. S. Congress, 1990)

The law also mandates that systemic change be institutionalized through articulation agreements within local consortia that "formalize strong and comprehensive linkages" (Bragg, Kirby, et al., 1994, p. 8) between secondary and postsecondary agencies. Local consortia funded under the Tech Prep Education Act will then develop and implement a 3-year plan with special attention to providing effective job placement or transfer to 4-year-degree programs, consulting business, industry, and labor unions,

and addressing dropout prevention and the needs of special populations (U. S. Congress, 1990).

Like Parnell and Hull before him, Benson (1993) argued that this legislation and the School-to-Work Opportunities Act of 1994 focused on improving the quality of education for the high school and 2-year college graduates who are preparing for the "middle-skilled jobs" (p. 4). In Benson's mind, successful completion of a Tech Prep program would lead to a high school diploma, then a certificate or degree from a postsecondary institution (most often a community college) and/or a portable occupational skill certificate (Bragg, Kirby et al., 1994, p. 11; U. S. Departments of Education and Labor, 1993, p. 2).

Diffusion of the model. Funding for Tech Prep through PL 101-392, Title III E, stimulated the rapid diffusion of the model across the country. NCRVE researchers reported that the number of programs grew from approximately 150 before the law was passed to 855 documented programs in all 50 states in 1995 (Bragg, Kirby et al., 1994; Bragg et al., 1997). In FY 93, grants totaling \$90 million were distributed to local consortia; each consortium included on average 14 high schools, 2 postsecondary institutions, usually community colleges, and 27 private sector firms. Each combination of planning and implementation grants covered initial start up, staff development, marketing, and curriculum development especially at the secondary school level (Bragg, Layton et al., 1994, pp.6-8).

By 1995, NCRVE researchers estimated that about 63% of the nation's secondary schools and over 75% of two-year institutions in the country had some level of involvement, not necessarily active participation, in a Tech Prep consortium (Bragg et al.,

1997, p. 18). Reporting for the Mathematica Policy Research, Inc., Silverberg (1996) observed, "All Tech-Prep member districts--and their schools--do not participate in Tech-Prep to the same degree. . . . 'Membership' in a consortium reflects varying approaches to and levels of involvement in Tech-Prep implementation as well as different stages of development" (p. 13).

Essential elements of Tech Prep

Articulation agreements. Nevertheless, all consortia funded by the Tech Prep Education Act are required to address "the seven essential elements of Tech Prep" (Bragg, Kirby et al., 1994, p. 9). First, the consortia must have "formal, signed articulation agreements" between the members. These agreements allow students to move easily from the upper level courses at the secondary level to the professional level training at a postsecondary institution and on to job training in the private sector. Although most of the agreements are with community colleges, some consortia have agreements that allow applied courses to meet college admission requirements, and a few have Tech Prep courses that are Advance Placement certified and carry college credit.

Trudy Anderson, the Tech Prep coordinator in Idaho described such agreements:

All of our four-year higher education institutions have now created applied baccalaureate degrees. We have an agreement that any associate of applied science will articulate on face value to any of these baccalaureate programs. Students in our high school program . . . will probably carry with them somewhere between six and twelve college credits once they enter the higher education institution. (as cited in Bragg, Kirby et al., 1994, p. 52)

Core of required courses. Second, consortia provide "a core of required courses" in mathematics, science, communication (including applied academics), and technologies in grades 11 and 12 followed by 2 years of higher education or a 2-year apprenticeship in the private sector. The law does not mandate a particular curriculum, only that it be a

"sequential course of study" (U. S. Congress, 1990). The five most common curricula have been Business/Office, Industrial Tech Education, Trade/Industrial, Health Occupations, and Agriculture.

Curriculum development. The third essential element involves "Tech Prep curriculum development" that meets the needs of the consortium members. Hoerner et al. (1992) discovered that many local practitioners were using "off-the-shelf," applied academics courses, often from the Center for Occupational Research and Development (CORD). More recently, "hands-on learning," and a "project-based," interdisciplinary curriculum using cooperative learning groups have begun to replace pre-packaged materials (Bragg, Kirby et al., 1994; Bragg, Layton et al., 1994; Bragg et al., 1997). In consortia that made curriculum development a focus, faculty members seen as most creative and most effective as instructors became the primary developers of applied courses. Some of those individuals came from the vocational/technical faculty; however, most were academic teachers (Hoerner et al., 1992; Little & Threat, 1992). Researchers speculated that the need for strong mathematics, science, and technical skills along with "the higher status of academic teachers compared to vocational or technical teachers" dictated the distribution (Hoerner et al., 1992, p. 41).

Staff development. Fourth, consortia must provide "in-service training for teachers" as well as joint training for all consortium members that emphasizes curricula implementation. Over and above the obvious need for knowledge and skill training in particular academic and career fields, leadership training may be the most important ingredient in a successful Tech Prep initiative. Most Tech Prep consortia have paid coordinators who assume leadership responsibility; nevertheless, all teachers need to

learn how to act as change agents as they build community and lead students through the nuances of an applied program. Gisela Harkin of the Department of Education described such a person: "A Tech Prep leader is someone who is a change agent, someone who is proactive, creative, flexible, and open to new ideas" (as cited in Bragg, Kirby et al., 1994, p. 41). To develop such people, training in communication, facilitative leadership, and team building have become part of a consortium's staff development effort (Bragg, 1997; Bragg, Kirby et al., 1994).

Counselor training. The fifth element involves "training for counselors" that emphasizes student recruitment, program completion, and job placement. Researchers described a counseling role that included developing student individualized career/educational plans, mentoring programs, and career exploration activities (McCharen, 1995). Guidance counselors have also used learning style and personality inventories to help students develop metacognitive awareness and career interests. They support teachers by communicating course requirements to students and providing career information (Bragg, Kirby et al., 1994, pp. 48-49; Bragg, Layton et al., 1994, pp. 16-17). Chew (1993) described counselors as "change agents, mediators between vocational and academic faculty, business and industry interns, human resource developers, and participants in staff development" (p. 32). Counselors often take a lead in marketing Tech Prep programs and may need extra training in developing multi-media presentations and promotional events for students and parents. Ramer (1991) reported that communications to students and parents was a difficult process, the failure of which could sabotage a potentially successful program.

Equity and access. Elements six and seven address the issues of equity and access. Consortia must provide "equal access for special populations" to all the possible programs as well as provide "preparatory services" to help all populations enroll in Tech Prep (Bragg, Kirby et al., 1994, p. 9). In the early years of the Tech Prep programs, consortia seemed to be following Parnell's (1985, 1991) and Benson's (1993) call to educate the neglected majority. However, in 1992, Hoerner et al. wrote, "Tech Prep, as currently practiced, does not address the needs of the at-risk student well. There are more expressions of interest in developing programs for the at-risk than there is evidence of actual programs in existence" (p. 57). Later, a longitudinal survey study by Bragg et al. (1997) reported that 73% of responding consortia in 1993 were targeting students in the 25th-75th percentile, falling to 59% in 1995, indicating a decreasing commitment to Parnell's original vision. More survey respondents expressed the view that Tech Prep was "for all students," 11% in 1993, rising to 16% in 1995 (Bragg et al., 1997, pp. 39-40). In most consortia, the school faculty markets Tech Prep programs to the entire student population, but only a few consortia commit to providing the support necessary for less able students or students with disabilities to succeed in those programs. Bragg et al. (1997) suggested that "saying [Tech Prep] is for all appeals to our egalitarian values, but adopting that appealing rhetoric does not necessarily translate into action. To accomplish [Tech Prep] for all requires enormous change, far beyond our present circumstances" (p. 42).

Summary of Tech Prep

The 1994 School-to-Work Opportunity Act prompted some Tech Prep consortia to broaden their perspective. Some consortia have moved programs into the 9th and 10th grades to create a 4+2 and/or upward to the final 2 years of a baccalaureate program to

make either a 2+2+2 or a 4+2+2 curriculum model. Bragg et al. (1997) suggested that "alternative models of academic and vocational integration, either in addition to or instead of applied academics, . . . has become synonymous with Tech Prep" (p. 80). Interdisciplinary courses including more advanced academics in all disciplines, alternative schedules with longer instructional blocks, facilitative instructional strategies, authentic assessments, career planning, and learning communities associated with career academies and youth apprenticeships seem more likely to be associated with Tech Prep now than in the past. In the next section, we look at All Aspects of the Industry (AAI) as a way to fully integrate academic and vocational experience.

Origins of All Aspects of the Industry

In 1983 at the Center for Law and Education, Paul Wechstein clearly articulated the goal of "providing students with the strong experience in and understanding of all aspects of the industry they are preparing to enter" (as cited in Andrew, 1996a, p. 6). Senator Edward Kennedy, speaking on the Senate floor a year later, recognized the approach as "very important on both educational and economic grounds" (p. 6). He suggested that the broader approach to vocational education would add rigor and quality to those programs. It would, he argued, "help us move away from the notion of 'throw-away' workers, trained for a narrow set of skills and disposed of when the need for those skills disappears" (p. 6). AAI is a new articulation of an old idea. AAI is the integrated substance that gives both depth and breadth to the study of career fields. The concept had been implicit in many vocational programs and early vocational reform efforts.

AAI as Policy

Charles Benson was a "substantial, contributing architect" (Phelps, 1993, p. 98) for the provisions of both the 1984 Carl D. Perkins Vocational Education Act and the Perkins

Amendments of 1990 (Perkins II), and he consulted closely with the federal officials (Phelps, 1993) on developing the School-to-Work Opportunities Act of 1994. Perkins II defined "general occupational skills" as follows:

Experience in and understanding of all aspects of the industry the student is preparing to enter, including planning; management; finance; technical and production skills; underlying principles of technology; community issues; and health, safety and environmental issues. (Andrew, 1996a, p. 6)

Educators from the Oakland Health and Bioscience Academy in Oakland California, one of 4 sites for NCRVE case study research about AAI, considered it to be the guiding principle that gave coherence to their vocational reform effort:

We believe that AAI should serve as a set of guiding ideas that can give our program coherence: Coherence for students so that the different parts of the program relate to each other; coherence for staff in the midst of the stress and turbulence that is teaching; and coherence through time, to ride over the staff changes, schedule changes, new opportunities and new difficulties, and arrive at the other side a richer better program. (Andrew, 1996a, p. 4)

AAI as Integration

Andrew (1996a) described AAI as the integration of "content, context, and method" (p. 2). The content includes but is not limited to occupationally specific content and technical skills. Fully developed programs like those at the Oakland Health and Bioscience Academy and the Rindge School of Technical Arts, a second NCRVE research site in Cambridge, Massachusetts, use the basic and advanced skills of the core academic subjects, language arts, mathematics, science, and social science to identify, analyze, and solve the problems inherent in any particular industry. When industry groups are broadly defined, students can go beyond the technical and particular occupational skill sets to consider community issues, labor problems, environmental impact, and financial concerns (Berman & Steinberg, 1997; Steinberg & Rosenstock, 1995). These topics allow students to develop research, analysis, and communication

skills under circumstances that integrate literature, history, politics, government, sociology, and economics, subjects that are rarely integrated in the classical comprehensive high school curriculum. Andrew (1996a) has suggested that in programs using themes that are work oriented, "AAI and vocational and academic integration are vital to ensuring high academic quality" (p. 5), making it possible for students to prepare for work and higher education. Rindge teachers acknowledged,

It was gratifying to see Cambridge public high school students grapple with the same ideas that would be taught across the street at Harvard in a course on Labor History. We designed our assignments to test understanding of these concepts, not merely memorization; it was even more gratifying (and perhaps a bit surprising) to see how many of our students had truly mastered these ideas. (as cited in Andrew, 1996a, p. 80)

Attending to the context of a particular industry keeps the content from becoming too abstract. Students learn technological principles by using equipment based on the principles and applying them to create new products or solve authentic production problems (Berman & Steinberg, 1997). Statistics come alive in the form of survey data, production figures, and political polls on industry issues or related social issues tied to the industry's ebb and flow. Most of the skills learned are generic and, to a large extent, transferable (Andrew, 1996ab). Nevertheless, the particular industry being studied provides a specific context for knowledge application and skill development. Larry Rosenstock (1991), Executive Director of the Rindge School of Technical Arts, has argued that the study of industry groups provides an excellent context for subject matter integration. He described the power of real work to stimulate teachers and capture student imaginations: "Work has authenticity and relevance, which leads . . . to engagement" (as cited in Olson, 1997, p. 32).

Constructivist Pedagogy

The new vocationalists believed that to provide students with both experience and real understanding demands teachers adopt a constructivist methodology (Andrew, 1996a; Raby, 1995; Stern et al., 1992). In the case study literature on the new vocationalism (Andrew, 1996a; Olson, 1997; Owens, Lindner, & Wang, 1994, 1995; Steinberg, 1998), teachers reported moving away from lecture-style, passive models to more cooperative learning, authentic problem solving, and project based teaching. Many academy teachers in the NCRVE sample are coaching and mentoring their students, brokering resources, altering the daily schedule to meet student and program needs, and creating a climate of collaboration and intellectual risk taking. Students are actively collecting interview, survey, and statistical data, keeping journals, using appropriate technology for research and data analysis, shadowing jobs within the industry, and producing presentations, products, and portfolios that demonstrate skill mastery and deep conceptual understanding. At Rindge, teachers reported that "students work in cooperative teams, present findings to the class on a regular basis, and are coached in skills such as public speaking and interviewing" (Andrew, 1996a, pp. 85-86).

At the same time, AAI can promote the development of well-rounded citizens that have a commitment to their community and the knowledge and skills necessary to become activists. Programs reported that teachers are using micro enterprise development and community service to stimulate student engagement. There is an entrepreneurial spirit embedded in the program that can lead students to start viable business entities in their own communities. At Rindge, students take a full year class on entrepreneurship in which students can develop and implement enterprises (Steinberg & Rosenstock, 1995). Students also participate in Community Problem Solving 101, a full year course that

integrates classroom activity with service learning dealing with ideas for community economic development (Andrew, 1996a, p. 87; Steinberg, 1998, pp. 54-55). In the words of one Chicago principal, "Why leave your community? Why not stay here and make it the community you want it to be" (as cited in Andrew, 1996a, p. 8). Through AAI, teachers are building student capacity to identify community problems, understand their context, collect and analyze data, develop and implement action plans, and reflect on the results.

Summary of AAI

AAI provides the third fundamental mechanism of integration in the new vocationalism. Rosenstock argued that AAI is more than a curriculum sequence or "a pedagogical technique" (as cited in Andrew, 1996a, p. 4); it has the added goal of preparing students to be community activists, to involve them in creating jobs and other economic opportunity in their neighborhoods and towns. It is through AAI that the notion of lifelong learning comes alive; students' intrinsic interests motivate them to explore real life issues, to set higher expectations, and to generate higher quality work products. According to Christopher Dyer of Corporate and Creative Services in Boston, Massachusetts, "Life is 'all aspects' all the time—no one lives in one dimension. The 'all aspects of the industry' approach equates learning to living" (as cited in Andrew, 1996a, p. 7).

Conclusion

By documenting inventive programs and promoting a new vocationalism, scholars in the NCRVE consortium (e.g. Benson, Bragg, Raby, Stern, and others) have tried to breathe new life into American vocational education. They hope that the renewed relevance, authenticity, and rigor of career academies' curricula and instruction will

appeal to students' intrinsic interests, stimulate their drive to excel, and rekindle their passion for a meaningful vocation. Program designers have integrated career academies, Tech Prep, and AAI to create a framework that gives vocational education clearer form, scope, and substance. The structure of the program comes from the academy model. Here we see large comprehensive high schools broken into smaller, user friendly, autonomous units, each organized around a vocational theme. Academy teaching teams can adjust instructional time, change daily class schedules, and reorganize curriculum and instruction to do original research and take advantage of teachable moments. Although the terms "Tech Prep" and "career academy" are used synonymously by some, Tech Prep is best understood as an extended academy program often emphasizing advanced technology and always leading to the mastery of a marketable skill. Therefore, when incorporated into the academy structure, Tech Prep allows the scope of any program to extend into higher education and/or apprenticeship through an appropriate sequence of theoretical and applied courses. The substance of those courses comes from AAI where core courses (mathematics, science, language arts, and social studies) incorporate both academic and workplace skills. Students then have the opportunity to immerse themselves in all aspects of the academy theme: planning; management; finance; technical and production skills; underlying principles of technology; community issues; and health, safety and environmental issues. Teachers collaborate with colleagues, business partners, and students to investigate industry groups, do research projects, and solve community problems. Business partnerships provide authentic work experience. Students and employees work and learn together, and the worksite becomes an extension

of the classroom. Work becomes a meaningful, collaborative problem solving experience that enhances students' intellectual and social development.

In the early stages of the new vocationalism, reformers were looking for ways to improve the programs of those students floundering in the general track of the comprehensive high school. They wanted the changes to improve the overall educational experience and not create another program track (Oakes, 1985; Oakes et al., 1992). The NCRVE conceived the new vocationalism as a systemic reform that broadened and deepened the educational experience for all students: "All education should be occupational as well as liberal arts—it isn't necessary to have either/or situations" (Bragg et al. 1997, p. 74).

With this understanding, the NCRVE looked to a progressive reformer from the past as inspiration for the future of vocational education in America. At the beginning of the 20th century, in times not unlike those at the beginning of the 21st century, John Dewey proclaimed the need for an inclusive, democratic education, one that was not tied to the specific occupations of the past and present. Instead, he called for an approach to vocational education that allowed students to explore possibilities through authentic investigations and develop a general industrial intelligence. In the next chapter, I assess the degree to which the new vocationalism as formulated by the NCRVE has remained true to Dewey's theory of democratic vocational education.

CHAPTER 5 A DEWEYAN ANALYSIS OF THE NEW VOCATIONALISM

Introduction

The influence of John Dewey can be seen in the structure and function of the post-1988 National Center for Research in Vocational Education (NCRVE). In 1989, the NCRVE went through a radical restructuring. As a result of a competitive grant process, the organization changed from a single-university agency housed at Ohio State to a consortium of six educational institutions centered at the University of California at Berkeley. Under the direction of Charles Benson and later David Stern, NCRVE had satellite sites stretching from coast to coast, had a presence in several labor markets, and began to connect itself to the secondary school practitioners and business partners it was trying to serve.

New Mission

The aim of the newly configured organization was clearly stated in its first mission statement after reorganization:

The Center's mission is to rethink what vocational education should be and how it can best be delivered. It is to contribute to the renewal of vocational education so it can give all citizens, of all ages, the skills they need for successful, long-term employment. To accomplish this, we must integrate vocational with nonvocational education theory and practice. We believe that all students and all employers will be better served by an integrated view that combines theory and practice, the 'nonvocational' and the 'vocational.' Our goal is to make this new vision of work-related education a reality. (NCRVE, 1989, p. 1)

By 1992, the year Charles Benson unveiled his conception of the "new vocationalism," the language of the mission had become more activist. The NCRVE (1993) now saw

itself "as . . . *change agent* rather than simply as an analyst . . . , a service agency, or an advocate" (p. 1). The leadership now believed that NCRVE should help move the nation from a low-skill, industrial national economy to a high-skill, informational, global economy. A nation that participates in a global economy needs a well-educated workforce, and NCRVE (1995) became committed to "strengthening education" to help "all individuals" prepare for "lasting and rewarding employment and lifelong learning" (p. 1). In 1995, the Center stated its aim was to help create an educative experience that

- offers every student the option of a high-quality, career-related course of study;
- integrates curricula, maintaining an emphasis on learning through applied problem-solving—a strong feature of traditional vocational education—while including a rigorous course of academic study;
- simultaneously prepares students for immediate employment, further education, and lifelong learning. (p. 1)

In 1999, the leaders at NCRVE reiterated their commitment to participate actively in the school reform process. "We envision the NCRVE as serving in the role of change agent, rather than as simply in the role of an analyst of current patterns, a service agency, or an advocate" (NCRVE, 1999, p. 1).

NCRVE as Integration

The restructuring process, the resulting collaborative configuration, and the evolving mission of the NCRVE are consistent with Dewey's emphasis on individual and community development. As detailed in Chapter 2, Dewey spent his life resolving "dualisms" through a recursive thinking process that ended in action and reflection (Dewey, 1916a, 1910/1933, 1938). His notion of experience was expansive. The NCRVE consortium fits his view of a community of socially connected, interdependent thinkers. The consortium had responded to traditional vocational education as a felt difficulty in

the environment, conceptualized it as a problem of wasteful isolation, and deemed a student's experience in that system to be miseducative. Analyzed from Dewey's perspective, the NCRVE researchers seem to have been just now coming out of the data collection and hypothesis testing stage of the thinking process and were moving toward elaboration and mental modeling. According to Dewey, now, several resolutions were possible, all of which would be played out in the NCRVE collective mind before being tested in the natural world (Dewey, 1910/1933). For Dewey, the problem was not resolved until programs could be shown to have improved the quality of human social interaction. The NCRVE (1995) goal of creating "collaborative knowledge" (p. 2) that had social meaning and led to a better understanding of the nature of education would be lauded by Dewey. At the same time, he would question the value of establishing any new categories that only renamed old dualisms and perpetuated old battles—the new vocationalism versus the old vocationalism or new education versus traditional education.

At the end of *Education and Experience* (1938), Dewey summarized his position:

The basic question concerns the nature of education with no qualifying adjectives prefixed. What we want and need is education pure and simple, and we shall make surer and faster progress when we devote ourselves to finding out just what education is and what conditions have to be satisfied in order that education may be a reality and not a name or a slogan. (p. 91)

Dewey understood that the only true aim of vocational education was the continuous reorganizing and reconstructing of experience to incorporate the rapidly changing technology and the wider range of knowledge and skills embedded in the jobs of a new century. The NCRVE seemed to be coming to that same realization as they broadened the scope of their work to integrate the general and vocational education programs and to blur the boundary between school and the workplace to create an environment that promoted life long learning for all.

Benson as Teacher-Scholar

It was NCRVE Director Charles Benson (1997) who most clearly articulated the center's vision. He crafted the term "new vocationalism" (p. 201) and worked collaboratively to integrate vocational academic programs in high schools. Benson was trained as an economist, and his early work focused on ways to redistribute financial resources in order to improve the equality of educational opportunity for all students. He was particularly concerned about the inequity between college preparatory and vocational programs in the comprehensive high school. In a book titled *The Cheerful Prospect*, Benson (1965) argued that college-preparatory students received "preferential consideration", and that much more needed to be done to enhance vocational programs.

Traditionally, the college-preparatory programs in the secondary schools have held pride of place over those described as vocational. In some districts the difference in esteem is vast indeed, in spirit of the fact that the expenditure per student is far greater on the vocational side. Yet relatively little has been done to develop curricula, such as the new physics and modern mathematics, specifically designed for the non-college-bound student, nor has much attention been directed toward the inadequate supply of vocational and technical teachers. These matters should be corrected. (p. 5)

Like Dewey, Benson was more than a college professor immersed in abstract thought. According to Phelps (1993), Benson "came to vocational education with a wealth of theoretical, policy-based, and practical experiences in the field of education" (p. 97). Benson directed a series of institutes, contributed concepts and language to federal legislation, and used findings and methods from several fields to solve the problems on which he worked. He was a prolific author until his unexpected death in 1994. Norton Grubb, a colleague of Benson at NCRVE, described him as a scholar with diverse interests, political influence, and a commitment to the education of all students. In

dedicating a two-volume set of writings based on the Center's work to Benson, Grubb (1995) praised his colleague's foresight and passion:

Consistently, [Charles Benson] concentrated on just the right issues; on the well being of children and youth, and on whether developments in policy and practice would genuinely improve their prospects rather than merely respond to the fad of the moment. His wisdom and spirit . . . will remain with us. (p. viii)

It seems natural that a man so like Dewey would inspire his colleagues to make school the kind of meaningful experience worthy of human endeavor. As they looked to their Director, NCRVE personnel also looked to the work of Dewey for inspiration and insight (Bragg, Layton et al., 1994; Grubb, 1995; J. Oakes, personal communication, April 1, 2002). In the following sections of this chapter, we will look at whether or not the NCRVE conception of the "new vocationalism" (Benson, 1997, p. 201) was true to the full range of Dewey's ideas about democratic education and his philosophy of experience. We begin with a discussion of integration as the spirit of the model and then review each aspect of the model as to its form, scope, substance, and pedagogy.

The Analysis

New Vocationalism as Integration

Benson (1997) claimed that the three main elements of the new vocationalism, academies, Tech Prep, and AAI were "hierarchical and interdependent" (p. 202). Tech Prep integrated the model vertically across grade levels and into the workplace, stretching programs to include higher education and business partners. The academies were horizontally integrated to reorganize the curriculum and the content of individual courses around an occupational theme. The curriculum and the pedagogy were integrated internally through AAI, as teachers and business partners planned collaboratively to design meaningful, educative experiences and worked with students to solve community

problems. They created situations in which students could develop new skills, exercise intelligence, and experience intellectual growth. The overall goal of integration, in Benson's (1997) view, was for all students to acquire intellectual knowledge and expand their postsecondary school options.

In an integrated program of instruction, the objective is for students to acquire more, not less, academic knowledge. The objective is to be reached by embodying the pedagogical strengths of vocational education practice into the presentation of theoretical concepts. Through the use of these pedagogical practices, academic knowledge is intended to be made more accessible to the majority of students In an ideal program, virtually all students would meet the requirements of entrance to four year college while at the same time gaining skills to enter the workforce directly with good career prospects. (p. 202)

Certainly the notion of integration was a foundational principal of Dewey's thinking. He believed that a student's school experience should emulate the natural integration found at home and in the community, and school activities needed to flow naturally from such experiences. Schools, in Dewey's view, were isolated from students' lives, and this separation dulled student interest and industry. He argued that school leaders must unify both the "aims of education" and the "sequence of more or less unrelated, overlapping parts" by looking beyond the school wall and connecting school programs to the community at large (Dewey, 1900/1990, pp. 64-75). When such integration does not occur, argued Dewey (1900/1990), much is lost: "All waste is due to isolation. Organization is nothing but getting things into connection with one another, so that they work easily, flexibly, and fully" (p. 64).

Such a connection between the business community and the school was as important in Dewey's time as in Benson's. Both men advocated a collaboratively planned curriculum and educational experiences outside the classroom. Dewey (1900/1990) called for an "organic connection" between the classical and the technical elements of the

curriculum. Well run schools "clarify and liberalize this connection, to bring it to consciousness" (p. 76). Benson (1997) suggested that for the new vocationalism to be successful, all school stakeholders must have time to "meet and work together as a whole school group" and exhibit "collegial performance" in the form of "team teaching by academic and vocational faculty; joint design of projects; collaborative efforts at writing problem sets and other instructional materials; and common efforts in designing new forms of student assessment" (p. 203).

Both men understood the increasing complexity and interdependence of modern American life. They understood the pervasive influence of business and industry on the minds and hearts of the American people and the degree to which individuals identified themselves with their occupations. These two reflective thinkers saw the secondary school as "an inescapably vocational institution" (Grubb, 1995, p. 1), but one that must also allow students to participate fully in a democratic social experience. Dewey's (1900/1990) description of schools in 1900 could have just as well been written by Benson nearly 100 years later:

We live in a world where all sides are bound together. All studies grow out of relations in the one great common world. When the child lives in a varied but concrete and active relationship to this common world, his studies are naturally unified. It will no longer be a problem to correlate studies. Relate school to life, and all studies are of necessity correlated. (p. 91)

Academies Provide Form

The new vocationalism uses the academy model to provide physical and organizational structure. As detailed in Chapter 4, the academy is a "school within a school" serving a population that has chosen to use a particular career interest as an organizing construct for its educational experience. Often, the academy has a designated area in the school building, an administrator responsible for its functioning, and a specific

constituency. Ideally, the academy maintains a reasonable student/teacher ratio (no particular figure is available) so that meaningful, long-term relationships can develop among academy members. In the words of Stern et al. (1992),

The resulting family-like atmosphere and the assignment of students to the same teachers for three years allows teachers to become familiar with each student's background. This gives responsibility for each student's educational development to teachers who can relate to each as an individual. (p. 83)

Common teacher planning time allows an interdisciplinary teaching team to continuously adjust the schedule as needed, develop applied curriculum materials, and engage students in authentic research activities, all of which promotes a collaborative atmosphere throughout the academy.

Dewey's (1900/1990; 1916a; 1934/1986) commitment to aesthetics and utility, inclusive and expansive experience, social activism, and vocation as a human calling would prompt him to ask NCRVE model builders to consider several fundamental questions. First, to what degree is the academy model "architectonic" (p. 224)? Dewey believed school should be both utilitarian and esthetic so that the structure becomes the medium for human accomplishment. He suggested in *Art As Experience* (1934/1986) that architectural works not only record and convey the past, they also influence the future when they fit harmoniously into their natural surroundings. In *The School and Society*, Dewey (1900/1990) diagramed a school structure featuring rooms at the corners of a square, all rooms opening to a common library and also to the outdoors. It was a symbolic representation of the connections and flow of experience necessary for schools to be effective.

The center represents the manner in which all come together in the library; that is to say, in a collection of intellectual resources of all kinds that throw light upon the practical work, that give it meaning and liberal value. If the four corners represent practice, the interior represents the theory of the practical activities. (p. 79)

One can also infer that the doors opening to the outside world represent the interdependence as well as the ease of movement of ideas and people between two naturally connected environments. Dewey would urge academy leaders to make the "school within the school" a harmonious and natural fit. The academy structure should symbolize and facilitate the unified educational experience that it is trying to promote, and the work of the academy community must be consistent with the values and goals of the community at large.

Dewey would next question the potentially exclusionary nature of an academy experience. Grubb et al. (1991) suggested that when an academy targets a particular population, there is a "tendency to segregate students in virtually the same ways that tracking does" (p. 47). Under those conditions, Dewey might not consider the academy structure a reasonable resolution to the dualism that exists between vocational and classical education in the contemporary high school. If the core courses in an academy program are taught as isolated subjects or are taken outside the academy with the general school population, then the chasm between the two programs has been perpetuated, and the goal of real integration has not been reached. To offer only one or two applied courses would look like "sugar coating" to Dewey, and he might challenge the real educational value of the academy program.

Dewey would not accept as a final result the academy's limited aim of improved education for a small target population of at-risk students and those unlikely to get a baccalaureate degree. Any attempt to exclude the general student population would, in Dewey's view, limit the value of the academy experience. For Dewey, an experience must be expansive and inclusive to be educative, and participation in the experience must

promote both individual and community growth. Dewey would question the level of genuine student participation in the academy community and challenge the degree to which students were preparing for an unknown future rather than living fully in a democratic present. He would ask academy leaders to evaluate the academy's cultural worth in terms of "the processes and products of human inquiry as represented in scholarship, science, and school subject matter" (Wirth, 1966, p. 124).

That process of evaluation has begun. Sketchy research in the early 1990s in California career academies (Stern et al., 1992) and New York career magnet schools (Crain et al., 1992) showed positive outcomes in terms of attendance, grades, credits earned, and graduation rates. However, some scholars expressed some concerns about the efficacy of the research methods employed in those studies (Kemple & Snipes, 2000; Stern et al., 1992). The Manpower Demonstration Research Corporation (MDRC) began a longitudinal study in 1993. Using a random assignment design to evaluate nine academies, the study compared students who applied and were selected by a lottery to enter a career academy with students who applied but were not selected for admission. Several reports were issued, each focusing on a particular element of the academy (Kerka, 2000).

Looking at the academy as an effective learning community, Kemple (1997) found that the academies increased support from students and teachers, had an atmosphere of high expectations, and generated high levels of student engagement. Kemple (1997) also reported benefits to teachers in the form of time to collaborate, participate in community decisions, take part in staff development, and give personal attention to students.

Kemple, Poglinco, and Snipes (1999) found that academies with effective employer partnerships used coordinators to facilitate career awareness and facilitate workplace learning activity, and academy seniors had more frequent and more intense participation in career awareness activities including field trips, job shadowing, and mentoring than students in other school-to-work programs. Looking at the influence of an integrated academy curriculum on student engagement and academic performance, Kemple and Snipes (2000) reported that results differed across sites, and they found only modest improvements in engagement and performance. These researchers pointed out that performance was defined as performance on reading and mathematics standardized tests and questioned the value of evaluating the academy experience using those instruments. Benson's (1997) 1992 observation that "there are few recognized tests of the skills and competencies that the new vocationalism seeks to impart, beyond standard academic achievement tests" (p. 208) seems to remain true 10 years later. Nevertheless, Maxwell and Rubin (1997) reported that career academy programs did raise high school achievement, lessen the need for English remediation in college, and increase the likelihood of college graduation for academy students.

Aims need to be flexible and must be evaluated by "the act of striving" to realize them. Dewey believed the school structure should be evaluated in terms of its ability to support the aim of changing social conditions, and Dewey would question academy leaders about their commitment to social action. An aim, wrote Dewey (1916a), "is a method for dealing with conditions so as to effect desirable alterations in them" (p. 105). He went on to suggest that an aim was more a process than a product, more a "freeing activity" than an object or a particular result; in fact, Dewey would say that it is the blend

of action and result that should be the "end in view" (p. 105). In Dewey's words, "The doing with the thing, not the thing in isolation, is his end. The object is but a phase of the active end—continuing the activity successfully. This is what is meant by the phrase, used above, 'freeing activity'" (p. 105). Thus, some part of an academy's educational value flows from its ability to support and direct a community "striving" to achieve social goals.

Finally, Dewey would focus attention on the use of an occupational theme as an organizational construct. He might ask to what degree an academy's occupational theme provides structure, direction, and unity to curricular and pedagogical activity. Academies have themes ranging from the broad career categories of agribusiness and health science to the more narrow occupational groups of automotive mechanics and computer technology. These academy programs begin with exposure to career possibilities and move students toward successful college admission as well as mastery of a particular skill set that makes them employable in entry level career positions.

The goals of the academy experience are to increase levels of student achievement, build more personal attachment to intellectual inquiry, and to remedy what Benson (1997) perceived as the public school system's poor record in school to work transition. "I refer to the high probability that a person who seeks to enter the labor market without the B. A. will wander from one minimum wage job to another for about 10 [years] before finding a place to begin a career" (p. 202). So, although Grubb (1995) adopted Dewey's phrase "education through occupations" not education for occupations, as the title of his 2-volume book set describing NCRVE research efforts, there is definitely a strong element of occupation-specific skill training in the NCRVE model.

Dewey's use of occupations as a curriculum organizer and pedagogical device was a radical departure from the traditional school programs of his time. As described by Wirth (1966) and Kliebard (1986), Dewey's belief that human intellectual development stemmed from perceived need and the chance to act to fulfill that need became his epistemological premise. Dewey's (1902) understanding of the importance of an "occupation" (p. 219) as a foundational social activity bears repeating: "So fundamental and pervasive is the group of occupational activities that it affords the scheme or pattern of the structural organization of mental traits" (p. 42). Education through occupations meant that students would use an occupational experience as a means for developing the habits of mind necessary for intellectual and social growth. This experience would be actualized in the present to contribute to the progress of the school community. At the same time, the student would look at the developmental history of the activity in order to understand its worth in the present and the implications for its effect on society in a changing future. Dewey (1916a) believed that training for any specific occupation, particularly during the elementary and early secondary years, would deaden "the qualities of alert observation and coherent and ingenious planning which make an occupation intellectually rewarding" (p. 310). Too early an attachment to a particular occupation narrows students' educational experience. Dewey was convinced that schools should build on the immediate experiences of a student's present life. He believed that when students were engaged in the fundamental occupations of school life, they were motivated to gather and assimilate "all relevant information" and hold on to it. "The vocation," Dewey wrote, "acts as both the magnet to attract and the glue to hold" (p. 310).

Thus, to the extent an academy's occupational theme organized a broad range of experience that allowed students to participate in the continuity of individual and societal development, the theme contributed to the structure's educational value. Dewey (1916a) conceived the term occupation to be a "concrete term for continuity." The term occupation, Dewey wrote, "includes the development of artistic capacity of any kind, of special scientific ability, of effective citizenship, as well as professional and business occupations, to say nothing of mechanical labor or engagement in gainful pursuits" (p. 307). He warned educators not to restrict their conception of vocation to business and industry or to accept the notion that individuals are suited for only one occupation. Each individual has a variety of aptitudes and interests that need to be explored and nurtured. In Dewey's opinion, taking any one occupation in isolation reduced it to a mechanical routine that accomplished little beyond keeping students busy. Job-focused educational programs at their best promote skill building but never rise to the level of cultural development. Dewey (1916a) believed that it was "not the business of the school to foster [mechanical routine], but to safeguard against it (p. 308).

However, it is the business of the school to simplify students' experiences into ones that are developmentally appropriate. Schools then should craft bounded educational experiences to highlight the best of society as inspiration, and balance those experiences to give all students an expanded image of possibility. Dewey would expect the academy to assist in that effort by being architectonic, inclusive, and conceptually expansive. The value of an academy structure comes from its ability to support and direct the efforts of school stakeholders to create a community spirit that promotes continuous learning and thinking as a means to individual and community development.

Tech Prep Provides Scope

I have described the NCRVE conception of vocational education as the integration of form, scope, and substance. As the academy design provides the framework for the model, Tech Prep gives the model its scope. NCRVE researchers understood that a typical 4-year high school program did not allow time for students to achieve conceptual mastery of a discrete body of information and skills. The NCRVE adopted Parnell's (1985, 1991) articulation of the secondary school program to include the first 2 years of college, generally a community college with occupationally specific training programs but occasionally a dual enrollment program leading to 4-year baccalaureate degree. Tech Prep focused on the "neglected majority," another designation for students not directed toward a 4-year college program. The goals of Tech Prep were increased enrollment in applied math and science courses and expanded economic opportunity through either a college degree or some higher education leading to a portable certificate of mastery in a marketable technical area.

At the secondary level, the primary focus . . . is to provide the context for learning that spans vocational and academic subjects, motivates students to attain advanced competencies, enhances career exploration opportunities for students, and encourages students to aspire to higher levels of academic and occupational preparation. At the postsecondary level, selection of a specialty within a career cluster is necessary; however, even at this level, the provision for understanding fundamental knowledge that spans a broad career cluster area remains important for later career mobility. (Bragg, Kirby et al., 1994, p. 82)

The expanded notion of secondary education to include the first 2 years of college is in concert with Dewey's thinking. Dewey acknowledged that the tradition of the high school was inextricably connected to that of the university as well as to the elementary school, and Dewey saw those later years as the ones during which more specialized education could happen. The role of the middle grades and the high school was to provide

a broad cultural education, and the power of the secondary experience flowed directly out of a high quality middle school program. Dewey was particularly critical of the curriculum and pedagogy of grades 4 through 8. He believed that an emphasis on "drill and practice" in reading and mathematics dulled student curiosity and dampened their motivation to explore their world. Drill and practice, Dewey (1938) believed, had a "benumbing, mechanical influence" (p. 70) on student development, and he advocated an enriching approach to both curriculum and pedagogy.

Dewey advocated algebra and geometry for seventh- and eighth-grade students though he understood that these courses must be taught with "rational methods" that would excite student interest and promote understanding. He suggested students read "literary masterpieces" rather than short passages in edited texts. He proposed engaging students through authentic field observation and the application of real scientific methods. He even supported introducing foreign language study because a second language opened new worlds to students and gave them "command of their own power" (1896a, pp. 5-6). By continuing to engage increasingly more sophisticated and complex experience, Dewey (1938) argued, students would construct, reconstruct, and organize their experience "into a fuller and richer and more organized form, a form that gradually approximates that in which subject-matter is presented to the skilled, mature person" (pp. 73-74).

Although Dewey believed the school was not the best place for specialized technical training, he did accept the increasing influence of applied science on societal development. He acknowledged the increasing pressure on the secondary school to provide technical education. However, he envisioned a secondary experience that lasted

from about age 14 to 20, including the first 2 years of college. This expanded experience would begin in the last two grades of the middle school to maintain and enhance student curiosity, begin career exploration, introduce the tools of observation and reflective thinking, and challenge students' intellectual power. Students would then step into the university to develop disciplined knowledge and whatever technical expertise they chose. Dewey (1903) thought a longer secondary experience and a shorter elementary one would allow students in a controlled setting to gain a more complete understanding of the elements of culture and a heightened sense of readiness for specialized study.

Facing its own problem without distortion from outside pressure, [the high school] would have free space and leisure in which to work out that knowledge of the universe of nature and humanity that is worth while; and that would enable its graduates to undertake later specialization in professional and research lines in an intelligent way. (p. 19-20)

Dewey would be sympathetic with Tech Prep as a reasonable educational aim. He would, however, require that students demonstrate mastery of intellectual concepts along with the requisite technical skills of the occupation being studied. For Dewey, mastery would not be achieved until students could critically analyze a chosen occupation and point out how the occupation had influenced American cultural development.

AAI Provides Substance

The substance of the new vocationalism comes from AAI, a curriculum in which students immerse themselves in all aspects of the academy theme: planning; management; finance; technical and production skills; underlying principles of technology; community issues; and health, safety and environmental issues. The curriculum blends core courses, mathematics, science, language arts, and social studies, applied courses consistent with the academy theme, and workplace experiences that incorporate both academic and workplace skills. Teachers collaborate with business

partners to build lessons that allow students to discover new meaning and construct understanding through face-to-face collaboration and hands-on experiences. Business partnerships provide authentic work experience in a controlled setting that allows students to see the workplace as an extension of the learning environment.

Through immersion in AAI, students experience work as a conscious act of problem solving, a satisfying experience that enhances personal and community development. Benson (1997) argued that students come out of the curriculum prepared for "entrepreneurship" (p. 206) and job creation. They more fully understand the social significance of future occupations and the contributions workers can make to the social betterment of the community and the nation. As a result, AAI-educated employees committed to long term learning and social service will be willing to initiate proposals to enhance worker productivity and community development (p. 206).

Dewey (1938) was also conscious of the relationship between school and social culture.

The modification going on in the method and curriculum of education is as much a product of the changed social situation, and as much an effort to meet the needs of the new society that is forming, as are the changes in modes of industry and commerce. (p. 4)

Students had to adjust to a corporate, urban culture controlled by industry and commerce, and schools had to adjust their curriculum and methods to accomplish that task. AAI is a natural elaboration of education through occupations. Through AAI, students dig into the history, philosophy, psychology, and sociology of an occupation to develop a more liberal or cultural study. They use AAI as a process of inquiry to extend knowledge beyond the mechanical routines of the job. As teachers help students use application, analysis, synthesis, and evaluation skills to the planning, management, community issues,

and health, safety and environmental issues of a particular occupation, students and teachers collaborate on identifying, intellectualizing, and acting on community issues. In the process, academic content in the liberal arts and sciences become integrated with more technical content and skills.

Dewey (1914) knew that school programs based on the simple acquisition of job skills were short sighted because new advances in technology continually made such abilities obsolete. He understood that the labor force needed an education that developed "initiative and personal resources of intelligence" (p. 12). Dewey favored the comprehensive high school over a parallel system of vocational schools. The first announcement of the University High School in school year 1903-1904 described a proposed secondary school program that included "as far as possible, all subjects that may fairly belong to a secondary school curriculum" (Wirth, 1966, p. 228). Dewey (1902/1990) favored the use of applied courses that situated concepts in real world experience. His description of arithmetic study highlights his position:

There are plenty of real connections between the experience of children and business conditions that need to be illuminated. The child should study his commercial arithmetic . . . not as isolated things by themselves, but in their reference to his social environment. The youth needs to become acquainted with the bank as a factor in modern life, with what it does, and how it does it; and then relevant arithmetical processes would have some meaning—quite in contradistinction to the time-absorbing and mind-killing examples in percentage, partial payments, etc., found in all our arithmetics. (pp.77-78)

Dewey was not satisfied with the way academic content was packaged, and one can reasonably conclude that Dewey and his teachers at Chicago were aggressive interdisciplinary curriculum developers. They could well have organized his proposed Chicago secondary school program as AAI to give the concept of vocation "full intellectual and social meaning" as well as to increase the power of the "occupation" as

an integrated curriculum construct. Dewey did advocate specifically for the study of history and geography as temporal and physical contexts for present social conditions (1902/1990, pp. 6-29). He saw science as the method of reflective thinking as well as the means to understand technology, and he would use the social sciences of civics, economics, and politics to help students understand current social conditions and evaluate proposed improvements (1916a, p. 318). For Dewey (1916a), the aim was the use of science and social science "to develop a courageous intelligence, and to make intelligence practical and executive" (p. 319). The goals of a rigorous and flexible AAI curriculum and those of a Dewey course of study are well matched.

Teacher Scholars Provide Pedagogy

In contrast to class sizes of 20 to 30+ students in academy classes, the student/teacher ratio at the Chicago Laboratory School hovered around 10:1 during Dewey's tenure (Mayhew & Edwards, 1936). Dewey placed great responsibility on his teachers to become subject matter experts as well as students of education. He understood that the process of teaching was a blend of art and science that required heightened awareness and a personal commitment to life-long learning. Dewey (1904) argued that teachers had to be students of "subject matter" and "mind activity" (p. 8). "Unless a teacher is such a student," wrote Dewey (1904), "he may continue to improve in the mechanics of school-management, but he cannot grow as a teacher, an inspirer and director of soul-life" (p. 8).

These inspirational individuals had the responsibility for looking ahead, seeing the "end in view" and understanding the curriculum "as a continuous growth, reflecting the growth of mind itself" (1904, p. 19). They worked to consolidate the fragments of experience students brought to school and to help students scaffold new experience onto

the old, reorganize the new conceptions, and move the community forward on the developmental continuum. Dewey (1910/1933) expected his teachers to be so well versed in their subject that they could focus on students' mental processes and conceptualizations.

Unless the teacher's mind has mastered the subject matter in advance, unless he is thoroughly home in it, using it unconsciously without the need to express thought, he will not be free to give full time and attention to observation and interpretation of the pupil's intellectual reactions. (p. 275)

Teaching as guiding and problem solving. It seems clear that many academy teachers, like those working with Dewey, are intelligent, experienced, and dedicated. To guide his students, Dewey wanted "teacher-scholars" who could structure school experiences that would be appropriately challenging and intellectually satisfying, guide students through those experiences, and evaluate how the experience was being assimilated. Dewey was looking for intellectually inquisitive people, reflective thinkers with good communication and social skills who would immerse themselves and their students in "guided discovery" of academic content, learning strategies, and social issues. NCRVE researchers did not do case studies on individual teachers or teaching teams. Nevertheless, the quality of academy programs, curriculum units, student projects and professional portfolios, and teacher participation in summer work-site/academic experiences as described by Andrew, Bragg, Grubb, Raby, and others strongly suggest a high degree of teacher professionalism, academic expertise, and dedication to student success.

Dewey's pedagogy of guided discovery and authentic research into genuine community problems is incorporated in the new vocationalism. AAI is a blend of instructional process and curriculum content. It assumes an investigative posture by the

academy community and a fluid body of knowledge and skills. All academy stakeholders are both teachers and learners; however, the ultimate responsibility for moving the process forward rests with the teacher. As discussed in the preceding chapter, the new vocationalism advocates a constructivist pedagogy, one that expects teachers to be environmental designers, coaches, facilitators, evaluators, and action researchers.

Finding a paucity of research on how to implement AAI, NCRVE researchers joined with others from the Center for Law and Education, Jobs for the Future, and the Learning Research and Development Center to work directly with four school sites where teachers were collaboratively developing curriculum and searching for ways to implement it. The schools were in Oakland, California, Cambridge, Massachusetts, Milwaukee, Wisconsin, and Pittsburg, Pennsylvania. The project spanned 2 school years, and teachers at all the sites sometimes struggled to find common planning and work time. Successes came in making existing programs more rigorous, integrating critical thinking, developing multidisciplinary approaches, and developing alternative assessment rubrics. Finally, researchers and practitioners collaborated to write four case studies about the development and implementation of AAI at each site and the common elements of each experience. They also produced a teacher's manual of supporting material (Andrew, 1996ab).

As described in the "AAI as Integration" section of Chapter 4, the work of the AAI curriculum often revolves around identifying a community problem and generating a project that resolves the difficulty. The case studies of the Oakland Health and Bioscience Academy and The Rindge School of Technical Arts in Cambridge compiled by Andrew (1996a), for example, reported that teachers and business partners collaboratively

designed and implemented programs that solve problems common to both the workplace and the school. Andrew's (1996a) case study data from the Oakland academy showed connections between small classroom projects and community service. "In English, groups of students prepare dramatic responses to healthcare scenarios. In senior economics classes, student teams work with city planning graduate students to produce redevelopment plans for actual city projects" (p. 38). Planning, organization, and coordination were crucial to the success of these programs, and academy teachers reported that they had to make time for that work.

Depending on the school's master schedule and other program needs, the teachers involved may or may not have a common conference period. We rely on working out the major elements of the project in advance, as well as on meetings with one another; with industry partners; and with students over lunch, after school, during in-service days, and at conferences. Some of our best thinking is done in hallways or during fire drills. We know one another's phone numbers by heart. (p. 39)

Although teachers attempted to use as many genuine problems as possible, they also created projects that simulated real environmental conditions. In classes at Oakland, some student groups worked on a "risk assessment for lead poisoning in their own neighborhood" while others participated in a "simulated patient exercise" originally used by medical students (Andrew, 1996a, p. 39). At the same time, these teachers were working to create a collegial community in which students developed reflective thinking skills then merged them into a "courageous" and "practical" collective intelligence that values social service. Teachers employed active and cooperative learning strategies and observed the results. They understood, like Dewey did, that teachers and students must join a community of learners to maximize the educational experience. As one teacher stated, "No teacher can be an expert on even half the topics students wish to investigate. We are collaborators, co-learners, coaches, resources, and facilitators" (Andrew, 1996a,

p. 40). That learning community often included industry partners, college students, and parents acting as coaches and evaluators. Together with teachers, these stakeholders evaluate student learning, often using portfolio and project assessment, not only attending to what students know, but also to the quality of their understanding and its impact on their intellectual and social growth. "Industry, community, and postsecondary partners, as well as parents and faculty who serve as judges for project presentations [and portfolio reviews], make adult and professional standards tangible" (Andrew, 1996a, p. 41). The aim was to expand students' thinking about the facts and skills learned in any given curriculum unit. As one teacher at Rindge explained to students at the beginning of a "cheesecake unit": "This unit is not about learning how to make a cheesecake. This unit is about how to take a skill you learn and make an industry out of it" (Andrew, 1996a, p. 106). By creating industries that met community needs, students would, in Dewey's view, actively engage many occupations en route to finding a true calling.

Teaching as vocation. The notion of being immersed in one's work reminds us of Dewey's definition of vocation as a "calling." The academy experience demands an expanded role of its teachers and administrators. These school stakeholders must understand the change of emphasis from "teacher centered" to "student centered," discover how to fit into the integration process, and be willing to develop a new perspective. Teacher-scholars must come together as "interdisciplinary teaching teams" that work and learn together. Successful academy teaching teams collaboratively choose materials, link instruction so that skills and concepts are reinforced the same way across the curriculum, and stay current with the advances in cognitive science. These teachers know how to ask for and offer help to their students and to each other as they work

regularly to plan projects that have intrinsic intellectual and social worth (Schmidt et al., 1995).

NCRVE reports (Andrew, 1996a; Bragg, Kirby et al., 1994; Bragg et al., 1997; Raby 1995; Stern et al., 1992) described the work of many such teams, and teachers reported that the work was both invigorating and difficult. They suggested that it was too easy to focus on the products of the work (projects, portfolios, field trips, job placements, etc.) and devalue the process issues necessary for sustainable success. Creating a common vision, building teams, establishing consensus, and reflecting were often discussed as fundamental to a successful academy. Several teachers emphasized the need for an academy vision, and one described its importance:

Even though the visions and the realities are not quite the same—you have to start from someplace; if you don't start with a vision, you might as well forget it. The vision has now come more in line with the reality, in that we don't always get what we want, though we work very hard to do it. (cited in Andrew, 1996a, p.145)

Like Dewey, these teachers understood the energy and intellectual development that comes from having an end in view and constantly striving to reach it.

Dewey (1938) believed that real learning involved mental and physical activity and that much learning was "collateral" (p. 48) and self-directed. Dewey's teachers served as resources, coaches, and guides, knowing when to intervene and when to just observe. They embodied the spirit of integration. The complexity of AAI, the size of academy classes, and the continuous explosion of new psychological knowledge demands that academy teachers have an equal level of dedication, even greater awareness of educational psychology, a willingness to learn, and comparable academic expertise. Although the teachers described in Andrew's (1996a) case studies and in Stern et al. (1992) were well trained and committed to the extra work necessary for collaborative

curriculum development and facilitative teaching, it is not clear from the NCRVE research what percent of academy teachers across the country meet Dewey's teacher-scholar standard. To date, there is no data or on how new vocationalists evaluate their teachers. A continuous formative evaluation system using professional portfolios and peer observations would be a natural extension of Dewey's reflective thinking process and would heighten program quality. However, evaluation alone is not enough. Along with establishing accountability for academic quality, communities' ability to evaluate and recruit, develop, and support new teacher-scholars will in large measure determine the success of the new vocationalism.

Student Internships Provide Connection

Students become connected to such industries through student internships. As part of the AAI curriculum, corporate partners provide paid employment and space for classes. They collaborate on curriculum development, provide mentors, and evaluate students' subject and skill mastery. It is through these partnerships that Dewey's notion of fluid experience plays out. Dewey (1902/1990) believed that school experiences needed to be organically connected to the real world. Students must move easily between worlds, using the experiences of one to better understand and integrate those of the other.

There should be a natural connection of the everyday life of the child with the business environment about him, and . . . it is the affair of the school to clarify and liberalize this connection, to bring it to consciousness, not by introducing special studies, . . . but by keeping alive the ordinary bonds of relation. (p. 76)

However, Dewey did not support the use of occupations as sources of employment.

Instead, he wanted the occupations being studied divorced from their immediate economic importance. Dewey was not concerned about the economic utility of the occupations being studied, and he objected to the appearance of student exploitation in

the form of paid internships and summer jobs. For Dewey (1902/1990), occupations were the "active centers of scientific insight into natural materials and processes, points of departure whence children shall be led out into a realization of the historic development of man" (p. 19). The ideal partnership would allow a close analysis of the history, sociology, and mechanics of the organization so students could understand the role of the liberal arts in its operation as well as its role in the community.

One of the early goals of the new vocationalists was to make student work experiences more meaningful and intellectually valuable. Many corporate partners had a history of providing summer jobs, but those jobs were not connected to the school curriculum or systematically structured as learning experiences. The Oakland academy worked with Kaiser Permanente, a nationally recognized Health Maintenance Organization (HMO), to create a "worksite exploration/job rotation program" (Andrew, 1996a, p. 29). The program promoted the connection between school curriculum and specific healthcare occupations and exposed students to all aspects of the healthcare industry. Kaiser department heads worked with teachers to establish goals and objectives for the program. Teachers participated in job rotations and summer internships that combined workplace learning and curriculum development (Andrew, 1996a, pp. 25-30). Although students did learn certain skill sets, the aim of the program was a broad understanding of the healthcare industry and the service and opportunities it provides.

Vocational Guidance Provides Direction

The new vocationalism is committed to an improved program of career guidance, one that assumes that almost all students can, with some help, master higher levels of academics and thus reach higher career goals. The role of guidance has moved away from "sorting" students to encouraging all students to set career goals, investigate the

knowledge and skills necessary for entry, develop an action plan, and implement it. The focus is not on a given academic track but rather on the collection of courses needed to reach the goal. Like the rest of the academy experience, the responsibility for guidance is shared throughout the community. Teachers become advisors to small groups of students, and business partners and parents provide information, encouragement, and support as students look for a vocational area that triggers some intrinsic interest. One way the new vocationalism has expanded to include the middle school is through career awareness curriculum components in grades 7 and 8 so that students can enter a secondary academy that is a good match for their interests (McCharen, 1995).

Dewey (1916a) accepted "guidance" as the natural part of education that tried to give individuals and communities a sense of direction. His concept of educational aims as a nexus of process and result assumes activity that is focused and ordered:

Focusing and ordering are thus two aspects of direction, one spatial, and the other temporal. The first insures hitting the mark; the second keeps the balance required for further action. Obviously, it is not possible to separate them in practice as we have distinguished them in idea. Activity must be centered at a given time in such a way as to prepare for what comes next. (p. 25)

Dewey agreed that young people participate in directing their own activities, but he also suggested that the community influence had great power. It was more than peer pressure; it was a combination of the physical, social, and intellectual environment in which an individual operated that exerted the influence. So, Dewey envisioned a school environment where "imitation, emulation, and the need to work together" (p. 28) gave individuals and by extension the community guidance. There was a particular disposition and habit of mind that promoted social responsibility and participation leading to sense of "common consequence."

If each views the consequences of his own acts as having a bearing upon what others are doing and takes into account the consequences of their behavior upon himself, then there is a common mind; a common intent in behavior. There is an understanding set up between the different contributors; and this common understanding controls the action of each. (p. 30)

Such like-mindedness produces a socially constructed understanding of what is important to each individual and to the community. School sets up the controlled environment and helps develop the language necessary to develop common understanding, and through the use of this tool, students can do research, share results and concerns, and construct the meaning out of their experience. In that way, schools create conditions that allow education to promote growth in a desired direction. The guidance is indirect and subtle, and according to Dewey (1916a), "it is intrinsic to the disposition of the person, not external and coercive. To achieve this [guidance] through identity of interest and understanding is the business of education" (p. 39).

One can envision the Dewey secondary school faculty and business partners meeting to discuss socially relevant occupations and collectively deciding what skills and knowledge would be required to participate in them. For Dewey, guidance would come from the community clarifying the aim, engaging students in the reflective thinking process about a community problem, evaluating possible remedies, and choosing one to implement, monitor, and adjust as necessary. A similar approach used in academy career exploration allows students to research career possibilities, stimulates students' imagination, suggests a future that might stretch them physically and intellectually, and uses the community to set the expectations for success and support the striving. The responsibility for direction is shared among all the academy stakeholders, and discussion about participation in a career and the social worth of such an endeavor becomes part of

the investigation. Under such conditions, career guidance becomes an important element of an effective education as Dewey defined it.

Reflecting on the Analysis

As an organization aiming to create a new vision of education, one that provides focused, continuous intellectual development in a socially responsive community for all students, the NCRVE's goals are consistent with Dewey's views of a democratic education. The new NCRVE conception of vocational education is an intellectual construct that manifests itself in different ways in different environments. Nevertheless, there are five common pillars loosely bound together with threads of integration and collaboration. First, the academy with its career theme gives the new vocationalism its form and administrative integrity. Next, within the academy, Tech Prep gives vocational education scope and sequence through articulation agreements with colleges and universities. Thirdly, AAI uses the core academic subjects of mathematics, science, social science, and language arts combined with occupational analysis to explore the nuances and inner workings of an industry group. Constructivism, a pedagogy that emphasizes problem identification, guided discovery, and meaningful social action as an important element of reflective thought is the fourth pillar. Finally, internships connect the classroom to business partners who provide real world work experience as well as insight into the values and ethics of a given career path. In general, the new vocationalism as an ideal is moving toward John Dewey's aim of student engagement in democratic education as a way of transforming American industrial culture. However, there are some planks of the NCRVE framework that need shoring up.

School Structure and Governance

Dewey argued that the pace of industrial development at the beginning of the 20th century made it impossible to predict what the future would look like and, therefore, inappropriate for secondary school to teach narrow information and skills, what Schutz (1976) called "cook-book knowledge" (p. 76). In contrast to memorizing such recipes, Dewey (1897/1972) suggested that to prepare a student for the future meant "to give him command of himself" (p. 86) by engaging him "in a process of living" (p. 87) appropriate to his age and experience. The school should, in Dewey's view, be a simplified social structure that neither overwhelmed students nor required them to use their powers prematurely in overly specialized endeavors. He suggested that the secondary school experience should extend from ages 14 to 20 and that specialization should follow a broad-based cultural education. The new vocationalists are hoping the AAI curriculum and academy connections to the community at large will provide that education.

The pace of industrial development and technological innovation at the beginning of the 21st century make the future no less unpredictable, the notion of specialized skill training no less untenable, and an elongated secondary school period no less important. In this context, the secondary school environment would extend down to the eighth grade and up into the first two years of higher education. Dewey argued that school units need to be smaller so that a community spirit could develop and shared decision making could extend to the student body. One might envision a town meeting structure in which the community, teachers and students with equal voice operating in a public space, could develop social norms and discuss school issues and problems in a spirit of civil discourse. The principal would serve as the chief administrator and lead teacher of the school, but other responsibilities for problem identification and problem solving would fall to ad hoc

faculty-student committees. Membership in organizations like the leadership council, the curriculum council, the school improvement team, would include representatives with equal voice from all stakeholder constituencies. Students would participate fully in the authentic jobs of the school including doing business with vendors, stocking and staffing the cafeteria, working on the grounds, maintaining the building and equipment, producing school publications, and staffing various social service agencies. This level of participation would naturally lead to a full service school orientation where the school community and the neighborhood would become one integrated environment.

Multiage grouping and student-teacher groups that stay together for multiple years would also be natural extensions of the school as a microcosm of community life. Dewey believed that to organize subject matter in a linear sequence was to impose prematurely an adult organizational pattern on a naturally inquisitive student. Instead, in a Dewey school, the problem under consideration would dictate the information and skills students would develop. Dewey would support students teaching each other and integrating knowledge from their other environments with their school experience. While the teacher would have the responsibility for guiding discovery and providing a resource rich environment, student intrinsic interest in the problem being investigated and the resulting action plan would drive the daily activities.

Tracking would be replaced with interest based programs, all of which would require rigorous investigation and demand high quality, socially meaningful results. Heterogeneous student groups would move at their own pace along an experiential continuum, and a group that had formed a cohesive learning community could stay together for several years, tackling more sophisticated problems and more complex

occupations as their development progressed. Dual enrollment programs at local colleges and universities make it possible for students to move to more advanced work as soon as they are ready while remaining connected to their school community. At the same time, some students would be able to stay longer in the secondary program with no stigma attached. All students would have a common school experience but one that was fluid and not predetermined.

Dewey's laboratory approach requires an atypical configuration of time and space. The instructional blocks need to be long to allow for extended investigations. The use of a "group investigation" cooperative learning structure (Sharan & Sharan, 1992) answers Dewey's call for research as reflective thought in a social context, and the problem identification and planning processes inherent in that structure require longer times for group discussion. The classrooms become laboratories in which students gather resources and equipment, conduct experiments, and complete projects. Students will also move easily in and out of the school environment as necessary to complete their investigation.

However, following the aim of simplifying experience and focusing on creating school community, Dewey recommended emphasizing school-based social issues that correspond to those outside the school. Students might investigate business issues by developing in-house businesses or running existing ones. Computer technology could be studied in the context of building and maintaining computers for school use. Students could work toward becoming software engineers or systems analysts by learning to write programs, studying the applications used in the school, and taking responsibility for trouble shooting and resolving the system glitches that regularly show up in the school setting. The emphasis in a Deweyan school is intellectual and social growth through

participation in an authentic community. Therefore, school community leaders must begin to think about school governance, operations, and structure as vehicles for such growth.

Secondary Curriculum

The secondary curriculum and dominant instructional method of a Deweyan restructured school must be natural extensions of Dewey's (1916a) "education through occupations" (p. 309) and his concept of thinking as research. In Dewey's mind, the curriculum should not be a collection of privileged, pre-organized truths to be memorized and recited; instead, it should be a set of problems to be solved, hypotheses to be tested, and actions to be taken. He suggested that schools could use the project method to good advantage and could consider renaming courses to reflect the reality of cross-referenced material and natural connections across disciplines that appear in any investigation. He also advocated eliminating fragmented lessons and the constant and deadening drill and practice, preferring to keep students interested with appropriately challenging intellectual tasks. We hear him advocating the study of algebra, the reading of meaningful literature, and even the study of foreign language by the end of elementary school and suggesting that history, economics, psychology, philosophy, and communication should be the core subjects of a secondary school program.

Dewey's approach was to create an intellectually rigorous, semi-vocational curriculum for all students. The courses would be organized and renamed according to the real work of investigating an industry or occupational group. A Dewey school would use applied courses that merged research method with knowledge and skills from all relevant disciplines. Students would not study history chronologically nor look at the same body of information multiple times. They would not necessarily study mathematics

and science in a particular sequence or learn an occupationally specific skill set for immediate use. Language arts would become the art of communicating clearly and powerfully the information and concerns germane to the project at hand. Courses in entrepreneurship, the artistry of finance, political lobbying, industrial psychology, economic history, muckraking journalism, labor law, and business ethics of a given occupational group would dominate student schedules. Learning for its own sake and problem solving for the improvement of community life would become central norms of the school.

Secondary Method

The role of the teacher is an expanded and complex one in a Dewey school. Dewey envisioned these dedicated individuals as teacher-scholars, innately curious about their disciplines and about the process of education. As such, teachers would be expected to stay current with advances in their academic fields and in educational psychology. New discoveries in learning theory would become topics for faculty study, and when appropriate, teachers would modify their instructional method accordingly. Dewey acknowledged the value of recitation as a time for mental play, not as a time for regurgitating memorized rules or data. Teachers would build on the recitation through facilitated seminar discussion, using dialogue to explore issues and develop a collective understanding of social and ethical significance. That understanding would then lead to problem identification, action planning, research, and overt action to resolve the problem. In this school, teachers become environmental designers, curriculum developers, discussion facilitators, resource brokers, monitors of student development and group progress, and critics of the resulting work product.

Dewey's vision sets a high standard for school governance, challenging curriculum, authentic investigation, quality instruction, and meaningful expressions of academic achievement. Success on these fronts demands collaborative and facilitative leadership, common planning time, manageable class sizes, highly competent and creative instructional staff, relief for teachers from non-instructional duties, and some paraprofessional support. NCRVE researchers reported a lack of joint planning time, staff, and money as obstacles for implementing these crucial elements of the new vocationalism (Andrew, 1996a; Bragg, Kirby et al., 1994; Bragg et al., 1997).

Connecting to College

Dewey schools conceive of intellectual development as meaning making and the ordering of one's experience. Dewey always advocated a progressive program that moved students toward disciplined thinking, an ordered, expert view of educational experience. However, he saw the final realization of that process happening in a postsecondary setting. Thus, articulation agreements between the secondary school and local institutions of higher learning, dual enrollment programs, and college admission through portfolio assessment and audition like those described in NCRVE data are consistent with Dewey's thinking.

However, Dewey would reject as mis-educative the emphasis school and college administrations place on Carnegie Units of traditional, isolated subjects and on standardized tests to determine students' college entrance. Dewey understood the unique position of the high school as a bridge between two traditions and realized the pressure it received to conform to university expectations. At the same time, he argued that the university suffered from some of same problems of waste and duplication that were exhibited in the high school. Failure to fully accept applied courses and thematic

curriculum organized around occupations as viable high school programs in preparation for university admission as reported in NCRVE studies are symptoms of the problem. Dewey advocated a rolling admissions policy, one that would allow students to move smoothly at developmentally appropriate times into more specialized studies. Admission to those programs would be contingent on a student's demonstration of historical understanding, reflective thought, clear communication, and social commitment. Again, NCRVE researchers reported that poor articulation between the secondary school and the university about course material, quality standards, and value of vocational courses for admission to higher education are obstacles to the new vocationalism becoming a legitimate school reform initiative (Bragg, Kirby et al., 1994; Bragg et al., 1997).

Connecting to the World of Work

The first stage of incorporating new workers into the national economy is the school-business partnership. One element of an academy program is the internship or apprenticeship with partnering businesses and corporations (Jobs for the Future, 1990; Hamilton, 1986, 1990, 1993; Hamilton & Hamilton, 1992). Benson (1997) lauded "youth apprenticeship" (p. 205) as a way to transition students from school to the world of work. In his discussion of the Craftmanship 2000 program in Tulsa, Oklahoma, Benson described students spending a half-day studying academic subjects and the other half, "in German style," working "across the hall in the metal-working lab" (p. 205). He suggested that integration of academic and vocational learning happens "at least in the lab portion of the day" with the teacher in the role of coach (p. 205). The program continues into community college, and students are paid during their training. Although the term "apprenticeship" is rarely used, nearly all student intern experiences examined by NCRVE researchers included specific occupational skill building and paid employment

for students, part time during the school year and full time in the summer (Andrew, 1996a; Bragg, Kirby et al., 1994; Bragg et al., 1997; Hamilton, 1986, 1990, 1993; Hamilton & Hamilton, 1992; Raby 1995; Stern et al., 1992).

It is on the point of apprenticeship that Dewey and the NCRVE have a fundamental disagreement. One of the NCRVE goals is preparation of skilled workers ready to join the workforce directly from high school. New vocational programs pay special attention to students who would not typically go on to higher education, and the emphasis of their program is specialized technical skill training without the liberalizing effect of integrated academics, depth of understanding, or social activism. Instead, the goal becomes paid employment as soon as possible, even during the school experience.

Dewey argued that secondary school and apprentice training did not complement each other. He also suggested that the German system of industrial education was a thinly veiled attempt to enrich employers at the expense of employees, an aim Dewey deemed inappropriate in democratic society. Dewey (1914/1985a) believed that students should stay under "educative influences for a longer time" in order to develop an "efficiency of industrial intelligence" that would be more important to social progress than the premature acquisition of "technical trade efficiency"(pp. 96-97). Dewey foresaw the rapid pace of invention allowing workers both professional and geographical mobility, and he understood the need for educating workers to be flexible and resourceful.

[The aforementioned facts] speak for the necessity of an education whose chief purpose is to develop initiative and personal resources of intelligence. The same forces which have broken down the apprenticeship system render futile a scholastic imitation of it. (p. 96)

Thus, Dewey supported school restructuring and curriculum reorganization instead of industrial trade training.

An apprenticeship program like Craftmanship 2000 is inconsistent with Dewey's aims because it perpetuates the academic-vocational dualism and promoted the practical and economic value of occupations at the expense of their intellectual worth. Dewey believed students should investigate occupational groups, study their labor history, look at technological advancement in those groups and their impact on socioeconomic and political issues, and understand their contributions to social progress. He supported partnership connections with industry as a way for students to have entry and access to its inner workings and advocated open dialogue among all the stakeholders about the ethics and projected future of the occupational group. In Dewey's view, school was not the best place for technical training; such training was better done later in a person's experience, at the job site or at the university.

Conclusion

Although not congruent, the NCRVE new vocationalism framework and Dewey's expanded notion of vocational education are similar. Dewey's Chicago Laboratory School was much like an academy in form and function. However, Dewey viewed a focus on one occupation or a narrow career field as restrictive. He believed curricula should include a variety of occupations, particularly those that have the potential to stimulate lasting, positive social change. Dewey was committed to the definition of education as reorganizing and reconstructing experience, both individual and cultural. The goal was continuous positive growth, and Dewey wanted teachers to focus on the fundamental occupations that contributed most to that growth. Studying them would, in Dewey's view, be a genuinely educative experience.

Dewey wanted teachers to use occupations to stimulate genuine student interest. He envisioned teachers and students pooling skills and concepts from all disciplines to define

and attack meaningful problems. He believed that secondary school leaders should understand the transitory nature of particular jobs and resist the pressure to teach occupationally specific skill sets. Instead, Dewey urged educators to help students learn generic academic skills that apply to the learning process in all life situations. He valued the insights from cognitive science and urged school communities to study the process of learning as a continuous exercise.

Teachers are the most valuable contributors to the new vocationalism as they were to Dewey's Chicago school, and Dewey would support the expanded role of academy teachers in curriculum development, research, and school governance. He advocated reduced class sizes. A truly student-centered program needs close relationships between teachers and students as well as among the students. Large classes are not conducive to such relationships, and they allow little time for teacher reflection on the educational process. Burdened with administrative duties and paperwork, teachers shy away from extra meetings where self-evaluation and program planning should take place. Much of that work must take place outside the regular school day, requiring teachers to give up personal time in the interest of school improvement. NCRVE research did not quantify teacher willingness to make that commitment nor how often particular program personnel participated in such evaluative activity.

Dewey believed that in schools where education encompasses personal and community development, classrooms as communities of practice should evolve naturally into a school community of learners. The NCRVE, like Dewey, understood the pervasive nature of vocation and the potential for students' to develop intellectually and socially from studying vocational pursuits. They also agreed with Dewey that a democratic

society needs a new breed of worker, one who thinks reflectively and independently, sees work as a calling, and has a well developed sense of social responsibility. Dewey (1916a) advocated efforts to overcome the separation between "hand and mind" and "individual and community" with

an educational scheme where learning is the accompaniment of continuous activities or occupations which have a social aim and utilize the materials of typical social situations. For under such conditions, the school becomes itself a form of social life, a miniature community and one in close interaction with other modes of associated experience beyond school walls. All education which develops power to share effectively in social life is moral. (p. 360)

The NCRVE framework for a new vocationalism is growing toward Dewey's end in view, and schools continue to strive toward a democratic ideal. By monitoring the national academy movement and promoting the new vocationalism as a collaborative school reform enterprise, the NCRVE helped move schools along the developmental continuum toward an educational experience for all students that is vibrant, social, integrated, and one that John Dewey would evaluate as moral.

CHAPTER 6 THE END IN VIEW: SYNTHESIS AND SUGGESTIONS

Introduction

Signs of a new approach to vocational education were evident as early as the 1960s. School administrators were creating theme-based academies, and educational psychologists were advocating a more constructivist pedagogy (Bruner, 1960, 1961) to motivate and engage students throughout the school. By the 1980s, Tech Prep was connecting vocational-technical courses in the high school to more advanced, specialized postsecondary programs, and AAI helped broaden and strengthen vocational study so students could increase higher education and career options. Charles Benson (1997) saw these reform efforts as interdependent components of a "new vocationalism" (p. 201) that integrated students' intellectual, creative, and practical intelligence.

First under Benson's leadership and later under that of David Stern, the NCRVE became the proponent of this new ideal. NCRVE staff studied the efficacy of career academies and magnet schools, Tech Prep, and AAI and championed their adoption. Their educational aim was a new educational process for all students.

The integration of academic and vocational studies in secondary schools is proposed as an alternative to the college prep curriculum. . . . In an integrated program of instruction, the objective is for students to get more, not less, academic knowledge. The objective is to be reached by embodying the pedagogical strengths of vocational education practice into the presentation of theoretical concepts. Through use of these pedagogical practices, academic knowledge is intended to be made more accessible to the majority of students, perhaps for the first time. (Benson, 1997, p. 202)

Consistent with Dewey's vision, that process uses the study of occupations to move students along an experiential continuum to a point where new knowledge as a blend of process and product becomes ordered and disciplined. At that point, the new vocationalists hope students will have deeper understanding of the intellectual content and required skills of an occupational field. They also envision students leaving new vocational programs more socially aware and ready to use their expertise to tackle whatever problems confront them in an uncertain, technological future. In the following sections, I suggest that the elements of the new vocationalism could serve as a framework for Deweyan school reform, consider some implications of such reform, and offer some suggestions for future research.

Looking Back: A Summary of Findings

The NCRVE research team has created a framework for vocational education that embodies Dewey's (1902) notion of educational experience. They have worked to integrate the academic content and thinking skills of the college preparatory curriculum with the practical, hands-on activities of vocational programs in order to make high school a richer, more meaningful experience for all students. The NCRVE has adopted Dewey's expanded definition of occupation while still supporting the business community's call for a more rigorous, technical education.

Educational aims. The stated aims of the new vocationalists as articulated by the NCRVE in their mission statements (NCRVE, 1993,1994, 1995) are in concert with those of John Dewey. Their general aim is to integrate school curricula so that all students will benefit from more intellectual rigor, more technical education, and more options for postsecondary experience. Better academic preparation and industrial skill training for Parnell's (1985) neglected majority--low performing students in the general track who

seem headed for early school exit and unskilled jobs--was their early focus. That vision quickly broadened to improving the quality of the school experience for all students and producing a highly skilled, flexible workforce able to compete in the global economy. NCRVE staff worked for change and attempted to shape school improvement efforts. They brought vocational educational reform to the fore by advocating for more inclusive vocational programs and promoting an integrated approach to all aspects of schooling. Like Reich (1991), many NCRVE scholars have conceived of a postindustrial economy with an expanded role for symbolic analysts, workers who can read and interpret the data and technical language of a high performance, technology dominated workplace. They believed that workers throughout the economy needed to become problem solvers and reflective thinkers. Finally, the Center took responsibility for promoting high performance workplaces and matching school programs with business partners who supported that concept.

Target population. As reported in several evaluation studies of Tech Prep (Bragg, 1992, 1997; Bragg, Kirby et al., 1994; Bragg et al., 1997), the early beneficiaries of the new vocationalism were the school system's more alienated students, those for whom education held the least promise or interest. Vocational educators hoped academy programs would motivate these students, give their schooling purpose and direction, and prepare them for real and rewarding work upon graduation. Such programs emphasized basic skills instruction, particularly in mathematics and science. One of the early reform goals was certainly remediation of basic skills; however, new vocationalism teachers couched remedial efforts in a language of hope and possibility. Consistent with Dewey's notion of intrinsic interest as motivation, early academy developers used thematic

programs to engage students in a community that had built-in academic and social supports. The academy programs were student-centered, and teachers used cooperative work groups to take advantage of students' social nature. Teachers encouraged pupils to do authentic research and take responsibility for their own learning. The new vocationalists did not underestimate their students' capacities. Rather, they set high goals and promoted hard work, civic responsibility, and social action (Andrew, 1996a; Raby, 1995; Stern et al., 1992, Stern et al., 1995).

School as educative experience. Dewey viewed school as a bounded experience, but one that was organically connected to the home and the community. He also understood the special responsibility of secondary school to blend elements of both the elementary and university experience. Career academy planners have attempted to balance those traditions. Using small classes, caring faculty, and maximum parent involvement, academy leaders work to duplicate the supportive, nurturing environment of elementary school. At the same time, rigorous academics and the use of Tech Prep and Advanced Placement courses connect students to the advanced and more specialized programs of higher education.

Dewey also argued that students should be actively involved in setting goals, planning their programs, and governing their community. While there is much evidence that academic goals and plans for research are made collaboratively with students (Andrew, 1996a; Berman & Steinberg, 1997; Steinberg & Rosenstock, 1995; Steinberg, 1998), there is little suggestion that academy students are actively involved in meaningful governance decisions. Leadership teams and advisory councils rarely include student members, and when they do, students are often not allowed to vote on substantive issues

(K. Shores, personal communication, December 26, 2001). Dewey considered such arrangements mis-educative because they restrict students' civic development and imply that school is preparation for future experience rather than a place where students can fully participate in the present.

The aim of career academies is to offer a focused program to which students, teachers, parents, and business partners become committed. However, the NCRVE reports on academies (Grubb et al., 1991; Raby, 1995; Stern et al., 1992) suggest that there is a tendency toward program isolation in the name of program integrity. Students usually choose their academy experience. Once in an academy, students have varying degrees of program flexibility as the academies tend to be small and specialized (National Academy Foundation, 2001).

Academy developers have to guard against becoming too rigid. There is a danger that multiple academy programs in a comprehensive high school could become tracks, each one isolating itself with specific curriculum requirements, skill specialties, and standards different from those governing the general school population. Under these conditions, the old dualism has not been resolved, only renamed. Of this, Dewey would not approve. Academy programs that research and think reflectively about several industry groups while maintaining close ties to the whole school community through social action are more in tune with the spirit of Dewey's proposed school reform.

Education through occupations. In the academy setting, career themes govern the curriculum, and the traditional core subjects are often taught using examples and problems from occupational settings. NCRVE researchers highlighted four programs (Andrew, 1996a) that have done the difficult work of integrating skills and concepts from

the classical curriculum into an "all aspects of the industry" approach. Studying occupations in this way does stimulate students' intrinsic interest, organize academic content for research, promote intellectual growth, and foster social action. Dewey would have approved. At the same time, career academy teachers and students are paying more attention to specific occupational skill building and job placement than Dewey would deem appropriate in the secondary school.

NCRVE case study data from Andrew (1996a) and reviews of new vocational programs by Packer and Pines (1996) and Olson (1997) suggest that practitioners of the new vocationalism are working to balance their understanding of integration and rigorous academic training for all students with the economic realities of their communities. Academy teachers see themselves as community activists and accept workplace skill development, job placement, and even job creation as part of their responsibility. Tech Prep becomes particularly important as it connects the technical education of the secondary school with the more specialized programs of the community college and university (Bragg, Kirby et al., 1994; Bragg et al., 1997). Unfortunately, many university admissions officers look skeptically at the applied courses and thematic curricula of career academies, and some students have difficulty gaining entrance to university programs (Andrew, 1996a). In many academies, teachers must confront the economic implications of knowledge and skill development in particular occupations. Many academy students must enter the work force at a young age, and academy teachers feel compelled to help them move successfully into the global economy. Education for occupations is still an academy reality.

One of the findings from the NCRVE case study data providing the strongest evidence of a Deweyan orientation is the new vocationalist teachers' use of student-centered, active pedagogy within the new vocational framework (Andrew 1996a; Raby, 1995; Steinberg, 1998; Steinberg & Rosenstock, 1995). The teachers described in these cases understood that students often enter academy programs with valuable background knowledge and seem committed to helping them build on that knowledge through authentic investigations and problem-solving experiences. In the context of career themes, the academy personnel described in these cases used cooperative-learning structures to stimulate social interaction and meaning making, and students were developing projects and portfolios to document intellectual progress and demonstrate mastery. These teachers had moved toward a constructivist approach and had assumed the roles of environmental designer, facilitator, coach, and mentor. Student workers were doing science, history, and mathematics to solve both simulated and real community problems and then used a variety of communicative arts to spread information about their solutions throughout the community. These academy teachers seemed to share Dewey's goal of developing a culture of habituated reflective thinkers.

Teacher-scholars. Like their students, teachers often choose their career academies, so it is not surprising to find that their energy and commitment are high. Dewey believed teachers had to be experts in their subjects and in the science of teaching, and he placed great responsibility on them to develop quality programs and motivated students. In today's schools of large classes, ethnic heterogeneity, and evolving technology, high quality teaching may be even more important in the new vocationalism than it was at Dewey's Chicago school. NCRVE reports do not reveal much about

teacher quality. The high quality student work products and the use of various teaching strategies described in NCRVE reports (Andrew, 1996a; Bragg et al., 1997; Raby, 1995; Steinberg & Rosenstock, 1995) suggests a high level of teacher expertise. However, the case study data are selective, and one cannot generalize about the range of national academy programs. Vocational teachers in comprehensive high schools reported feeling devalued by their college-prep colleagues (Little & Threatt, 1992, 1994), and the tendency for interdisciplinary teaching teams to speed through group process issues to get to program specifics allows those feelings to fester. The NCRVE reports pointed to the importance of allocating resources for staff development and curriculum planning. At the same time, NCRVE researchers pointed out that many programs are short of money and time for those activities (Andrew, 1996a; Bragg, Kirby et al., 1994; Bragg et al., 1997; Little & Threatt, 1992, 1994).

Business partnerships. Business partners have been instrumental in supporting the new vocationalism as a reform model. They have provided grants, equipment, personnel, internships, and employment opportunities. They have even held academy programs at the work-site, offering skilled personnel as curriculum planners, teachers, and research partners. Benson (1997) lauded the apprenticeship relationship as an appropriate way to blend school and work, and many academy programs have adopted this strategy (Hamilton, 1993; Hamilton & Hamilton 1992, 1994).

A school-to-work connection based on paid employment for students would look exploitative to Dewey. Dewey encouraged educational leaders to look skeptically at industrial society and challenge it to become more democratic. He wanted students to understand all the nuances of an industry, the historical, sociological, and political

contexts of the industry's development, as well as the economic ramifications of employment in any industry group. He wanted students to analyze the industry in terms of its social and political aims and challenge it to move beyond its search for profit and accept its moral responsibility. Dewey believed that only by creating a new breed of analytical, socially responsible workers would the quality of American life as a social democracy improve. How much real analysis and dialogue about industry morals and ethics takes place with business partners is not clear from the NCRVE research reports. Also, there is no stated uniform standard of commitment to the intellectual development of student partners by the business community in the research reports. If the NCRVE is committed to a Deweyan reform, the role of the business community in a school-business partnership needs to be clarified.

In sum, the NCRVE scholars and practitioners of the new vocationalism are striving for the Deweyan standard of education as human development and social action. Certainly they fall short, but their effort is noble. One might say that Dewey's ideal is too high, that no educational program could measure up. However, Dewey argued that it is the striving along with reflection that provides intellectual and social growth. Democratic living requires citizens to have a vision for the future, an aim to drive their actions. With no standard and no governing philosophy, an institution is rudderless, vulnerable to the political and social ebb and flow, and waiting hopefully for an opportunity to act. In Dewey's mind, individuals in constant search of self-actualization help move an institution toward its moral function, human development. The new vocationalists have seized on Dewey's vision of an education based on experience as a way to move vocational education toward moral legitimacy.

Moving Forward: Societal Implications

For some, the new vocationalism has not addressed the loss of motivation and the feelings of alienation that grow out of meaningless work. Many students still move through boring school programs and cannot find jobs that involve "rewarding work" (Borgmann, 1992, p. 47). Dewey was skeptical of school-business partnerships that simply looked to mold students to the current demands of economic production. Acceptance of the new vocationalism as Deweyan requires one to work toward institutional change.

Job creation. The success of the new vocationalism depends on a close working relationship between educators and the business community. Integration as a construct comes alive through this relationship. Dewey envisioned schools preparing a new class of workers, individuals who understood the complexities of democratic living, had a passion for their work, and compassion for the community in which they lived. A successfully integrated school experience creates an expectation that the work environment will also be integrated. Charles Benson (1997) envisioned successful students moving from an intellectually meaningful school experience to a workplace that "exists as a safe harbor for work and lifelong learning entwined" (p. 201). If schools adopt a Deweyan reform, occupations will have to make room for workers with a social conscience, individuals who are inquisitive and demand to be kept abreast of changes in the industry. Will there be economic opportunity for this new industrial democratic citizen?

If the new vocationalism is to become a legitimate educational reform, it has to match program graduates with available business opportunities. Former Secretary of Labor Robert Reich (1991) has described three major classes of jobs, each with its particular educational requirement. The first category is the "routine-production" services

of heavy industry that require basic numeracy and literacy skills along with the "cardinal virtues of reliability, loyalty, and the capacity to take direction" (p. 175). The second job classification is the "in-person" services that require at most a high school diploma and some vocational training. The third classification is the "symbolic-analytic" services requiring at least 4 years of college (p. 175).

Some analysts claim that the high tech economy is producing more symbolic-analyst jobs and that the educational system is not producing enough graduates prepared for these fast-changing and demanding positions (Bailey, 1991). Reformers have contended that potential workers need to be better educated before businesses can improve competitiveness, productivity, and profits (Attewell, 1987; Kraut, 1987; Murnane, Willet, & Levy, 1995). The contrasting position projects the largest number of new jobs to be in "person services": retail sales persons, waiters-waitresses, nurses, janitors, cashiers, food counter workers, and office clerks (Berryman & Bailey, 1992, Bailey, 1995). These jobs, argue the social control advocates (Attewell, 1987; Kraut, 1987) require employees to have the strong work ethic and sense of obedience and responsibility that have always come out of the comprehensive high school experience. In their mind, school reform means a return to the 3 Rs with renewed attention to social skill development, aims in conflict with the new vocationalist perspective.

Democratic sociotechnical work theory. In promulgating the new vocationalism, NCRVE researchers have argued that future workers need to be life long learners, reflective thinkers, and social activists willing to constantly readapt to changing social and economic conditions. This industrial flexibility will allow school graduates to meet employer needs throughout the entire spectrum of jobs. NCRVE advocates believe their

educational design is compatible with an emerging notion of work as reflective social interaction articulated as "democratic sociotechnical work theory" (Wirth, 1992, p. 6). This theory postulates that a business system has a learning capacity that allows it to adjust quickly to changes in the global marketplace. According to sociotechnical work theory, educated employees are a company's greatest asset and about the only thing that protects a company workforce from the temptation to move manufacturing facilities to low-wage nations. Employees at all levels of the organization become thinkers, and as such, they operate intelligent technology and function in self-managed work teams.

Firms using "horizontal-participative" management have production flexibility, high worker involvement, and good quality output. Wirth (1992) reported that manufacturing plants "designed with the most innovative sociotechnical methods . . . are 30 to 50 per cent more productive than their counterparts" (p. 37). Shoshanna Zuboff (1988) of the Harvard Business School suggested that the business community was at a crossroads. Businesses can either "automate" the workplace, using computers and intelligent machines to perform human work processes with more continuity and control, or "informate" the site to facilitate information sharing in a "data-rich" environment (pp. 64-65). To be productive in such an environment, workers not only become symbolic analysts (Reich, 1991), they collaborate on more meaningful and challenging tasks. Wirth (1992) described a data-rich environment in which "managers and workers fashion new roles that permit creative responses, as well as opportunities to add value to products and services" (p. 42). To informate requires a workforce with strong numeracy and literacy skills, the ability to create mental models and reflect on them, and the willingness to collaborate in problem solving. Thus, democratic sociotechnical work theorists assume a

systemic intelligence composed of human and physical capital; man and machine joined through electronic text and face-to-face work teams (Marshall & Tucker, 1992; Senge, 1990; Zuboff, 1988).

To succeed in such an environment, workers need to become self-regulated learners (Bandura, 1989, 1997) and divergent thinkers (Guilford, 1959). They must learn new skills and cross train as businesses carve out new places in a global marketplace dominated by fast changing niche economies (Marshall & Tucker, 1992). The operational vocational education model must be able to prepare a workforce for an eventuality that could mean as many as 10 career changes in a working lifetime. To match the knowledge and skill requirements of an informed work site, vocational education programs need to become more academically rigorous and incorporate higher levels of applied mathematics and science. Thus, a Deweyan school experience that stimulates intrinsic interest in occupations, treats occupations as callings, develops industrial intelligence through authentic research, teaches entrepreneurship, and promotes social activism seems well matched to this new world of democratic, informed work.

Workers as entrepreneurs. Along with wanting high performance job opportunities, graduates of the "new vocationalism" schools will be looking to start small businesses, either to take advantage of niche markets or to provide a community service. As we saw in Chapter 4, the AAI curriculum exposes students to all the aspects of business management and infuses them with a sense of social service and loyalty to the community. Success as an entrepreneur requires a good business plan and access to capital markets. The financial community must perceive such a Deweyan education as good collateral and be willing to loan young people with little experience the funds

necessary to capitalize business ventures. The competitive spirit of the marketplace must be tempered with compassion and social concern. Recognition of the interconnected and interdependent relationships that makeup a social community must influence financial decisions. Banks will be one of the occupational groups investigated by students using AAI, and relationships forged during that process should lead to collaborative business planning and access to business expertise and the funds needed to capitalize a carefully designed, socially responsible economic enterprise.

Meaningful relationships between business institutions and schools working to integrate student learning will begin to solidify the new vocationalism as a legitimate school reform. As schools and business entities evolve in tandem, the educational experience will become richer and more complex. Institutions will learn from each other, and students will move throughout the system, participating actively in present community life as preparation for a more complicated and uncertain future. It will be important for organizations like the NCRVE to document the system's continuity and to evaluate the new vocationalism in terms of its educational aims and its contributions to the social development and the economic growth of the nation.

Teacher education. Success of the new vocationalism depends on the availability of highly skilled teachers. The power of any school flows from its teachers and administrative leaders. These individuals provide the direction and support for students to develop into a community of socially aware, reflective thinkers. Dewey (1938) argued that teachers play an important role in forging a community from sometimes "bumptious and unruly and perhaps downright rebellious" individuals (p. 56):

Education is essentially a social process. This quality is realized in the degree in which individuals form a community group. It is absurd to exclude the teacher from

membership in the group. As the most mature member of the group he has a peculiar responsibility for the conduct of the interactions and intercommunications which are the very life of the group as a community. (p. 58)

Because a teacher's work involves so much more than explaining subject content and building skills, preparation for that work must become more unified and complex.

Teachers need to be able to forge relationships with students, with parents, with colleagues, and with their business partners. Good listening skills need to complement strong verbal and writing skills. Teachers need to learn the interpretive art of interpersonal relationships, the neuroscience of human development, and the cognitive science of learning theory. Dewey (1929) understood that having a science of education would enrich a teacher's capacity for understanding and intelligent decision-making.

Comfortable with the science, teachers would be free to add their art:

Command of scientific methods and systematized subject matter liberates individuals; it enables them to see new problems, devise new procedures, and in general, makes for diversification rather than for set uniformity. This knowledge and understanding render [the teacher's] practice more intelligent, more flexible, and better adapted to deal effectively with concrete phenomena of practice Seeing more relations he sees more possibilities, more opportunities. His ability to judge being enriched, he has a wider range of alternatives to select from in dealing with individual situations. (pp. 12, 20-21)

The preservice experience should not only be a search for such a science but also an immersion into the community experience. The study of teaching as a vocation might be done through an AAI, problem-solving approach. By actively participating in all aspects of a college of education community, preservice teachers would have a sense of the challenges their students will face. If the notion of occupations as organizing constructs becomes the standard for curriculum restructuring, preservice teachers will need to do some investigations into the fundamental occupations that are consistent with their academic interests. Methods courses will need to embed the teaching of

mathematics, science, social studies, and language arts into investigations of fundamental occupational groups, attending not only to discrete knowledge and skills, but also to the history, socioeconomics, politics, and ethics of the work. Education students may need to do several rotations through occupational groups to experience the work and the climate of the organization. Social awareness, community activism, leadership training, and academic expertise would all be necessary preparation for a Dewey school experience. It will only be through total involvement in a secondary school community experience with an accomplished mentor, however, that the skills of teaching and scholarship will be honed.

The demands of such a program suggest expanding teacher preparation beyond Dewey's 6 years of secondary school and 3 years of higher education. Dewey (1904, 1916a, 1897/1972) argued that an individual's experiences outside formal teacher education could provide some of the skills and insight needed to become a teacher-scholar. Experience in the occupational fields being investigated, sociopolitical savvy, and a capacity for relationship building would provide a good foundation. Teacher certification could then come from alternative teacher education programs embedded in school communities. Men and women retiring early or caught in the downsizing of industry groups might be enticed into a profession that valued its employees as creative thinkers and problem solvers. Certainly, faculty salaries are an issue; competent, multi-talented individuals need to be well compensated. However, the collegial climate and activist orientation of a Deweyan school would make teaching an attractive alternative.

Testing and accountability. To date, the new vocationalism has not been held accountable for increasing standardized test scores of academy students. Much of the

NCRVE research used survey techniques along with microethnography and case study methodology, and there were no correlational studies done to link test scores to either teacher behaviors or academy culture variables. Most of the NCRVE studies were completed just as states were piloting comprehensive assessment tests to measure student achievement levels and grade schools on the basis of improved test scores.

A conservative educational climate that supports a positivist and reductionist approach to academic performance will undermine the effectiveness of the new vocational framework. Dewey (1940) argued that using standard measurements of human potential to make educational decisions was to revere mediocrity. If teachers are required to teach a narrow, fragmented curriculum closely aligned to a state comprehensive test, they will quickly abandon the authentic investigations and experimental approaches that engage students in meaningful learning. Applied courses that use career fields and specific occupations as curriculum organizers lose their power to motivate students if an exit examination score is the primary determinant of student success. Paper and pencil objective tests will replace the complex work of completing a collaborative project, developing a professional portfolio, or demonstrating mastery to a review panel. Reflective thinking will wither under the pressure to memorize recipe knowledge and mechanical routines. Under those circumstances, the Deweyan ideal of education as individual and social growth will be compromised to such a degree that striving toward that goal will seem meaningless. Students and teachers will again become disenchanting and alienated by the school experience, and many of them will look for alternative learning environments.

The new vocationalism is a fledgling enterprise that could be battered by the winds of a conservative educational climate. New vocational programs predicated on student-centered pedagogy, flexible curriculum objectives, and authentic business partnerships are in danger of fading away if educational policy makers committed to accountability use reductionist methods to measure 21st century student accomplishments with overly narrow, 20th century criteria. However, proponents of the new vocationalism do need an ongoing program of formative evaluation to measure their development and adjust their aims. It is important for them to collaborate with the business community to choose a wide range of evaluative criteria, develop an impartial review process, and publish results. The long-term success of the new vocationalism depends on public support and federal funds, both of which depend on public confidence.

Suggestions for Further Research

Tracking the progress of the new vocationalism reforms will require both qualitative and quantitative research efforts. The new vocationalism concept is a new and complex one, and participants need some data for reflective thought. To date, NCRVE researchers have reported a lack of evaluative activity within the system, and the NCRVE research effort has focused on each of the three strands independently. Educational policy makers should now consider the new vocationalism framework as an integrated system and evaluate it as a possible vehicle for comprehensive school reform.

The primary aim of the new vocationalism is the integration of academic and vocational curriculum delivered with constructivist pedagogy. Integrating curriculum and pedagogy across a comprehensive high school with multiple business partners is complex and difficult work. One reason given for phasing out funding for the STWOA of 1994 in 2001 was the failure of too many school consortia to do that work (Zehr, 1998). A survey

study to determine how many school sites have reorganized curriculum into applied courses with a problem solving orientation would be instructive. That survey could also ask participants to list the most common obstacles and the most needed supports for implementation. Also, case studies that deconstruct the process of developing integrated curriculum and delivering it as a constructivist experience would provide insights into potential pitfalls to be avoided and highlights to be embraced during the curriculum development process.

A second aim is the smooth entry of school graduates into career paths or higher education. A longitudinal study of a national student cohort would help educators determine the effectiveness of articulation agreements as well as assess the strengths and weaknesses of AAI and school-business partnerships as vehicles for successful entry to the next level of experience. There may be elements of certain academy programs that are particularly important for college admission and different elements crucial to career preparation. A longitudinal study might highlight those differences and suggest new areas for integration.

A third aim of this integrated, thematic approach to education is increased interest, motivation, and academic productivity for all students. Currently, performance on standardized tests at both the state and national level as well as for college entrance is the dominant indicator of academic growth. Throughout new vocational programs, educational leaders are using review of class work, attendance, graduation rates, participation in postsecondary academic programs, and workplace performance as measures of academic productivity; however, to date, these leaders have not attempted to link participation in the new vocationalism with improved standardized test scores. A

quantitative study to determine the correlation between performance in applied courses and performance on standardized tests would be valuable.

Some evidence suggests that student participation in collegial learning communities can result in improved academic achievement (Bandura, 1997; Darling-Hammond, 1999; Sweetland & Hoy, 2000; Wenglinsky, 1999). The heightened sense of community in the academy and the problem solving approach to curriculum and instruction should lead to increased engagement and higher levels of student achievement. A national climate-culture survey of academies might produce a list of common cultural variables that could then be correlated with standard measures of academic achievement. The results might lead to a list of cultural elements that all academy communities should incorporate to promote improved student performance.

NCRVE researchers reported that some vocational teachers in comprehensive high schools felt marginalized and devalued when working to integrate curriculum (Little & Threatt, 1992, 1994). A micro-ethnography of an academy culture could provide some insight into the processes of collaborative work and social meaning making that contributed to those negative feelings. Study participants might suggest ways to reconfigure the collaborative process to value all participants. Also, a series of case studies on key academy personnel and problem solving teams would provide a glimpse into the complexity of collaborative work and its power to influence personal and collective development.

Finally, the new vocationalism needs program evaluation studies. The National Academy Foundation could sponsor an evaluative team to study academy programs in terms of new vocationalism goals, documenting successes and detailing areas needing

focused attention. If a Deweyan new vocationalism is to become a viable means of school restructuring, educational leaders will have to lobby government for political and financial support, and candid self-evaluations will be important documentary evidence of the new vocationalism's power to reform the educational process.

Conclusion

At the close of the 20th century, the educational landscape looked much like it did 100 years earlier. Secondary school teachers and their students were being buffeted by competing educational policy positions. Conservative political and educational policy makers, following in the footsteps of Prosser and Snedden and still valuing the psychology of industrial efficiency, advocated using controls, standards, and high stakes testing to improve the educational system. A more progressive group, some acknowledging the vision of John Dewey as inspiration, sought to develop the intellectual, social, and civic capacity of school communities using integrated curriculum, student-centered instruction, and authentic assessment. These competing visions were influencing comprehensive school reform movements by the late 1980s; however, few of these movements looked carefully at vocational education or tried to bring vocational teachers into the reform conversation. The work of scholars at the NCRVE during the last decade of the century had the potential for enlivening the reform debate, but the decentralized nature of the organization and its recent reconfiguration caused Center staff to produce a fragmented description of their new vocationalism as a legitimate reform model. This study, I believe, builds on the Center's work. It further explicates and clarifies their vision and provides the necessary philosophical warrant for teachers to rally around a conception of semivocational education that integrates head and hand for all students.

The new vocationalism is more than a vocational reform. It proposes to make secondary education a meaningful and relevant experience for all students. NCRVE advocates, Bragg, Grubb, Oakes, to name but a few, are calling for academy programs with heterogeneous classes, creative and committed instructors, a curriculum that uses occupations to interest and motivate students, and student centered instruction as the way to increase national academic achievement. While they understand the need for basic skill instruction, the new vocationalists believe that every student deserves a rich curriculum that stimulates thinking and social action. By identifying the pillars of the new vocationalism and supporting them with the intellectual weight of Dewey's philosophy of experience, this study provides teachers one standard of educational reform against which they can measure their own work.

Dewey was indeed correct to suggest that all schooling, particularly high school, is fundamentally vocational. Many comprehensive high school reformers have incorporated that understanding along with Dewey's research and recitation methods into their restructured learning communities. In fact, many of the hallmarks of educational practice in the new vocationalism have been tried before: interdisciplinary curriculum, team teaching, cooperative learning, alternative assessments using portfolios, demonstrations, and projects, and higher order thinking activities. The list reads like a recapitulation of 20th century best practices, and many of these practices are being used effectively in other reform initiatives to increase student achievement. New vocationalists are combining these elements in new ways to explore career fields and to solve community problems. By providing a complete picture of the theory and practice of the new vocationalism buttressed by Dewey's practical theory of vocational education, this study

gives vocational educators the ammunition needed to participate as equal partners in the school improvement conversation.

To develop a new breed of skeptical industrial citizens, individuals well versed in the art and science of problem solving and reflective thought, passionate but adaptable when thinking about work, and committed to democracy as a method of communal living, is the primary aim of the new vocationalism. Is that not the aim of all legitimate high school improvement efforts? Realizing that not all students will move on to postsecondary education, community leaders hope that a meaningful high school experience will produce thoughtful, active, concerned citizens. By considering community occupations intellectual constructs and using scientific research method to study them, Dewey demonstrated the feasibility of making schools extensions of community life. He (1900/1990) explained the power of a model to influence change.

We do not expect to have other schools literally imitate what we do. A working model is not to be copied; it is to afford a demonstration of the feasibility of the principle, and of the methods which make it feasible. We want here to work out the problem of the unity, the organization of the school system in itself, and to do this by relating intimately to life as to demonstrate the possibility and necessity of such organization for all education. (p. 94)

Dewey's description suggests that a school organized as a simplified community can work in tandem with a cognitive work environment to stimulate learning. As an ideal, the new vocationalism has remained true to most of Dewey's educational principles, and several individual academy programs can be singled out as Deweyan models in practice. By documenting programs like those at Rindge Technical School and Oakland Bioscience Academy, the NCRVE has demonstrated that contemporary models infused with Deweyan principles can meet the needs of 21st century students. Findings from this study strongly suggest that students of varied backgrounds and abilities, when directed by

expert teachers in a school context that supports and challenges them, will develop intellectually and socially. They in turn will move the community forward.

But this progress takes time. Communities must develop the political will to marshal the resources for sustained educational progress. Even with this new momentum toward a Deweyan model of vocational education, energy for the reform work will be hard to sustain. In reviewing past attempts at progressive education reform, Lawrence Cremin (1965) pointed out that Deweyan progressive education "demanded infinitely skilled teachers and it failed because such teachers could not be recruited in sufficient numbers" (p. 56). There is also the problem of finding business partners with genuine cognitive work environments and quality mentors for student interns. Gregson (1995) has argued that a truly educative work-site will teach "heuristic strategies," metacognitive skills, social skills, and occupational skills using multiple teaching strategies. He goes on to suggest that work experience in such an educative environment is "less exploitive and more democratic in nature than the work that the majority of U. S. youth experience" (p. 13). It is not clear how many educative work-sites there currently are or how committed the business community is to developing them.

One cannot be sure that American business is ready for an influx of critical, reflective thinking workers. Many business leaders are calling for a better-trained work force in the traditional sense, and the social control advocates still have great influence in determining a vision of school improvement based on teacher-centered instruction, separate vocational and college preparatory tracks, and high stakes tests. When educational leaders implement that vision, they have little time for the complex work of

integrating the classical and vocational programs or developing a problem solving instructional design in comprehensive high schools.

Acknowledging the difficulties inherent in adopting a Deweyan reform model, there is still great value in striving toward the goal. Even though economists still disagree about the nature of 21st century work, business and educational policy makers alike believe that high quality education provides hope and possibility for young people facing an uncertain future. Learning theorists agree that the most effective learning activities are authentic investigations into relevant and meaningful questions done in a supportive environment. Whatever the economy, all students benefit from such a holistic learning experience.

Educational policy makers have a decision to make. Do communities reenter a social efficiency paradigm that uses schools as a means of social control? Or do community leaders embrace the notion of intellectual capacity building and individual self-actualization as the way to strengthen America's postindustrial democracy? In modeling a school community built on genuine cognitive work and democratic social development, Dewey set a high standard, and the NCRVE has faithfully adopted his intellectual and activist spirit in its framework for school restructuring. It now falls to educational and business leaders to create an experimental climate and to schools to use democratic dialogue to create a socially aware community with a shared purpose willing to strive toward a high ideal. As Dewey (1916a) suggested,

There is more than a verbal tie between the words common, community, and communication. [People] live in a community by virtue of the things which they have in common; and communication is the way in which they come to possess things in common. What they must have in common in order to form a community or society are aims, beliefs, aspirations, knowledge—a common understanding—like mindedness Consensus demands communication. (pp. 4-5)

Beyond preparing a more literate, productive workforce, the new vocationalism has the potential to develop learning communities grounded in democratic discourse and committed to developing an efficiency of the mind. The work of this study has been to delineate the common elements and provide the philosophical grounding necessary for the forceful argument needed to sustain those communities and create others. The NCRVE has reconfigured to disseminate the organization's research findings and to train new cadres of vocationalists committed to the vision of a new vocationalism. Members of this new organization must continue, however, to call for an integrated, thoughtful, semivocational approach to secondary school education and agitate for its implementation if they want local teachers to fight for integrated programs. With this study, I echo that call.

In addition to the insight and inspiration gained from the work of John Dewey, vocational and liberal studies educators alike need to develop the political clout necessary to garner the resources for program integration and community building. Strengthening that clout becomes easier when teachers and school leaders have a clear vision, are committed to a philosophy of intellectual growth and social development, and have a blueprint for action. This study offers those elements as a plan for helping schools create and sustain learning communities that are connected to the world of work. Full participation in such communities immerses students in a complete learning process, a democratic education grounded in personal empowerment and collective intellectual freedom. By continuing to create such communities, the new vocationalists can engage more students in the continuous reconstruction of experience that John Dewey would judge both educative and moral.

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BIOGRAPHICAL SKETCH

Jeffrey Laurance Dow is a native of Belfast, Maine. He received a B. A. in government from Dartmouth College in 1970 and a M. Ed. with concentrations in social studies and psychology from the University of Maine at Orono in 1976.

Being a third generation teacher on his mother's side of the family, Mr. Dow began his career at St. Marks School of Texas in Dallas where he taught social studies to middle and high school students. He continued his career as a middle school teacher and dean at The Cranbrook Schools in Bloomfield Hills, Michigan, and served as the Assistant Director of the Middle School at Ransom-Everglades School in Miami, Florida. In 1980, Mr. Dow opened a tutorial and counseling service in Miami. As an advocate for students and families, Mr. Dow tutored middle and high school students, counseled students and families on educational issues, facilitated family-school conferences, and designed school programs for home-bound students. After working in this capacity for 14 years, he moved to Gainesville with his wife Marty and, in 1995, enrolled in a doctoral program in social foundations at the University of Florida.

While at the university, Mr. Dow served as a graduate teaching assistant, participated in several research projects, and acted as a school consultant with the National Resource Center for Middle/High School Education at the University of South Florida, Tampa, Florida. In 1998, designated a Provost Scholar by the university, Mr. Dow assumed the position of Project Director on Project SIR, a federal sustainability research project in the Department of Special Education. Upon completion of the

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