Trailblazers

Stepping Up to a *Nontraditional* Challenge

Where the Jobs Will Be in 2020

New national employment projections for 2010-2020 have just arrived from the U.S. Bureau of Labor Statistics (BLS). Employment nationwide is expected grow by about 14% over the next decade. Most occupations and industries, but not all, are expected to make up for the horrific job loses experienced in the 2007-09 recession.

The new employment projections were eagerly awaited because they are the first set to be developed following the recent great recession, and the first to anticipate how occupational employment will recover following this period of significant job loss.

According to the BLS release, "These new projections are built on the assumption of a full employment economy in 2020. The 2007-09 recession represented a sharp downturn in the economy—and the economy, especially the labor market, has been slow to recover"

The projected changes in employment between 2010 and 2020 include regaining jobs that were lost during the downturn. Total employment is projected to reach nearly 164 million by 2020, reflecting the addition of about 20 million new jobs between 2010 and 2020. About 7.8 million of these jobs are needed just to return total employment to its pre-recession level.

Industry winners and losers

•**The *health care and social assistance* sector will continue to see big job gains.** This sector is expected to gain the most jobs between now and 2020, with employment growing by about 5.6 million jobs. This will also be the fastest growing sector with a 35% growth rate.

•***Professional and business services* will keep growing**. Industries in this sector, like *Legal Services*, *Management Consulting Services*, and *Computer Systems Design Services* will keep growing. They are expected to add about 3.8 million new positions around the nation.
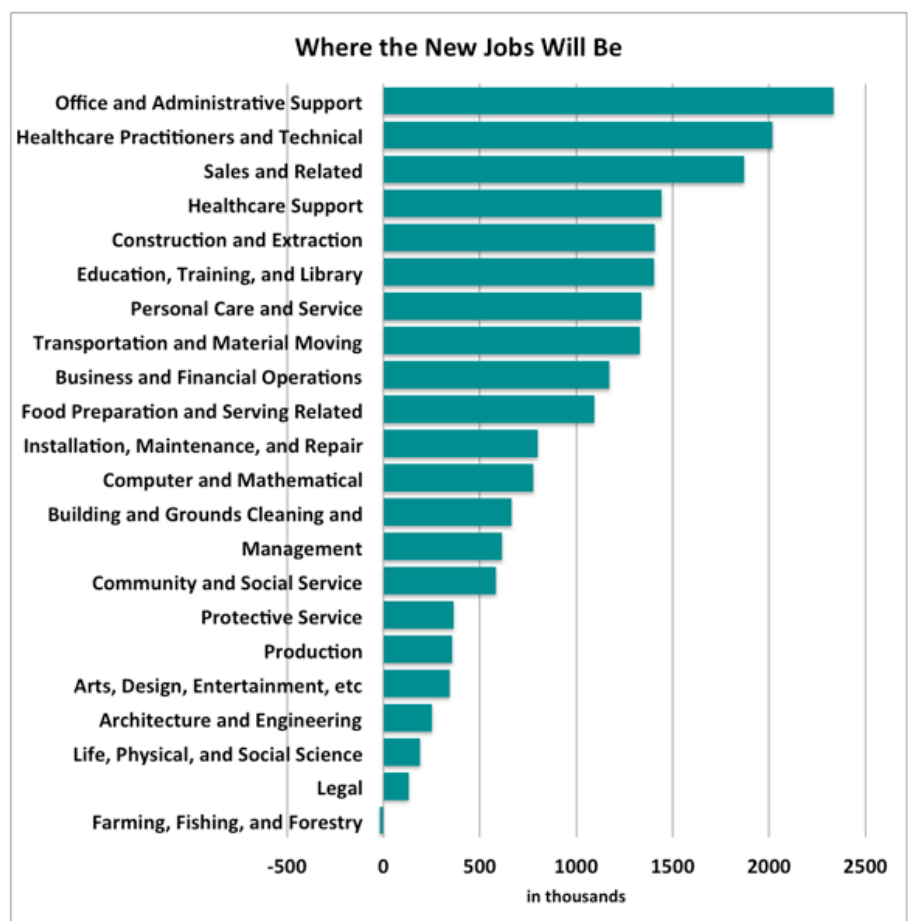
- **The *construction* sector will revive and begin to grow again**. More than 25% of the fastest growing jobs are related to construction. Even with this fast growth, however, construction is not expected to regain all of the jobs lost during the 2007-09 recession.

- **The *manufacturing* and *federal government* sectors will probably continue to lose jobs**. The largest job losses are projected for the Postal Service, federal non-defense government, and apparel knitting mills.

What to expect for occupations

- **The four occupations expected to add the most new jobs** are: *registered nurses*, *retail salespersons*, *home health aides*, and *personal care aides*.

- **The four fastest growing occupations are**: *personal care aides*, *home health aides*, *biomedical engineers*, and *brickmasons' helpers* — the result of continued growth in the health care industry and returning growth in construction.

- **The *office and administrative support* group** of occupations will add the most new jobs overall, over two million.

- *Production occupations* **are projected to grow** this decade, adding 350 thousand jobs. Production employment has been falling for years (as productivity has skyrocketed for high-tech manufacturing and many jobs have beenoutsourced), and fell dramatically at the outset of the recession. So even though this growth is significant, it won't bring the number of production jobs up to the pre-recession levels.

Where the job openings will be

Job opportunities arise when employers create new jobs and when workers retire or leave an occupation and need to be replaced by new hires. The BLS projects the "job openings" for each occupation that arise from the combination of job growth and replacements. Over the next decade, every occupation will have some replacement needs, and in 4 of 5 occupations, replacement needs are expected to exceed job openings due to growth. More than 60% of the 55 million job openings projected for the next decade will be replacements. The large baby boom generation is reaching retirement age now, and millions of boomers will be retiring every year.

Where the New Jobs Will Be

The BLS expects to see more than 400,000 job openings in each of these occupations, so expect lots of want ads for:

1. Retail Salespersons
2. Waiters and Waitresses
3. Registered Nurses
4. Food Preparation and Serving Workers, Including Fast Food
5. Office Clerks
6. Customer Service Representatives
7. Home Health Aides
8. Janitors and Cleaners
9. Personal Care Aides
10. Childcare Workers
11. Truck Drivers
12. Elementary School Teachers
13. Receptionists
14. Nursing Assistants
15. Teacher Assistants
16. Bookkeeping Clerks
17. Stock Clerks and Order Fillers
18. Accountants and Auditors
19. Landscaping Workers
20. Carpenters

How much education will workers need

- **Education requirements are continuing to rise.** Occupations that require postsecondary education and training are projected to grow faster than those that need a high school diploma or less.

- **Work experience and on-the-job training will be important**. Occupations that require apprenticeships are expected to grow by 22%.

- **More than two-thirds of all job openings are expected to be in occupations that typically don't need postsecondary education**. Unfortunately, this is because these low skill jobs are low paid and people leave them for better occupations as soon as they can. This creates lots of job openings. High-wage occupations that people like to stay in for a long time almost invariably require more sophisticated skills, and higher levels of education

Workplace Readiness Skills for the Commonwealth
The history of Virginia's initiative

The state of Nevada is considering introducing Virginia's workplace readiness skills program into their career and technical education curriculum. In January, Darren Morris of Virginia's CTE Resource Center and I made presentations to the Nevada CTE Advisory Board about the history and implementation of Virginia's program. This article recaps some of the information presented at that meeting. The entire powerpoint is also available to download from CTETrailblazers.org.

Laying the groundwork for workplace readiness skills instruction

The national groundwork for contemporary work on readiness skills was laid out in a report called What Work Requires of Schools, published in 1991 by the The Secretary of Labor's Commission on Achieving Necessary Skills (SCANS). This report made two ba-

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**1991 SCANS Report
What Work Requires of Schools**

Three-Part Foundation

Basic Skills: Reads, writes, performs arithmetic and mathematical operations

Thinking Skills: Thinks creatively, makes decisions, solves problems, visualizes, knows how to learn, and reasons

Personal Qualities: Displays responsibility, self-esteem, sociability, self-management, and integrity and honesty

Five Workplace Competencies

Resources: Identifies, organizes, plans, and allocates resources

Interpersonal: Works with others

Information: Acquires and uses information

Systems: Understands complex inter-relationships

Technology: Works with a variety of technologies

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sic points that continue to drive Virginia's workplace readiness skills program today.

First, success in the workplace requires more than just academic competence. It requires critical thinking skills, personal skills and basic academic skills, all in equal measure. Academic proficiency is of little value in the workplace without responsibility, sociability, self-management and integrity.

Second, these skills are best learned in context, not in isolation. We shouldn't be focusing on academic skills in one classroom, personal qualities in another, and intellectual skills in a third. We need to focus on all three at once and in a context that clearly connects them to the workplace.

This is the approach that has been applied in developing Virginia's Workplace Readiness Skills program. However, it took us many years, as well as much research and trial and error to get here.

The SCANS report influenced a generation of subsequent research and also laid the foundation for O*NET, the national Occupational Information Network, that is one of our major resources today. But SCANS was also an outgrowth of the widespread concern about the changing nature of the workplace and the skills required for success. States and individuals were also studying this issue, Virginia among them. In the 1980s and 1990s, Virginia Career and Technical Education was conducting its own program of local research to understand how our workplaces were changing and what challenges this would pose for our students and our programs.

Laying the groundwork in Virginia

In 1985, the Weldon Cooper Center published *Changing Job Skills in Virginia*, the results of interviews with over 250 employers. Going into this project, no one anticipated that workplace readiness skills would emerge as a key requirement. But for Virginia employers, they were at least as important as traditional academic and technical skills.

Employers at this time did not express deep concern about the preparedness of young people coming to them from school. However, researchers reported that the nature of our workplaces was beginning to change rapidly with the introduction of more and more sophisticated technology. Researchers identified six major workplace trends emerging from this technological change:

1. Required skills are becoming more technical;
2. Computers are becoming an important tool throughout the occupational spectrum;
3. Occupations are becoming more specialized;
4. Teamwork is becoming more important;

The Impact of Technology

Changing Job Skills' explanation of how work was "becoming more technical" in the 1980 reminds us how dramatically computer technology has changed the nature of work.

"New electronic technology is more difficult to understand than technology based on mechanics, if only because the user, installer, or repairer cannot directly see how it works. Understanding, even in a general way, how an electronic data system works requires different skills than understanding how to alphabetize documents. The mechanic who can understand how mechanical systems in an automobile work by looking at them and watching them function cannot understand electronic systems in the same way. Thus, the introduction of electronic technology has introduced the abstract into many jobs that formerly dealt almost exclusively with the concrete. Instead of being able to touch and move the components of technology directly, people who use it must base their understanding of how things work on information furnished by others. They can no longer see for themselves, but must deal with electronic processes that are literally invisible to the naked eye"

5. Employers are becoming more client and customer oriented;

6. The pace of change is rapid.

Based on these trends, the researchers predicted that Virginia employers would have increasing needs for four kinds of skills:

1. Basic academic skills, including reading, writing, mathematics, and communications;

2. Interpersonal skills, such as getting along with co-workers and supervisors, and representing the company favorably to the public;

Nine predictions for 2010

In addition to noting trends, Virginia's Changing Workplace made nine predictions for the future. Most have come true

1. Racial and ethnic diversity will increase, bringing the need for higher levels of tolerance and interpersonal skills.

2. Workers will increasingly need to work independently and demonstrate initiative in problem-solving and decision-making.

3. More jobs will require postsecondary education and jobs for those with less will be scarce, low-paid, and lack opportunities for advancement.

4. Demand will increase for workers in jobs that serve households and families to match the increasing number of working women.

5. Traditional 9-to-5 hours will cease to be the norm in even more jobs.

6. Foreign language skills will be increasingly valued.

7. Opportunities will be greatest for those most willing to relocate to major metropolitan areas.

8. Increases will continue in businesses that serve older people.

9. Small employers will continue to be a significant source of training and employment, though opportunities will be greater in larger firms.

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3. Computer skills, from basic computer literacy to sophisticated specialist skills;

4. Reasoning and generalizing skills — the ability to learn from old experiences and generalize to new ones in order to be able to keep up with the rapid pace of change.

The report concluded optimistically, noting that employers were generally satisfied with the skills of the young workers coming to them from school and college. But it also raised a note of caution: Will education be able to keep up with the rapid pace of change foreseen?

> *"In closing, we would like to emphasize that many employers we talked with were satisfied with the quality of the job applicant pool—applicants' educational background, skills and character. Employers are, however, concerned about the continuing ability of education to keep pace in a future that seems to include ever more rapid change, particularly in the area of new technology.*

Ten years later, it became obvious that Virginia employers' concern about the capacity of education to keep pace with rapid change was justified. Rather than feeling confident about education, employers were raising more red flags. In response, Virginia's Office of Career and Technical Education commissioned another study of skill requirements, with the expectation that the findings would inform changes to the CTE curriculum.

Virginia's Changing Workplace: Employers Speak reported on what is one of the most extensive studies of employer feedback on workplace skills. Weldon Cooper Center researchers conducted hour long interviews with 564 employers across Virginia. The trends identified in the previous study had continued and accelerated, and more trends were noted.

- Reliance on computers and computerized technology has increased dramatically and new ways to use this technology are being found every day;

- Workers are expected to solve problems and make decisions that were formerly the province of supervisors and managers;

- <u>Employers are demanding higher educational levels</u> of job applicants and more occupations are requiring licensing or certification;

- *<u>Customers and clients are demanding better service</u>* and better quality products;

- <u>Constant change requires flexibility and adaptability</u>;

- <u>Workers must be prepared to keep up with demands for new skills</u> required by constant change throughout the workplace.

And importantly, researchers noted that, unlike the previous decade, employers of the 1990s were dissatisfied with the work ethic of young workers. "Employers feel that today's workers, especially at the entry level, need a greater awareness of the basic workplace value of "a day's work for a day's pay."

In addition to these broad trends, *Virginia's Changing Workplace*, also delineated a set of skills that had become increasingly important to employers since the previous research. Curriculum experts from Virginia's CTE Resource Center built these into a list of 13 workplace readiness skills and developed a series of standards for each skill to further guide instruction and evaluation. In 1997, "Workplace Readiness" was added to the list of tasks and competencies required in every career and technical education course.
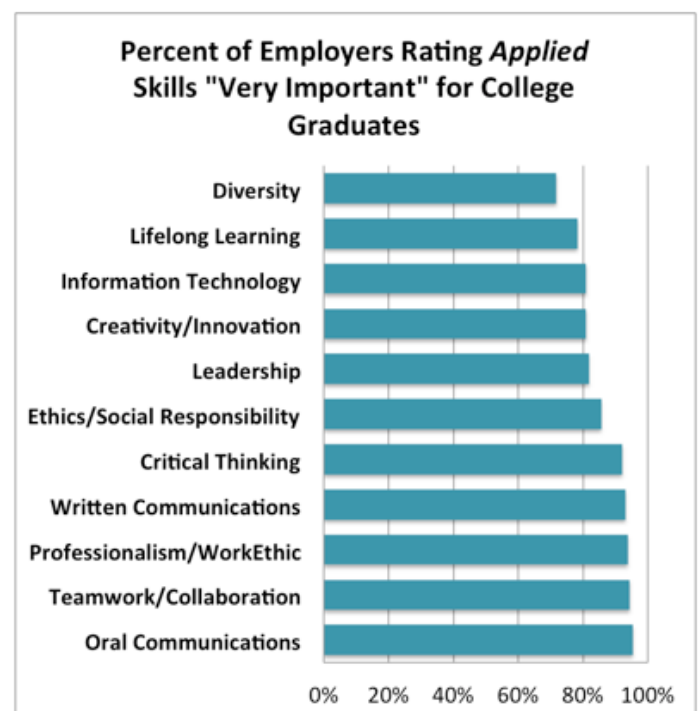
Virginia's Workplace Readiness Skills, 1997

1. Demonstrate reading skills on a level required for employment
2. Demonstrate mathematics skills on a level required for employment
3. Demonstrate writing skills on a level required for employment
4. Demonstrate speaking and listening skills on a level required for employment
5. Demonstrate computer literacy on a level required for employment
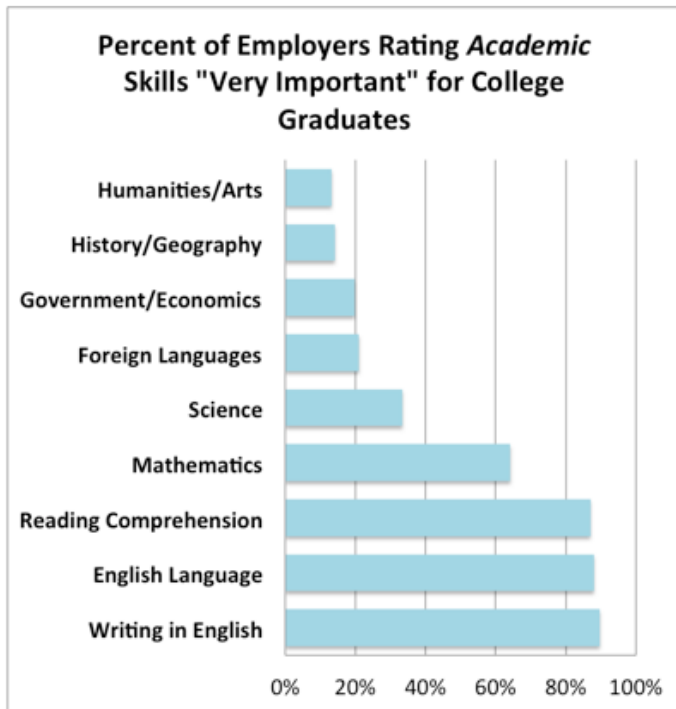6. Demonstrate reasoning, problem-solving and decision-making skills

7. Demonstrate an understanding of "the big picture"
8. Demonstrate a strong work ethic
9. Demonstrate a positive attitude
10. Demonstrate independence and initiative
11. Demonstrate self-presentation skills
12. Maintain satisfactory attendance
13. Participate as a team member to accomplish goals

21st century research

Virginia was not alone in identifying the importance of teaching readiness skills. As we entered the new millennium, many researchers and educators focused on understanding the new skills required by our changing economy.

One of the most important pieces of research was the outcome of a collaboration between the Partnership for 21st Century Skills, The Conference Board, Corporate Voices for Working Families, and The Society for Human Resource Management. *Are They Really Ready to Work?* reported the results of a detailed survey of over 400 employers in a range of industries. The survey asked about the skill sets that

Percent of Employers Rating *Applied* Skills "Very Important" for College Graduates

Skill	
Diversity	
Lifelong Learning	
Information Technology	
Creativity/Innovation	
Leadership	
Ethics/Social Responsibility	
Critical Thinking	
Written Communications	
Professionalism/WorkEthic	
Teamwork/Collaboration	
Oral Communications	

0% 20% 40% 60% 80% 100%

Percent of Employers Rating *Academic* Skills "Very Important" for College Graduates

new entrants—recently hired graduates from high school, two-year colleges, and four-year colleges—need to succeed in the workplace.

One of the more interesting aspects of this research is that it directly compares employers' ratings of "academic skills," such as reading comprehension, mathematics, and foreign languages and "applied skills," including teamwork, critical thinking, and work ethic (skills we in Virginia have called workplace readiness skills). The ten applied skills were all rated "very important" by over 70 percent of employers. Only three of nine academic skills were rated this highly: reading comprehension, English language, and writing in English.
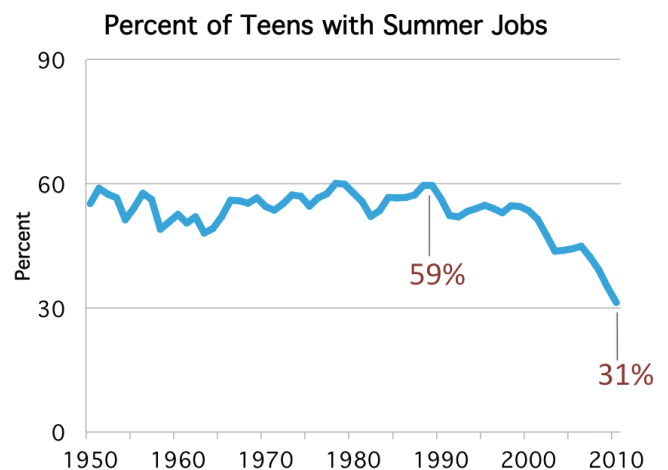
It is not surprising to find that an extremely high percentage of employers rated applied skills "very important." These skills are very general, valuable in a wide range of occupations and industries, and naturally, therefore, highly rated by a wide range of employers. Many academic skills, on the other hand, are much more specific, essential in some occupations, but hardly relevant in others. Only the reading

and English language skills seem very important to all employers.

In addition to asking employers to rate skills, researchers also asked who should be responsible for teaching them. Three-quarters of respondents said that K-12 schools should be responsible for providing the necessary basic knowledge and applied skills for their new entrants.

Traditionally, schools were held to be primarily responsible for academic skills, not readiness skills. While many had high standards for "deportment" and other readiness attributes, these were largely considered to be the responsibility of homes and communities. Students built readiness through extracurricular activities, very often through work itself. And indeed, through the 1980s, the majority of students had the opportunity for real employment. But this is no longer an option for the majority of young people today.

The last 20 years have seen a significant fall in teen employment. Almost sixty percent of teens nationwide had summer jobs in 1989. In 2010, only 31 percent were this fortunate, by far the lowest proportion since the Bureau of Labor Statistics has been keeping records. Interestingly, teen employment rates are the inverse of family income. Teens from low income families are much less likely to have jobs than teens from high income families.

Percent of Teens with Summer Jobs

Source: Current Population Survey

From the 1950s through the 1980s, teen employment rose and fell with the economy, dropping during recessions and rising again afterwards. However, the fall that we have experienced over the last 20 years is likely to be permanent, for two reasons:

First, teens are increasingly involved in other activities. It is particularly noticeable that the percentage of teens enrolled in summer school has risen from 10 percent in 1985 to 46 percent in 2010. This opportunity for increased education is enormously valuable for many teens. But it is not the same as work experience.

Second, structural changes are taking place in the labor market. Employers no longer need or want teens in the way they once did. Many of the jobs they once filled are disappearing—we just don't have paper boys any more. In addition, teens face more competition from adults for low skilled jobs. And employers face many more regulatory and risk management issues in hiring youth. What responsible employer today would hire teenagers to deliver newspapers on bicycles on dark winter mornings.

Given that the opportunities for teens to develop employability through real work are likely to keep falling, it is important to help teens develop these skills in school.

Updating Virginia's workplace readiness skills

New national research, such as the report I just described, gave us, in Virginia, the confidence that we were right to have included workplace readiness skills in the CTE curriculum. However, the continued high importance that employers place on these skill also made us think that we had not taken this step far enough. We wanted to do a much more thorough job of readiness instruction. Before addressing that, however, we began with a thorough review of our skills list to insure that it was ready for the 21st century. To that end, Elizabeth Russell, then

director of the Office of Career and Technical Education Services of the Virginia Department of Education, drew together a team to work on skills revision. This included,

- Office of Career and Technical Education of the Virginia Department of Education;
- Virginia's CTE Resource Center;
- Career and Technical Education Consortium of States (CTECS);
- Weldon Cooper Center Demographics & Workforce Group.

Drawing on their experience working with CTE nationwide, CTECS took the lead in reviewing workplace readiness skill initiatives across the nation in order to identify skills that needed review or updating or were missing from Virginia's list. They recommended, for example, that we consider adding career planning and workplace safety, which were completely missing from Virginia's list; revising "computer literacy," which was much too broad to be useful in the current workplace; and revising several confusing or outdated skill definitions.

Based on that review, the team then prepared a draft list of 21 skills and their definitions for further consideration. These included the 13 original skills, additions recommended by CTECS, and expanded computer literacy skills. Feeling confident about the overall value of these skills, we then set out to hone this list into a set of skills particularly appropriate for Virginia.

One major step in this process was to seek advice from Virginia employers by inviting them to participate in an online comment period. We focused particularly on employers involved with Career and Technical Education through our local and state advisory boards, and also reached out to others through the Virginia Workforce Centers and local Chambers of Commerce and employer associations, including the Virginia Automobile Dealers Association, the Virginia Hospital and Healthcare Associa-

tion, the Virginia Hospitality and Travel Association, and the Virginia School Boards Association. We received responses from 318 employers.

Participating employers were asked to rate the importance of the 21 skills on our draft list and invited to submit open-ended comments on these skills and recommendations for skills that should be added to the list. Their responses and comments confirmed what we had already learned from national research.

Employers were asked to rate skills as "essential," "useful," or "optional." Sixteen percent considered computer hardware basics to be optional for their

> ### Percent of Virginia Employers Rating Skills "Essential"
>
> *Draft skills list presented to Virginia employers for their comments*
>
> 1. Positive Work Ethic   96%
> 2. Speaking & Listening   96%
> 3. Professional Ethics   95%
> 4. Participates as a Team Member   89%
> 5. Reading & Writing   89%
> 6. Diversity Awareness   82%
> 7. Reasoning, Problem Solving, & Decision Making   76%
> 8. Technology Applications   68%
> 9. Understanding Health, Wellness, & Safety   67%
> 10. Understanding The Big Picture   64%
> 11. Lifelong Learning   63%
> 12. Job Acquisition & Advancement   60%
> 13. Telecommunications   58%
> 14. Internet Use & Safety 58%
> 15. Creativity, Innovation, & Adaptability   57%
> 16. Leadership & Resource Management   54%
> 17. Research & Synthesis   53%
> 18. Applying & Understanding Mathematics   51%
> 19. Data & File-Management   50%
> 20. Computer Hardware Basics   34%
> 21. Employment-Related Financial Literacy   34%

employers, the highest optional rating of any of the skills. Reading and writing, speaking and listening, professional ethics, and positive work ethic were not rated optional by anyone. The accompanying table shows the percentage of employers considering each of the draft skills to be essential. We were gratified to see that the ratings given to our skills closely matched those from the *Are They Really Ready To Work* report, in which the three highest ranked skills were Professionalism/Work Ethic, Teamwork Collaboration, and Oral Communication.

Finalizing Virginia's workplace readiness skills

With employers' ratings and comments in hand, it was then time to review the draft list and finalize a new list for Virginia. In doing so, we dropped some less highly ranked skills from the list and added some that were recommended in employers' comments. We considered, in addition to employer recommendations, how easily skills could be integrated into the curriculum for existing CTE courses and whether including them on the list would duplicate instruction that was already being extensively provided. For example, leadership and financial literacy were dropped from our list because they did not have high ratings from employers (despite their obvious benefits to individual employees) and because CTE already taught entire courses on these topics with wide student enrollment. In place of these two skills, we singled out two others that had previously been included as sub-parts of larger skills sets — conflict resolution and customer service — because they they were stressed so often in employer comments.

Virginia's final list included 21 skills that fall into three broad areas:

- Personal qualities and people skills,
- Professional knowledge and skills, and
- Technology knowledge and skills

First are the <u>personal qualities and people skills</u>. These are the skills of personal demeanor and interpersonal contact that were once widely called "soft skills." This phrase is no longer used for it seemed to imply that these skills are easier to teach and learn than others, when the truth is that these skills are the most difficult.

The second skills group, <u>professional knowledge and skills</u>, are more like technical or academic skills and less a matter of personal capacity and development.

Workplace Readiness Skills for the Commonwealth
Needs Identified by Virginia Employers

1. <u>Personal Qualities and People Skills</u>

    1. POSITIVE WORK ETHIC: Comes to work every day on time, is willing to take direction, and is motivated to accomplish the task at hand

    2. INTEGRITY: Abides by workplace policies and laws and demonstrates honesty and reliability

    3. TEAMWORK: Contributes to the success of the team, assists others, and requests help when needed

    4. SELF-REPRESENTATION: Dresses appropriately and uses language and manners suitable for the workplace

    5. DIVERSITY AWARENESS: Works well with all customers and coworkers

    6. CONFLICT RESOLUTION: Negotiates diplomatic solutions to interpersonal and workplace issues

    7. CREATIVITY AND RESOURCEFULNESS: Contributes new ideas and works with initiative

<u>Professional Knowledge and Skills</u>

    8. SPEAKING AND LISTENING: Follows directions and communicates effectively with customers and fellow employees

    9. READING AND WRITING: Reads and interprets workplace documents and writes clearly

    10. CRITICAL THINKING AND PROBLEM SOLVING: Analyzes and resolves problems that arise in completing assigned tasks

    11. HEALTH AND SAFETY: Follows safety guidelines and manages personal health

    12. ORGANIZATIONS, SYSTEMS, AND CLIMATES: Identifies "big picture" issues and his or her role in fulfilling the mission of the workplace

    13. LIFELONG LEARNING: Continually acquires new industry-related information and improves professional skills

    14. JOB ACQUISITION AND ADVANCEMENT: Prepares to apply for a job and to seek promotion

    15. TIME, TASK, AND RESOURCE MANAGEMENT: Organizes and implements a productive plan of work

    16. MATHEMATICS: Uses mathematical reasoning to accomplish tasks

    17. CUSTOMER SERVICE: Identifies and addresses the needs of all customers, providing helpful, courteous, and knowledgeable service

<u>Technology Knowledge and Skills</u>

    18. JOB-SPECIFIC TECHNOLOGIES: Selects and safely uses technological resources to accomplish work responsibilities in a productive manner

    19. INFORMATION TECHNOLOGY: Uses computers, file management techniques, and software/programs effectively

    20. INTERNET USE AND SECURITY: Uses the Internet appropriately for work

    21. TELECOMMUNICATIONS: Selects and uses appropriate devices, services, and applications

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Unlike most technical or academic skills, however, these skills are important for success in almost every occupation. But, with the exception of math and language skills, these skills did not previously have a recognized place in the curriculum of our CTE courses.

The third group encompasses technology knowledge and skills that are valuable across the whole spectrum of occupations. The world of technology is, of course, extremely broad; we teach a wide range of technology courses in CTE, and a large proportion of our students take basic technology courses. But we included these technology skills in our workplace readiness list to ensure that every CTE course incorporates basic technology topics along with specific subject instruction.

In conclusion, Virginia has developed a list of workplace readiness skills that are well targeted to the modern workplace. The skills were selected on the basis of more than 25 years of local research and close attention to national research and initiatives and tuned to the needs of the Career and Technical Education curriculum.

In addition to building this skills list, Virginia has developed curriculum resources to support skills instruction across the entire Career and Technical Education curriculum. In 2010, workplace readiness skills joined the list of required competencies for every CTE course. In 2011, an assessment was introduced to help evaluate instruction and signal competency to potential employers. Curriculum materials, information about the assessment, and a complete set of background information on the Virginia model for implementing workplace readiness skills instruction are available on the Virginia CTE Resource Center website.