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ABSTRACT

Traditional academic diplomas and degrees remain the most prominent credentials for the workplace. Educational participation and rates of attainment of traditional and other credentials at all levels are at an all-time high. Between 1970 and 1997, female postsecondary enrollments increased by 67.2%. Blacks and Hispanics, however, remained underrepresented in postsecondary education. Compared with traditional credentials, certificates are much more closely tied to the specific knowledge and skills needed for a particular occupation or profession and focus less on broader educational goals. Because of their tight focus on industrywide or professionwide standards, certificates are often more relevant to the needs of workers and employers alike. Certificates can be acquired in some secondary career and technical education (CTE) programs, as well as at the subbaccalaureate and postbaccalaureate levels. Proprietary and industry certificates are the newest phenomenon in credentials. A large body of evidence indicates that credentials bring substantial returns to their holders, with the highest-level credentials yielding the highest returns. CTE practitioners can help their students obtain a realistic idea of their options by providing them with information and guidance on the following items: a range of credentials; individual interests, aptitudes, and abilities; and labor market factors. (Contains 21 references.) (MN)

The Highlight Zone
Research @ Work

2000

Credentials: One Size Fits All?

by Michael E. Wonacott

no. 2

Conventional wisdom says that credentials are the keys to success in the workplace and in life. In particular, the 4-year bachelor's degree is widely considered the universal ticket to a desirable, high-paying career and a comfortable, middle-class life. Of course, not everyone agrees with this conventional wisdom about credentials, especially the conventional wisdom about the bachelor's degree.

To some, the bachelor's degree is only one item in a growing list of credentials–some old, some new–that verify the qualifications that workers have to offer and employers need. Some predict that the economy will never have enough desirable, high-paying jobs to absorb the large numbers of 4-year college graduates entering the work force; others claim that more and more jobs will require higher and higher levels of education in the 21st century. Some see 2-year occupational or technical associate degrees as one road to success, although others call them a dead end. Some advocate industry-based professional or occupational certification as the only way to stand out from the crowd.

Career and technical education (CTE) practitioners need clear, up-to-date information about credentials in order to assist students in making informed and effective decisions about how to prepare for the world of work. In this ***Highlight Zone,*** we review the literature and research on credentials to provide baseline information to help practitioners prepare students for the fast-changing, high-performance workplace of the new millennium.

Traditional Credentials

Probably the most prominent credentials for the workplace are the traditional educational credentials, diplomas and degrees:

- The high school diploma is now considered the minimal workplace credential, typically qualifying holders for low-skill, low-paying jobs.
- The 2-year associate degree has become more common and is highly regarded by some, particularly if the degree leads to licensure or certification in a chosen occupational area.
- The 4-year bachelor's degree is widely considered the best workplace credential.
- Graduate degrees–master's, doctoral, and professional–are seen as increasingly desirable for a competitive edge.

Who's getting educational credentials? More and more people every year. Educational participation and attainment rates are at an all-time high at all levels, not only for white males but also for females and minorities.

High school. High school graduation rates have increased—hence, dropout rates have decreased—for all groups between 1971 and 1999; even greater increases have occurred in college attendance and college graduation rates (Table 1). In particular, high school graduation and college attendance rates have gone up considerably for Blacks and Hispanics; college completion rates for Blacks and Hispanics have also increased, although not as much.

Plans for college. The common perception of the importance of a college degree, particularly the bachelor's degree, is reflected in some additional figures. More and more high school students are taking a college prep curriculum (8 percent in 1982, 32 percent in 1994), and fewer and fewer are taking a general curriculum (48 percent in 1982, 42 percent in 1994) (National Center for Education Statistics 2000c). In addition, vocational concentrators (graduates taking three or more courses in a single occupational program area, with or without a college prep curriculum) decreased from 34 percent in 1982 to 25 percent in 1994,

The Highlight Zone: Research @ Work is designed to highlight research findings and provide a synthesis of other information sources. The intention is to help practitioners apply and adapt research results for local use.

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Table 1. Educational Attainment of 25- to 29-Year-Olds, 1971 and 1999

	1971	1999
High School–All Groups	78%	88%
Whites	82%	93%
Blacks	59%	89%
Hispanics	48%	62%
Some College–All Groups	44%	66%
Whites	45%	69%
Blacks	31%	58%
Hispanics	31%	51%
Bachelor's Degree or Higher–All Groups	22%	32%
Whites	23%	36%
Blacks	12%	17%
Hispanics	11%	14%

Source: National Center for Education Statistics (2000a)

and vocational specializers (graduates taking four or more courses in a single occupational program area with at least two of those courses beyond the introductory level) decreased from 13 percent in 1982 to 7 percent in 1994. All this occurred during a time when the average number of Carnegie units accumulated by public high school graduates rose from 21.6 to 24.17 (National Center for Education Statistics 2000b).

Furthermore, more and more high school seniors are reporting plans for postsecondary education, particularly plans for a bachelor's degree (National Center for Education Statistics 2000a). In 1980, 67 percent of high school seniors reported definite plans for higher education: 9 percent, technical/vocational school; 12 percent, 2-year college; 35 percent, 4-year college; and 11 percent, graduate or professional school. By 1997, 16 percent reported planning to graduate from a 2-year college; 56 percent, graduate from a 4-year college; and 21 percent, attend graduate or professional school. Students planning to attend a technical/vocational school declined slightly to 8 percent.

College enrollments. The importance attributed to college education is also reflected in nationwide statistics for actual postsecondary enrollment (National Center for Educational Statistics 2000a):

- In October 1970, 25.5 percent of all 18- to 24-year-olds (5.8 million) and 5.5 percent of all 25- to-34-year olds (1.35 million) were enrolled in postsecondary education.
- In October 1997, those figures had risen to 36.5 percent of 18- to 24-year-olds (9.2 million) and 8.8 percent of 25- to-34-year-olds (3.3 million).

Total fall postsecondary enrollments for all age groups increased by 67.2 percent, from 8,580,411 in 1970 to 14,345,532 in 1997 (National Center for Education Statistics 2000b):

- Undergraduate enrollment increased 66.7 percent, from 7.376 million to 12.298 million.
- Graduate enrollment rose 69.8 percent, from 1.03 million to 1.75 million.
- First-professional enrollment rose 67.2 percent, from 173,411 to 296,532.

The gender patterns of postsecondary enrollments have changed considerably. For the period 1970-1997, females outnumbered males in the resident U.S. population about 51 to 49 percent (U.S. Census Bureau 1998). In 1970, males outnumbered females at all levels of postsecondary enrollment; by 1997, females accounted for more than proportional undergraduate and graduate enrollments and a much greater, though still not proportional, share of first-professional enrollments (see figure 1).

Blacks and Hispanics, on the other hand, are still underrepresented in postsecondary education, although their share is increasing. Black non-Hispanic postsecondary enrollments increased by 1.4 percentage points between 1980 and 1997, whereas Hispanic enrollments increased by 4.6 percentage points (Table 2). As a rough comparison, the overall Black population (which includes individuals who also described themselves as Hispanic) increased by 0.9 percentage points, from 11.8 to 12.7 percent in the same period; the overall Hispanic population (who may be of any race) increased by 4.6 percentage points, from 6.4 to 11.0 percent (U.S. Census Bureau 1998).

College degrees. Similarly, the number of postsecondary degrees earned has risen considerably in the past 30 years (Table 3):

- The total number of postsecondary degrees of all types increased by 80 percent from 1969-70 to 1996-97, with a slight increase projected for 2006-07.
- Although bachelor's degrees still account for the greatest numbers, they represented a smaller percentage of all degrees in 1996-97 than in 1969-70—the only degree to lose market share.
- The proportion of associate degrees, on the other hand, has increased from 16.2 percent to 25 percent in the same period–proportionately the greatest growth of all degrees.
- The proportion of masters, doctoral, and professional degrees has grown slightly from 21.5 percent to 23.7 percent.

Fields of study. When we look at the numbers of bachelor's, master's, and doctoral degrees granted in different disciplines and the change in those numbers between 1970-71 and 1996-97, some interesting trends emerge (Table 4):

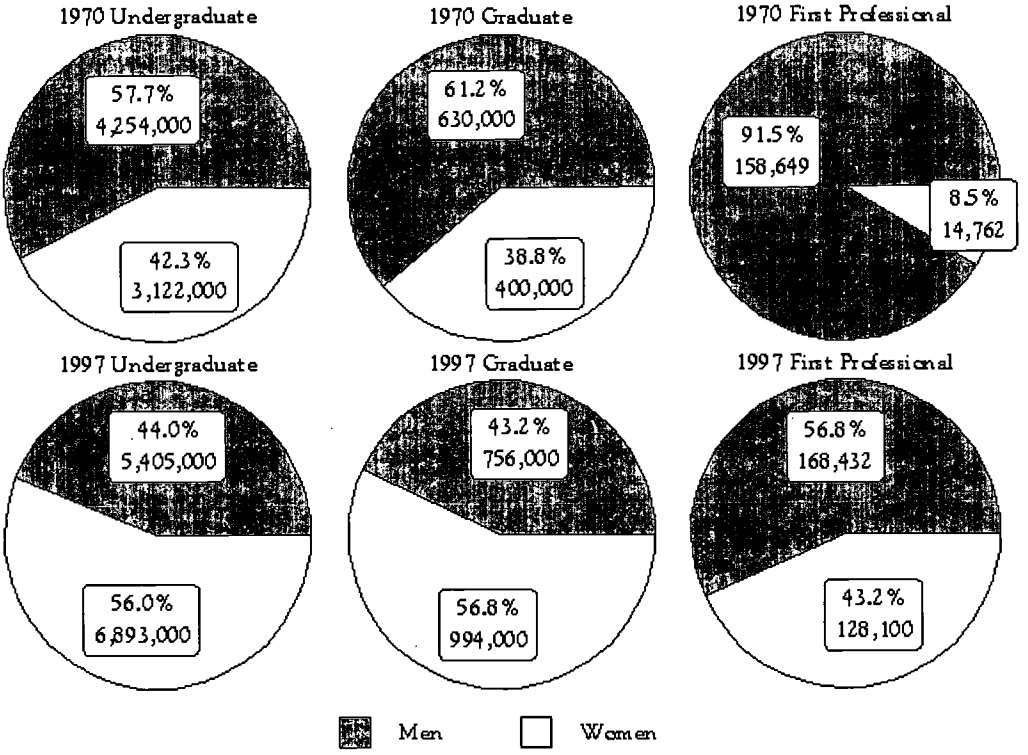

Figure 1. Postsecondary enrollment by gender, 1970 & 1997

Source: National Center for Education Statistics (2000b)

Table 2. Fall Postsecondary Enrollment by Race/Ethnicity, 1980 & 1997

	1980		1997	
	Number	%	Number	%
White, non-Hispanic	9,833,000	83.5%	10,160,900	73.2%
Total Minority	1,948,800	16.5%	3,723,200	26.8%
Black, non-Hispanic	1,106,800	9.4%	1,532,800	11.0%
Hispanic	471,700	4.0%	1,200,100	8.6%
Asian/Pacific Islander	286,400	2.4%	851,500	6.1%
American Indian/Alaskan Native	83,900	0.7%	138,800	1.0%
Total	11,781,800	100.0%	13,884,100	100.0%

Note: Nonresident alien enrollments excluded; percentage total may not sum due to rounding.

Source: National Center for Education Statistics (2000b)

Table 3. Degrees Earned, 1969-70 & 1996-97, and Projected, 2006-07

Degree	1969-70		1996-97		2006-07	
	Number	%	Number	%	Number	%
Associate Degrees	206,023	16.2%	571,226	25.0%	614,000	26.1%
Bachelor's Degrees	792,315	62.3%	1,172,879	51.3%	1,233,000	52.3%
Master's Degrees	208,291	16.4%	419,401	18.3%	392,000	16.6%
Doctorate/First Professional	64,7874	5.1%	124,606	5.4%	116,700	5.0%
Total	1,271,413	100.0%	2,288,112	100.0%	2,355,700	100.0%

Source: National Center for Education Statistics (2000b)

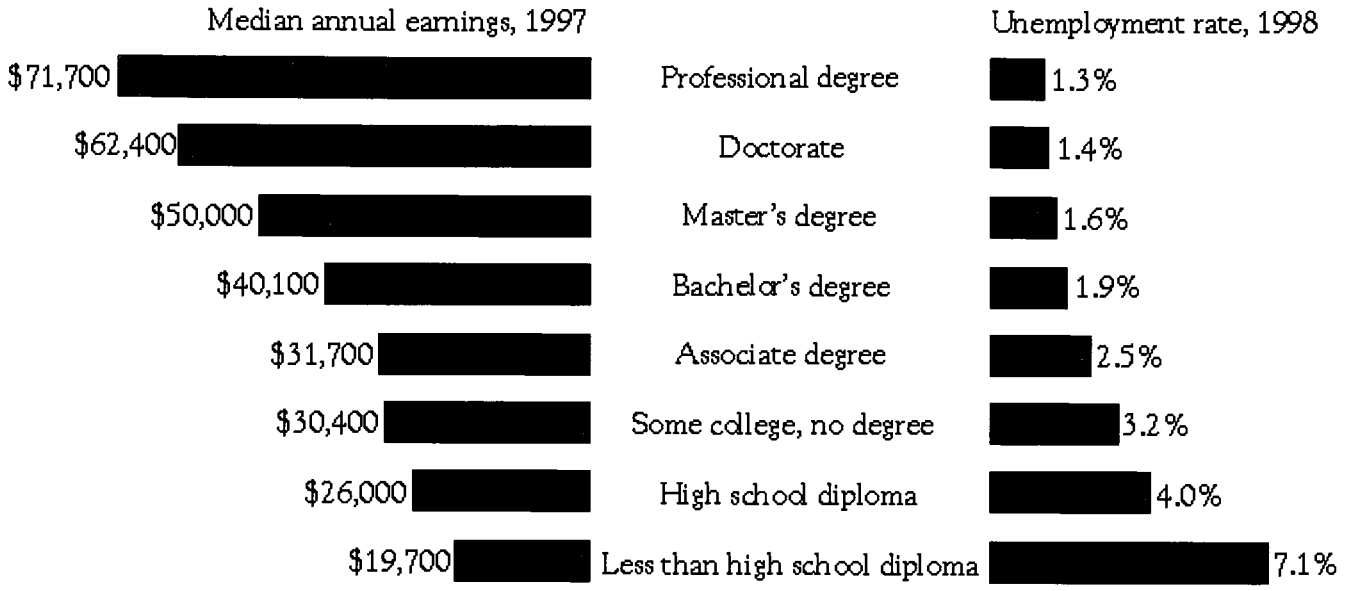

Figure 2. Returns to credentials: Earnings and unemployment

Source: "More Education: Higher Earnings, Lower Unemployment" (1999)

Table 4. Degrees Granted in Selected Fields, 1970-71 and 1996-97

	1970-71	1996-97	Change	
			Number	%
Education	270,014	222,061	-47,953	-17.8%
Business	141,463	325,588	184,125	130.2%
Health Professions & Related Sciences	31,441	124,261	92,820	295.2%
Mathematics	31,881	17,777	-14,104	-44.2%
Physical Sciences & Science Technologies	32,169	29,568	-2,601	-8.1%
Social Sciences & History	175,523	143,667	31,856	-18.1%
English Language & Literature/Letters	76,678	58,642	-18,036	-23.5%
All Other Fields	343,177	716,592	373,415	108.8%
Total	1,102,346	1,638156	535,810	48.6%

- In 1970-71, education degrees were the most numerous at all three levels, constituting 24.5 percent of all postsecondary degrees. But by 1996-97, education degrees had declined not only as a percentage of all degrees (down to 13.6 percent) but in absolute numbers as well.
- Business degrees had the largest increase in absolute numbers, and their percentage was up from 12.8 percent to 19.9 percent—the biggest share in 1996-97.
- Degrees in health professions and related sciences had the second greatest increase in numbers and increased in percentage from 2.9 percent in 1970-71 to 7.6 percent in 1996-97.
- Math degrees were down in both numbers and percentage, falling from 15.9 percent to 8.8 percent.

- Physical science and science technologies degrees were down not only in numbers but also in percentage, from 2.9 percent to 1.8 percent in 1996-97.

- Two humanities disciplines also declined. Social sciences/history degrees declined from 15.9 percent to 8.8 percent; English language and literature/letters degrees dropped from about 7 percent to less than 4 percent. Absolute numbers were also down in both disciplines.

Some very high growth rates also occurred in fields granting a relatively small number of degrees—computer and information sciences; engineering-related technologies; parks, recreation, leisure, fitness studies; protective services; transportation and material moving (National Center for Education Statistics 2000b).

A Newer Credential

At the cutting edge of credentials, *certificates* are much more closely tied to the specific knowledge and skills needed for a particular occupation or profession; a certificate "signifies competence in specialized and technical areas related to jobs and professional practice" (Irby 1999). Certificates are typically focused tightly on industry- or profession-wide standards and lack the broader perspective of diplomas and degrees. Because of their tighter focus on workplace standards and less emphasis on broader educational goals, certificates are very often more relevant to the needs of both worker and employers, more flexible than traditional degrees, and more desirable to adults seeking marketable qualifications (National Alliance of Business 2000). Certificate programs are also typically shorter than degree programs—another desirable quality for credential seekers who are already employed full time.

High school certificates. In some secondary CTE programs, students can acquire or begin acquiring valuable industry-sponsored credentials (Springfield-Clark Joint Vocational School 1998), for example:

- Automotive programs accredited by the National Institute for Automotive Service Excellence (ASE) and the National Automotive Technology Education Foundation (NATEF)
- Metalworking programs accredited by the National Institute for Metalworking Skills, Inc. (NIMS)
- Welding programs sponsored by the American Welding Society (AWS)

Subbaccalaureate certificates. The occupational/technical programs of community colleges, technical colleges and institutes, and proprietary schools offer a rich variety of certificates in such areas as accounting, taxation, surveying, aviation technology, electrical and electronics repair, quality control technology, fire science technology, safety risk management, tool and die technology, tooling & machining, industrial engineering technology, manufacturing engineering technology, plastics & composites engineering technology, health information management, nursing assistant, cardiac technology, dental assisting, medical assisting, optical technology, pharmacy technician, practical nursing, and sterile processing and distribution—to name just a few.

Like secondary programs, some subbaccalaureate programs are accredited by industry-wide organizations and offer students industry-sponsored certificates. Subbaccalaureate certificates typically require less than 2 years to complete; they may be fully articulated with corresponding associate degree or even bachelors' degree programs. Certificate programs are often also carefully articulated with legal licensing or registration requirements.

Postbaccalaureate certificates. University postbaccalaureate certificates offer an alternative to traditional graduate degrees in areas as diverse as medieval and Renaissance studies, project management, total quality management, editing and publishing, educational technology, systems engineering, hazardous materials and waste management, gerontology, Asian studies, international business, juridical science, biological science and biotechnology, conflict management, chemical dependency, and building technologies (Patterson 2000).

Like subbaccalaureate certificates, postbaccalaureate certificates are typically shorter and more workplace driven—more tightly focused on the specific knowledge and skills required in a given occupation or occupational area. Postbaccalaureate programs may be interdisciplinary or single discipline (Patterson 1998); they may be fully articulated with related master's and doctoral degree programs; admission re-

quirements can vary from none at all to possession of a bachelor's or master's degree to regular graduate admission to prior enrollment in an established master's or doctoral program (Patterson 1999). According to one survey (Patterson 2000), certificate programs in business were the most common (24.5 percent), followed by programs in health sciences (15.1 percent), education (8.2 percent), art (4.8 percent), and engineering (3.8 percent).

Proprietary and industry certificates. The newest phenomenon is the proprietary certificate embodying the most highly specific, eagerly sought, and well compensated occupational knowledge and skills in the key technology field of information technology. Private firms such as Microsoft, Novell, and Cisco sponsor a whole program of certificates documenting competency in their own proprietary products. Other certificate programs are operated by industry or professional associations, for example:

- The A+ Certification Program created by the International Computing Technology Industry Association (CompTIA) (Bonham 1996)
- The Telecommunications Technology credentialing program established by the MultiMedia Telecommunications Association (MMTA) (National Alliance of Business 2000)
- The School Foodservice and Nutrition Certificate Program and the School Foodservice and Nutrition Specialist Credentialing Program adopted by the American School Food Service Association (Jonen and Griffith 1998)

Participation and attainment. Unfortunately, there is no comprehensive nationwide system to gather and report data on certificate enrollment and attainment, even for subbaccalaureate or postbaccalaureate certificate programs operated by public colleges and universities. However, certificate programs are mushrooming, presumably in response to growing demand (Irby 1999).

Returns to Credentials

There is a large body of evidence on the returns that credentials bring in the workplace (see Boesel and Fredland 1999). That evidence overwhelmingly supports two conclusions. First, credentials bring substantial returns to credential holders; second, the higher the level of the credential, the higher the returns it brings. Most theorists agree that it is the knowledge and skills represented by a credential that actually brings the return of increased workplace earnings, rather than the credential itself (ibid.).

Unemployment. The returns to credentials begin with reduced likelihood of unemployment (see figure 2). Among individuals aged 25 and older in 1997, the higher the level of educational credential, the lower the unemployment rate, decreasing from 7.1 percent for those with less than a high school diploma to 4 percent for high school graduates, with uniformly lower rates all the way down to 1.3 percent for those with a professional degree. So the first return to credentials is that credential holders are more likely to get and keep a job.

Earnings. Along with that increased likelihood of employment, credential holders receive another return to their credentials—higher earnings. Although the real annual earnings (adjusted for inflation) of college graduates with a bachelor's degree fell during the early 1970s, those earnings remained fairly stable and even recovered much of the loss by the mid-1990s, whereas the real earnings of high school graduates fell overall though that entire period and those of high school dropouts fell even more (Boesel and Fredland 1999). All in all, college graduates with a bachelor's degree now enjoy a higher college premium—that is, extra earnings over those of high school graduates—than ever. By the 1990s, the rates of return on investment in college were higher than in 1970 (ibid.).

Furthermore, the higher the educational credential, the greater the college premium becomes. As an example, consider median annual earnings for year-round, full-time workers aged 25 and over; figure 2 shows a consistent and steady progression of higher earnings associated with each higher level of credential. Grubb (1996) also reported premiums from subbaccalaureate vocational certificates for women, with an increase in earnings of about 22 percent compared to female high school graduates in 1990.

As might be expected, the college premium is much greater for those who complete their credential, especially the bachelor's degree. Wages and earnings of 4-year college students who leave without graduating are about the same as those of similar 2-year college students with the same amount of education, except for vocational noncompleters from 4-year colleges, who receive substantial earnings benefits (Boesel and Fredland 1999). Grubb (1996) also reported that for women, 2 years of college but no credential brings about the same premium over female high school graduates (20 percent) as a vocational certificate (22 percent) or an associate degree (21 percent), but not for men; for men, on the other hand, 3 years of college but no credential brings a higher premium over male high school graduates (20 percent) than an associate degree (17 percent), but not for women. Grubb suggests that those differences may be attributed primarily to gender-based occupational patterns.

Grubb (1996) also examined returns to subbaccalaureate certificates, associate degrees, and bachelor's degrees across different fields of study and with or without related employment, controlling for the effects of other variables such as high school grades and curriculum and parents' educational and socioeconomic status. The greatest premiums (compared to high school graduates of the same gender) were in engineering and computers, math and science, and health for both men and women; and in business and public service for women. Likewise, employment in a field related to an education credential brought greater returns than employment in an unrelated field or employment with a degree in an academic field.

Credentials and the Labor Market

The effects of related employment on the returns to credentials brings up to the question of supply and demand in the labor market. Some analysts argue that the current emphasis on the bachelor's degree is misplaced (e.g., Gray and Herr 1995); they cite U.S. Bureau of Labor Statistics (BLS) figures indicating an oversupply of college graduates with bachelor's degrees, who will displace those with lesser educational credentials, but only in low-skill, low-paying jobs. Likewise, they cite BLS forecasts that the greatest growth in jobs will occur in the blue-collar occupations of crafts, precision metals, and specialized repair—occupations requiring special skills best acquired at an associate degree level.

However, Gray and Herr's analysis is hotly contested by others (Boesel and Fredland 1999). In particular, Bishop (1997) argues that 1992, 1994, and 1996 BLS projections have been misread—a correct reading would be that past low unemployment and rising relative wages of college grads will continue. In addition, Bishop points out that past BLS projections on the job market for college grads have often been unsuccessful; he criticizes BLS methodology in differentiating between jobs that do or do not "require" a college degree and in predicting changes in the job market for college grads, particularly projections of growth in professional/technical/managerial jobs as opposed to operative/laborer/service jobs. Bishop concludes that alternative methodology does a better job of projecting occupational employment, that the skill differentials between "college-level" jobs and other jobs continue to grow (although at a slower rate than in the 1980s), and that rising rates of college completion are *not* producing an oversupply of college grads.

Indeed, the most recent BLS projections (Fleetwood and Shelley 2000) present a more promising picture for college grads: between 1998 and 2008, the total number of college-level job openings will nearly equal the number of college grads entering the labor force. This rosier forecast, the first in many years, is attributed to the large number of early baby boomers expected to retire during that period and to changed projections of occupational growth, with college-level jobs projected to increase by 28 percent compared to an 11 percent increase projected for noncollege-level jobs.

Implications for CTE Practitioners

So, is it college for all? Other ways to win? Working in the middle? Which educational credential is the *right* credential? Which fact is more important: that the average starting salary for college graduates with a bachelor's degree in computer engineering was over $49,000 in July 2000 ("Higher Salaries for Recent Grads" 2000) or that many workers who don't have a bachelor's degree earn more than the average college graduate (Mariani 1999)?

Perhaps the correct answer is that there is no single answer. In spite of different views about the advisability and worth of this or that credential, many commentators (Boesel and Fredland 1999; Gray and Herr 1995; Grubb 1996; Kerckhoff and Bell 1998) also cite a variety of factors in favor of a range of educational options and credentials: the economic and opportunity costs of college, problematic college persistence and graduation rates, the uncertainty of finding degree-related employment, local variations in labor market demand, and above all the different interests, aptitudes, and abilities of individuals.

CTE practitioners can help provide that a realistic range of options by providing all students with a corresponding range of information and guidance:

- ***A range of credentials.*** All secondary and postsecondary students should be aware that a bachelor's degree is clearly a desirable credential for today's workplace and the workplace of the future, but it's not the only viable option. Another option is specialized, technical skills training for occupations in demand—the kind of training typically provided through occupational/technical associate degrees.

- ***Individual interests, aptitudes, and abilities.*** Many students have all the academic interests, aptitudes, and abilities needed for 4 years of college and a bachelor's degree. Equally, however, many students have interests, aptitudes, and abilities more suited to hands-on technical skills training at a 2-year college leading to a occupational/technical associate degree.

- ***Labor market factors.*** Likewise, all students need to have current, realistic information about the kinds of jobs available in the labor market, both now and in the future, about the kinds of credentials needed for those different jobs, and about the kinds of wages those jobs pay. National labor market information should also be supplemented as appropriate by local labor market information. In particular, the value of subbaccalaureate or postbaccalaureate certificates may depend on local supply and demand.

Few would argue today that the high school diploma is still an adequate credential for high-skill, high-wage employment. Few would contradict the statement that American education has made tremendous strides in recent decades in increasing access to postsecondary education intended to prepare students for the workplace of the new millennium. Few would disagree that all students have the right to choose and pursue their own goals for education, work, and life. Equally, few would argue that choosing a credential is a decision that each student must make for himself or herself based not only on the average market value of the credential but also on such factors as the reputation of the institution, the area of study, licensing or certification also earned, and—most important—the student's individual career goals.

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