REPORT ON VIRGINIA'S WORKPLACE READINESS SKILLS EXAMINATION

PRESENTED TO

THE HONORABLE ROBERT F. MCDONNELL
GOVERNOR OF VIRGINIA
AND
THE VIRGINIA GENERAL ASSEMBLY

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EXECUTIVE SUMMARY

For many years, Virginia's Career and Technical Education (CTE) has relied on business and industry to assist in ensuring up-to-date, high-quality programs to close the gap between the workplace and the classroom. As such, CTE programs across the Commonwealth continue to reflect current workplace skills and knowledge needed by students entering postsecondary education as well as those moving directly into the work force. Workplace Readiness Skills (WRS) are a required component of all CTE courses and, in order to remain current, periodic revisions and improvements are expected.

Charged by the General Assembly in the 2010 House Joint Resolution 101, the Virginia Board of Education has undertaken the tasks of reviewing and approving the recently revised WRS and the new accompanying assessment and of determining the relationship of the WRS to the Commonwealth's Career Readiness Certificate (CRC).

The new WRS for the Commonwealth were developed through a rigorous process that included a thorough literature review. This phase of work focused on numerous national research reports and on forms of WRS embraced by other states. The resulting, expansive list for Virginia represented a complete revision and included new skills that had not been included in the 1999 list. These additional skills were noted time and time again in the literature as being crucial to America's economic stability and growth. The results of a statewide employer survey helped to further refine the list and determine equal weighting of all skills.

Once the list was finalized, the Virginia Department of Education converted the skills into the appropriate format for its CTE programs and courses in the spring of 2010. Task definitions, questions to encourage critical thinking, correlations to the Virginia Standards of Learning, instructional aids, and teaching resources were developed for each of the 21 skills. This information now resides in Virginia's Educational Resource System Online (VERSO), an online repository of CTE course information available to all CTE teachers and administrators throughout the state. Additionally, workshops, training sessions, and in-service presentations introduced the new WRS to educators during the summer and fall of 2010.

After the WRS and their accompanying resources were in the hands of Virginia's classroom teachers, the Department turned its attention to the development of an accompanying assessment. Again, business and industry representatives, along with teachers, administrators, and university research experts, assisted in the correlation of existing test items and the development of new ones to match Virginia's new 21 WRS. After analyzing the items for reliability and validity, the Department spearheaded a field test of the assessment. At the time of this report, the pilot of the assessment is underway in 10 school divisions. Results of this effort will further refine and enhance the quality of the overall test and guarantee that it correlates directly to the 21 skills.

Additionally, the Department has reviewed the new Workplace Readiness Skills in light of the Career Readiness Certificate. Of the 21 skills, 15 have a strong correlation to the three ACT WorkKeys® job skill assessments. The remaining six WRS are basic personal work skills needed in all aspects of a workplace. The Department has accounted for performance on the WorkKeys® assessments through documentation in each student's academic and career plan.

Virginia's economic stability and growth are directly tied to its ability to supply business and industry with a well-educated, highly skilled work force. The new Workplace Readiness Skills for the Commonwealth and the accompanying assessment are crucial in ensuring Virginia's high school CTE graduates are well prepared for further education and employment.

AUTHORITY FOR THE REPORT

In 2010, the General Assembly passed **House Joint Resolution 101**. This resolution required the Virginia Board of Education (BOE) to approve the revised Virginia's Workplace Readiness Skills (WRS) and test. In taking this action, the Board was also directed in the resolution to address

- the approval of the revised WRS and test for use in the 2010–2011 academic year so that school divisions could be reimbursed for administering the revised WRS and test; and
- the relationship between Virginia's WRS and the Commonwealth's Career Readiness Certificate (CRC) through the academic and career plan process.

To review the House Joint Resolution 101 in its entirety, refer to Appendix A.

BACKGROUND

Career and Technical Education (CTE) programs must reflect the current workplace. High-quality CTE programs incorporate rigorous academic standards and technical competencies, as well as critical workplace skills such as problem solving, communication, and teamwork, to prepare students for success in further education and careers.

Research has continuously confirmed the need for workplace readiness skills in Virginia. **The Weldon Cooper Center for Public Service** at the University of Virginia has been involved in workplace readiness research for some time. In 1995, the Virginia Department of Education, on behalf of the Board, asked the Weldon Cooper Center to examine this issue to learn more about what Virginia employers expected from entry-level workers. As a response to this request, the Center published another report entitled, "Virginia's Changing Workplace: Employers Speak" in 1997. As a result of this report, 13 WRS skills were identified and approved by the Board and then written as measurable standards and implemented in all career and technical education (CTE) curricula by 1999. The 13 skills were identified as:

1. Reading
2. Mathematics
3. Writing
4. Speaking and Listening
5. Computer Literacy
6. Reasoning, Problem Solving, Decision Making
7. Understanding the "Big Picture"
8. Work Ethic
9. Positive Attitude
10. Independence and Initiative
11. Self-presentation
12. Satisfactory Attendance
13. Teamwork

ACTION TAKEN TO REVISE THE WORKPLACE READINESS TEST (2008–2011)

In 2008, the Department of Education, on behalf of the Board, undertook another review of the WRS to determine if further revisions were needed as the economy continued to change and skill requirements continued to evolve. The key contributors to the review included the Demographic and Workforce Group of the **Weldon Cooper Center for Public Service** at the University of Virginia, **the Career and Technical Education Consortium of States (CTECS)**, and the **Virginia CTE Resource Center**. In 2009–2010, the Department commissioned the Weldon Cooper Center to conduct further research. The Center surveyed 300 business and industry representatives in Virginia. Employers across the Commonwealth reinforced the research findings and validated new workplace readiness skills.

The process for updating the WRS list included the review of more than 30 education and workplace studies, review of WRS plans in other states, including New Jersey, Ohio, and Texas, identification of gaps in the original list based on research, and an analysis of employer comments. The revised WRS list continued to be refined based on the results derived from the research and the employer survey administered by Weldon Cooper. The 2008 revision process involved review of a large body of national research on workplace readiness skills that included substantial research with employers from the **Partnership for 21st Century Skills**. Additional research used by the Department was conducted by a consortium consisting of the Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills, and the Society for Human Resource Management and resulted in a report entitled: "Are They Really Ready to Work?: Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U.S. Workforce" (*Partnership for 21st Century Skills*. 2006. **http://www.p21.org/**). This report confirmed the continuing importance of WRS in addition to traditional academic skills by stating,

In fact, the findings indicate that applied skills on all educational levels trump basic knowledge and skills, such as reading, comprehension and mathematics. In other words, while the "three Rs" are still fundamental to any new workforce entrant's ability to do the job, employers emphasize that applied skills like teamwork/collaboration and critical thinking are "very important" to success at work.

Based on the literature review and the results of the survey of Virginia's employers, the Department found that the WRS being taught and tested were indeed lacking in areas that have garnered much attention over the past ten years, including skills pertaining to

- diversity awareness,
- health and safety,
- creativity and resourcefulness (includes innovation which was a dominant theme in the research),
- customer service, and
- technology.

As a result of its 2008 review, the Department, on behalf of the Board, determined that a new stand-alone WRS test was needed that incorporated a greater number of skills and was not tied to other requirements/certifications, as was the 1997 test. The new stand-alone test is based on the 21 skills outlined below.

COMPARISON OF THE WORKPLACE READINESS SKILLS

21 Workplace Readiness Skills	13 Workplace Readiness Skills
1. Positive Work Ethic 2. Integrity 3. Teamwork 4. Self-Representation 5. Diversity Awareness 6. Conflict Resolution 7. Creativity and Resourcefulness 8. Speaking and Listening 9. Reading and Writing 10. Critical Thinking and Problem Solving 11. Health and Safety 12. Organizations, Systems, and Climates 13. Lifelong Learning 14. Job Acquisition and Advancement 15. Time, Task, and Resource Management 16. Mathematics 17. Customer Service 18. Job-Specific Technologies 19. Information Technology	1. Reading 2. Mathematics 3. Writing 4. Speaking and Listening 5. Computer Literacy 6. Reasoning, Problem Solving, Decision Making 7. Understanding the "Big Picture" 8. Work Ethic 9. Positive Attitude 10. Independence and Initiative 11. Self-Presentation 12. Satisfactory Attendance 13. Teamwork

| 20. Internet Use and Security | |
| 21. Telecommunications | |

Refer to Appendix B for a detailed explanation of each of the 21 Workplace Readiness Skills.

Once this revised list was developed, the Department, again on behalf of the Board, contacted stakeholders in anticipation of Board action in early 2011 to approve the new WRS and accompanying test. In order to implement a new WRS and stand-alone test after Board approval, the Department had to begin development of a related assessment and undertake training and field-testing activities.

In April 2010, the revised WRS list was presented to and endorsed by the State CTE Advisory Committee (refer to Appendix C for a list of committee members), followed by a presentation to CTE administrators from school divisions across the state. Later in the spring of 2010, the Virginia CTE Resource Center conducted the following activities:

- Converted the skills list into an appropriate format for CTE curriculum
- Researched and developed instructional resources for all 21 skills
- Developed promotional materials (posters, PowerPoint presentations, articles for the CTE Resource Center Web site and the Department's CTE newsletter)

On June 1, 2010, the Department introduced the new WRS for the Commonwealth and their accompanying resources to all CTE teachers and administrators. Accessible in every CTE course housed in VERSO, the resources could then be used for instructional planning for 2010–2011. The Department continued to provide support for teaching the new WRS at all summer conferences and in school divisions upon request during the summer and fall of 2010.

Concurrently, the Career and Technical Education Consortium of States (CTECS) conducted research on the new WRS assessment. CTECS (*formerly known as VTECS*) is nationally recognized for its expertise in developing standards and assessment systems based on a valid occupational analysis process. CTECS member states include: Alabama, Arizona, Idaho, Kentucky, Louisiana, Maine, Minnesota, Pennsylvania, South Carolina, and Virginia, with Virginia being a charter member.

CTECS, in collaboration with the CTE Resource Center, convened a committee made up of business, industry, education, and guidance personnel to either link existing test items to standards or develop test items where they did not exist. In September 2010, Virginia teachers, administrators, counselors, and Weldon Cooper Center researchers evaluated the available assessment items and developed new items as needed.

In October 2010, the Weldon Cooper Center published its report, *Critical Workplace Skills for Virginia's Economic Vitality,*
http://www.coopercenter.org/demographics/publications/critical-workplace-skills-

virginias-economic-vitality (see Appendix D). The Weldon Cooper Center report outlined the research behind the new Workplace Readiness Skills for the Commonwealth. The 21 skills were derived from the list generated through extensive literature reviews and employer ratings of the top skills identified. After the employer reviews were tallied, the development team analyzed the final list of skills and clarified the intent of each skill. The revised skills were then organized into three distinct categories, thus making the final WRS for the Commonwealth. In the fall of 2010, CTECS coordinated the assessment development process that included following a step-by-step process that assures valid, defensible, and psychometrically reliable tests. It began with the identification of a business/industry/ education technical advisory committee and ended with a fully operational, field-tested system.

The assessment tools developed by CTECS were aligned to the 21 WRS competencies and the test items met rigorous quality guidelines. In January 2011, a cross-section of Virginia schools was selected to pilot the assessment and field test the E-SESS™system. E-SESS™, a proprietary toolkit for creating and delivering custom online tests, is a component of the Technological Fluency Institute, which CTECS employs as its test/assessment software provider. The E-SESS™ online delivery system converts most "paper" assessments into easy-to-use online tests, creates new online-based tests with instant grading and feedback, and offers a wide variety of reporting abilities. Currently, the pilot test of the new WRS with 21 skills (*Workplace Readiness Skills for the Commonwealth)* assessment is underway. During pilot testing, the assessment and the E-SESS™ online delivery system are being monitored and evaluated, and adjustments are made, as necessary, in preparation for the "live" testing administration, beginning April 2011.

In summary, the 13 workplace readiness skills, approved by the Board in 1997, were re-examined and recommended to be revised to 21 workplace readiness skills. At the same time, a new stand-alone test tied to the WRS was developed and will be available to school divisions for statewide administration in 2011. The new test is significantly lower in cost than the current 13 WRS assessment which consists of a combination of two tests. On February 18, 2011, the Board of Education approved the revised list of industry certification examinations, occupational competency assessments, and licenses, which included the new WRS for the Commonwealth and its related examination.

RELATIONSHIP BETWEEN VIRGINIA'S WORKPLACE READINESS SKILLS AND THE COMMONWEALTH'S CAREER READINESS CERTIFICATE

The concept of Career Readiness Certificates (CRC) has become popular nationwide as a system for certifying the basic skills necessary for success in typical jobs. ACT's nationwide credentialing initiative identifies job seekers who have the essential foundational skills to succeed in the workplace. For current employees, it identifies the skills needed for promotions and greater productivity. ACT's three targeted skill areas, *Reading for Information, Locating Information*, and *Applied Mathematics*, were identified because they were the most utilized skills

in the occupational profile database at ACT, which contains about 10,000 job profiles. These assessments examine the essential foundational skills needed for virtually every occupation. According to ACT, for nearly two decades, the WorkKeys® test has been used by more than 2,500 organizations for employee hiring and development. Companies that have used the WorkKeys® test have seen reduced turnover among employees, as well as improved productivity and training efficiency. The National CRC (or WorkKeys®-based) certificate model is currently being implemented or in the process of being implemented in more than 39 states, including Virginia.

The Virginia Community College System (VCCS), in collaboration with ACT, Inc., has adopted the National Career Readiness System and offers the three required WorkKeys® job skill assessments: *Reading for Information, Locating Information*, and *Applied Mathematics* for awarding the Virginia CRC. The CRC is designed for assessing skills of postsecondary students. By taking the three required ACT Workkeys® assessments, the participant can earn one of four levels of achievement. Scores at the lower end (below Level 3) are truncated. The levels of achievement are as follows:

- Bronze Certificate if the score is at least a Level 3 in each of the three assessments
- Silver Certificate if the score is at least a Level 4 in each of the three assessments
- Gold Certificate if the score is at least a Level 5 in each of the three assessments
- Platinum Certificate if the score is at least a Level 6 in each of the three assessments

The Virginia CRC is another option for the high school student. High school students may take the three required WorkKeys® assessments; however, they must score at least at the Bronze level of achievement (Level 3) to receive the Certificate and to be eligible to receive the student-selected verified credit to fulfill high school graduation requirements. A high school student does not need to be in a dual enrollment program between the high school and VCCS to take the CRC. The CRC is an industry recognized credential that is offered in many job training and job placement programs, such as Virginia's One Stop Centers for job seekers. It is independent of any specific community college program of study, although it is used by community colleges for their students taking CTE programs. The CRC, like the WRS, is a credential that complements the job seeker's "hard skill/technical skill" credentials.

A CRC gives specific information about a person's ability to perform common tasks that all employers require. The participant's certificate includes a description of skills attained, making it a portable and transferable credential that can be presented across industries and businesses. The CRC and scores are portable across Virginia and the nation.

The 21 Workplace Readiness Skills have been fully integrated into all Virginia Career and Technical Education secondary courses. Most (15) of these skills have a strong correlation to the three ACT WorkKeys® job skill assessments as outlined in the table below. The remaining six

Workplace Readiness Skills (positive work ethic, self-representation, conflict resolution, health and safety, organizations, systems, and climates, and job acquisition) are basic personal work skills needed in all aspects of a workplace.

CORRELATION OF ACT WorkKeys® ASSESSMENTS TO VIRGINIA WORKPLACE READINESS SKILLS	
ACT WorkKeys® Job Skill Assessments	**Virginia Workplace Readiness Skills**
Reading for Information	#3 – Teamwork: Contributes to the success of the team, assists others, and requests help when needed
	#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
	#13 – Lifelong Learning: Continually acquires new industry-related information and improves professional skills
	#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
Locating Information	#2 – Integrity: Abides by workplace policies and laws and demonstrates honesty and reliability
	#3 – Teamwork
	#5 – Diversity Awareness: Works well with all customers and coworkers
	#7 – Creativity and Resourcefulness: Contributes new ideas and works with initiative
	#8 – Speaking and Listening: Follows directions and communicates effectively with customers and fellow employees
	#10 – Critical Thinking and Problem Solving
	#13 – Lifelong Learning

	#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
	#18 – Job-Specific Technologies
	#19 – Information Technology
	#20 – Internet Use and Security
	#21 – Telecommunications
Applied Mathematics	#2 – Integrity
	#3 – Teamwork
	#10 – Critical Thinking and Problem Solving
	#13 – Lifelong Learning
	#16 – Mathematics
	#18 – Job-Specific Technologies
	#19 – Information Technology
	#20 – Internet Use and Security
	#21 – Telecommunications

The Virginia Career Readiness Certificate is signed by Governor Robert F. McDonnell and endorsed by the Virginia Workforce Council, the Virginia Manufacturer's Association, and the Virginia Chamber of Commerce, as well as various other Virginia businesses.

ACADEMIC AND CAREER PLAN

The Board of Education included in its 2009 revisions to the *Regulations Establishing Standards for Accrediting Public Schools in Virginia*, provisions for each middle and high school student to have a personal learning plan that aligns academic and career goals with the student's program of study. Beginning with the 2011–2012 school year, all schools must begin development of a personal Academic and Career Plan for each seventh-grade student with completion by the fall of the student's eighth-grade year. The components of the Plan shall include, but not be limited to, the student's program of study for high school graduation and a postsecondary career pathway, based on the student's academic and career interests. The Academic and Career Plan must be signed by the student, student's parent or guardian, and school official(s) designated by the principal, and be included in the student's education record. It is required to be reviewed and updated, if necessary, before the student enters the ninth and

eleventh grades. (Please note: Legislation pending in the 2011 General Assembly may delay this requirement until the 2012–2013 academic year; however, this does not preclude any school division from moving forward with implementation of the Academic and Career Plan.)

A designation field for the Virginia CRC has been added to the Academic and Career Plan template provided to school divisions as a resource for creating and maintaining Plans if the student chooses to pursue a certificate. The CRC designation on the Academic Career Plan template is a hyperlink that can be accessed to provide information for educators when assisting students with college and career planning. To review, go to the Academic and Career Plan at **http://www.doe.virginia.gov/instruction/graduation/academic _career_plan.shtml** (Scroll down to the Academic Career Plan Template and Sample Plans)

The **Virginia Education Wizard**, also developed and managed by the Virginia Community College System, serves as a valuable tool for secondary and postsecondary planning and integrates the elements of the Academic and Career Plan.

COST AND FUNDING

The new 21 WRS stand-alone examination includes an assessment of digital literacy, which previously was an assessment tied to the 13 WRS but administered as a stand-alone test. The new single examination based on 21 WRS will cost $9.00 per student in comparison to the 13 WRS test, which must be combined with a digital literacy test, and costs a combined total of $42.00 per student. Annually, the state budget provides $1,065,133 to school divisions to assist with the cost of all industry-recognized credentialing examinations approved by the Board.

The *Carl D. Perkins Career and Technical Education Act of 2006* allows federal funds for secondary education to be used to help teachers and students become certified after all state funds have been utilized. Typically, the state funding of $1,065,133 is not sufficient to reimburse school divisions fully for the cost of administering Board-approved tests, so school divisions are allowed to use these federal funds to cover remaining costs.

2011 BOARD OF EDUCATION REVIEW

On January 13, 2011, the Board of Education accepted for first review the revised list of industry certification examinations, occupational competency assessments, and licenses, which included the new 21 Workplace Readiness Skills for the Commonwealth examination and the National Career Readiness Certificate (ACT WorkKeys®-based and adopted by Virginia) assessment. The Board of Education's criteria for awarding verified credit for additional tests require the test to be administered on a multistate or international basis. For this reason, the National Career Readiness Certificate is identified on the Board of Education Approved Industry Certifications, Occupational Competency Assessments, and Licensure published list. During the Board's meeting, three individuals presented comments on the current Workplace Readiness Skills and

assessment. The speakers advocated for the continued use of the 13 WRS and the matching assessment. To address these comments further, the Department of Education staff met with the individuals, and the Department decided to maintain the existing Board-approved assessment (NOCTI Virginia WRS test combined with one digital literacy exam).

At the February 2011, Board of Education meeting, staff of the Department of Education presented for final review the revised list of industry certification examinations, occupational competency assessments, and licenses, which included the new 21 Workplace Readiness Skills for the Commonwealth examination and the National Career Readiness Certificate (ACT WorkKeys®-based and adopted by Virginia) assessment. The Superintendent of Public Instruction recommended and the Board of Education approved the updated list of industry-recognized credentials for meeting the requirements for the Board of Education's Career and Technical Education and Advanced Mathematics and Technology Seals and the student-selected verified credit(s).

A Superintendent's Memorandum will notify school divisions of the approved list of industry certifications, occupational competency assessments, and licenses.

By April 2011, the Workplace Readiness Skills for the Commonwealth examination will be available to school divisions for statewide administration. While it is not a required test for Virginia CTE students, school divisions are allowed to make it a local requirement for all program completers. Students' performance data on the new Workplace Readiness Skills examination will be included on the School Report Card beginning with the 2010–2011 school year.

A wide variety of resources have been made available to teachers for each new Workplace Readiness Skill, including informational Web sites with lesson plans, activities, discussions, and background information consisting of articles and documents. CTE course competency/task lists and instructional frameworks are available on Virginia's Educational Resource System Online (VERSO), **http://www.cteresource.org/verso2/search**. In VERSO, the task definition, related Standards of Learning, and linked resources are provided for each WRS.

CONCLUSION

In summary, the new Workplace Readiness Skills for the Commonwealth are well-researched, up-to-date, reflective of Virginia's employer needs, incorporated into all Career and Technical Education courses, supported with many teaching resources, and eligible for a new industry-valued credential.

APPENDIX A

HOUSE JOINT RESOLUTION NO. 101

Requesting the Board of Education to approve the revised Virginia's Workplace Readiness Skills and test. Report.

Agreed to by the House of Delegates, February 8, 2010

Agreed to by the Senate, March 2, 2010

WHEREAS, Virginia's Career and Technical Education (CTE) program is nationally recognized for its leadership in student attainment and in industry credentialing, and the program provides pathways for young people to attend college, secure good jobs, and become life long learners; and

WHEREAS, Virginia's CTE program offer wide-ranging and challenging courses that prepare Virginia students to continue their education and for direct entry into the workforce after graduation, often in emerging occupations essential to the Commonwealth's economy; and

WHEREAS, 77 percent of CTE completers pursue some form of formal education after high school; and

WHEREAS, Virginia's Career and Technical Education programs are organized around 16 nationally recognized career clusters offering 79 career pathways that are designed to help students make informed career choices and solid academic plans; and

WHEREAS, in May 2009, the Virginia Commission on Youth conducted a gap analysis of career and technical education programs in the Commonwealth to identify shifting career and technical education needs, and found that (i) career and technical education programs are very effective in keeping students connected to and helping them succeed in high school, (ii) a strong CTE program is critical to the economic well-being of Virginia, and (iii) Virginia's Workplace Readiness Skills were effective in preparing students for the workplace; and

WHEREAS, Virginia's Workplace Readiness Skills (WRS) were identified through extensive research conducted in 1997 with Virginia employers by the University of Virginia's Weldon Cooper Center, and mirror findings from national studies which state that entry level skills most desired by employers include basic reading and writing, a strong work ethic and positive attitude, communicative skills, teamwork, and self-presentation; and

WHEREAS, Virginia's 13 Workplace Readiness Skills are fully integrated as performance standards in all CTE courses; and

WHEREAS, Virginia's Workplace Readiness Skills help teachers and students understand the demands of the workplace and assist students in achieving validated competencies considered essential to the successful pursuit of work and academic achievement; and

WHEREAS, to verify student mastery of Virginia's Workplace Readiness Skills and to allow students to obtain verified credit for achieving validated competencies, the Board of Education has approved the use of the National Occupational Competency Testing Institute (NOCTI) Workplace Readiness Skills (WRS) exam, accompanied by one of three Internet and Computing Core Certification (IC3) tests to measure technological competence; and

WHEREAS, students must complete both the NOCTI WRS test and an IC3 test for the reimbursement of school divisions by the Commonwealth for the costs of testing, and a single, unified test would be ideal, and work to create one test is underway; and

WHEREAS, in 2008 the process of refining and expanding the list of Virginia's Workplace Readiness Skills from 13 to 21 skills commenced and the revised list will be fully integrated into the CTE curriculum in the fall of 2010; and

*WHEREAS, a revised NOCTI WRS to replace the NOCTI WRS + IC3 tests is scheduled for completion and presentation to the Board of Education in January 2011, for immediate use at the conclusion of the **2010–2011** school year and school divisions will be reimbursed by the Commonwealth for administering the test; and*

WHEREAS, the Board of Education will address the relationship between Virginia's Workplace Readiness Skills and the Commonwealth's Career Readiness Certificate (CRC) through the academic and career plan process; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Board of Education be requested to approve the revised Virginia's Workplace Readiness Skills and test.

The Board of Education shall submit to the Division of Legislative Automated Systems an executive summary and report of its progress in meeting the request of this resolution no later than the first day of the 2011 Regular Session of the General Assembly. The executive summary and report shall be submitted for publication as a report document as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents and reports and shall be posted on the General Assembly's website.

APPENDIX B

The New Workplace Readiness Skills for the Commonwealth
Needs Identified by Virginia Employers
Adopted, April 2010

Personal Qualities and People Skills
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 5.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

Professional Knowledge and Skills
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

Technology Knowledge and Skills
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

APPENDIX C

2009 Virginia Advisory Committee for Career and Technical Education

Ms. Theresa Bryant
July 1, 06-June 30, 09

Vice President
Workforce Development
Tidewater Community College

Mr. Johnny Cates
July 1, 06-June 30, 09

Executive Director AYES Program
Virginia Auto Dealers Association

Mr. John E. Cotton
July 17, 08-June 30, 11

Director
Environmental Health, Safety & Security

Mr. Alan R. Hawthorne
July 17, 08-June 30, 11

Executive Director, Joint Industrial
Development Authority of Wythe County

Ms. Sandy Hespe
July 1, 07-June 30, 10
Secretary

Instructional Specialist
York County Public Schools

Mr. Byron K. Hinton
July 17, 08-June 30, 11

Chairman, Stafford County Career and
Technical Education Committee

Ms. Virginia R. Jones
July 17, 08-June 30, 11

Supervisor of Academies
Halifax County Public Schools

Mr. Mike Mills
July 1, 07-June 30, 10
Chair

Corporate Distribution Manager
American Woodmark Corporation

Mr. Toney Rigali
July 1, 07-June 30, 10

Lead Organizer
Virginia Pipe Trades Association

Mrs. Judy Sorrell
July 1, 07-June 30, 10
Vice-Chair

Director
Shenandoah Valley Regional Program

Mr. Jerry W. Stewart
July 17,08-June 30, 11

Workforce Development Coordinator
City of Virginia Beach Economic
Development Division

Dr. Brenda Long

VACTE Liaison

APPENDIX D

CRITICAL WORKPLACE SKILLS FOR VIRGINIA'S ECONOMIC VITALITY

By Achsah Carrier & Meredith Gunter
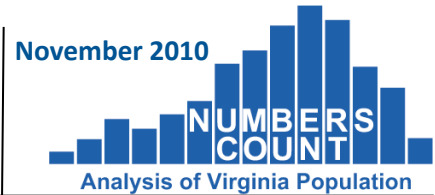
Virginia's economic vitality depends on a skilled workforce. A well-prepared workforce increases productivity and is a strategic advantage in attracting new employers to the Commonwealth.

What makes a workforce well prepared?

Employers from all industries across Virginia and the nation agree that professionalism, personal qualities, and people skills are vital. These so-called workplace readiness skills often are more widely valued than academic achievement; and employers seek them in students graduating from high schools, two-year colleges, and four-year colleges and universities.

Where and how are workplace skills developed?

Historically, employers have accepted summer and part-time work experience as evidence of earned workplace skills. Unfortunately, over the past thirty years, the national teen employment-to-population ratio has fallen 50% for males and 30% for females. The 2009 ratio reflects the lowest level of youth employment since World War II.

Employers recognize that, beyond actual work experience, students learn workplace readiness from their families, communities, and schools. In Virginia, research on employer needs (1997 & 2009) led to career and technical education courses incorporating workplace readiness skills instruction; and a test for workplace readiness skills has been offered in Virginia public schools since 2009.

This report provides detail on workplace readiness as defined by Virginia employers in 1997 and 2009. In addition, the report addresses several questions:

- Do employers across the nation agree on skills needed for workplace readiness?

- Do workplace readiness skills matter for students pursuing or achieving a postsecondary degree?

- Where do/should young people learn workplace readiness?

- How can schools and communities help young Virginians prepare for demands of the workplace?

Research in Virginia over 25 years

Demographers from the University of Virginia Weldon Cooper Center for Public Service interviewed 564 employers across the Commonwealth in 1995-96. The object of this research was to understand how the workplace of the 1990s was changing and what skills and qualities employ-

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Virginia's Workplace Readiness Skills, 1999

1. Demonstrate reading skills on a level required for employment in a chosen career field.

2. Demonstrate math skills on a level required for employment in a chosen career field.

3. Demonstrate writing skills on a level required for employment in a chosen career field.

4. Demonstrate speaking and listening skills on a level required for employment in a chosen career field.

5. Demonstrate computer literacy on a level required for employment in a chosen career field.

6. Demonstrate reasoning, problem-solving, and decision-making skills.

7. Demonstrate 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.

ers considered essential for entry-level employees hired in jobs not requiring a four-year degree. In the course of these interviews, employers revealed a great deal about the skills required for that decade. In addition to modern technical skills (including the then-still-new and increasingly important computer skills), employers also expressed their need for (and difficulty in finding) more traditional character traits and skills. They wanted job applicants who understood the workplace and its climate; had the work ethic and motivation to do the job; and demonstrated the people skills essential for successful relations with customers and coworkers. *Virginia's Changing Workplace: Employers Speak*[1] summarized these interviews, identifying two skill sets: "hard skills" and "soft skills" [2]:

> *Employers require new workers to have a number of basic technical skills that have come to be called 'hard skills.' They expect employees to have learned these skills in school: reading, math, writing, speaking, computer literacy, reasoning, problem solving and decision making, understanding the broader picture.*

> *In addition to these basic skills, employers are looking for a number of personal qualities—'soft skills.' Many employers believe that some or all of these soft skills are learned in the home rather than in school: a strong work ethic, a positive attitude, independence and initiative, self-presentation.*

Based on this study, Virginia's Career and Technical Education Curriculum Resource Center produced a list of 13 essential "workplace readiness skills," and, in 1999, incorporated the skills into the instructional standards for all career and technical education courses. In 2009, a workplace readiness skills assessment, combined with a specialized technology skills assessment, was approved by the Virginia Board of Education as a new option for earning verified credit toward high school graduation.

The Latest Word from Virginia Employers: Workplace Skills are Vital

In 2009, Cooper Center researchers sought input from Virginia employers on a proposed update of the workplace readiness skills in Virginia's career and technical education curriculum. Three hundred and eighteen employers [3] from a variety of fields submitted comments on a list of 21 skills[4]

Table 2. Employer Ratings of 21 Skills

FOUNDATION SKILLS For Entry-Level Workers	Essential	Useful	Optional
APPLYING AND UNDERSTANDING MATHEMATICS: Uses mathematical reasoning to accomplish tasks.	51%	43%	5%
CREATIVITY, INNOVATION, AND ADAPTABILITY: Contributes new ideas and adapts to changes in the workplace.	57%	41%	2%
DIVERSITY AWARENESS: Works well with customers and coworkers of different ages, genders, races, ethnicities, and backgrounds.	82%	17%	1%
EMPLOYMENT-RELATED FINANCIAL LITERACY: Manages personal finances, budgeting, and savings.	34%	55%	11%
PROFESSIONAL ETHICS: Abides by workplace policies and laws, and demonstrates personal integrity.	95%	5%	0%
READING AND WRITING: Reads workplace documents and writes clearly.	89%	11%	0%
SPEAKING AND LISTENING: Understands directions and communicates effectively with customers and fellow employees.	96%	4%	0%
UNDERSTANDING HEALTH, WELLNESS, AND SAFETY: Follows safety guidelines and manages personal health.	67%	31%	2%
TECHNOLOGY SKILLS For Entry-Level Workers	**Essential**	**Useful**	**Optional**
COMPUTER HARDWARE BASICS: Works with computers and troubleshoots minor problems as needed.	34%	49%	16%
DATA AND FILE-MANAGEMENT: Maintains organized business files and follows management systems and appropriate security practices.	50%	38%	12%
INTERNET USE AND SAFETY: Uses the Internet appropriately for work-related projects.	58%	35%	7%
TECHNOLOGY APPLICATIONS: Learns computer applications as needed.	68%	27%	5%
TELECOMMUNICATIONS: Uses communications devices efficiently.	58%	35%	7%
PROFESSIONAL SKILLS For Entry-Level Workers	**Essential**	**Useful**	**Optional**
JOB ACQUISITION AND ADVANCEMENT: Presents well as a job applicant or employee and as a candidate seeking promotion.	60%	36%	4%
LEADERSHIP AND RESOURCE MANAGEMENT: Manages time and other resources, including people.	54%	42%	4%
LIFELONG LEARNING: Is eager to learn new procedures and improve skills.	63%	36%	2%
PARTICIPATES AS A TEAM MEMBER TO ACCOMPLISH GOALS: Contributes to the success of the team, assists others, requests help when needed, and resolves conflicts effectively.	89%	10%	1%
POSITIVE WORK ETHIC: Arrives at work on time, in appropriate attire, and is supportive of accomplishing the task at hand.	96%	4%	0%
REASONING, PROBLEM-SOLVING, AND DECISION-MAKING: Tackles and resolves problems that arise in completing assigned tasks.	76%	23%	1%
RESEARCH AND SYNTHESIS: Knows how to find and ethically use reliable information to solve problems.	53%	43%	4%
UNDERSTANDS THE "BIG PICTURE": Understands his or her role in fulfilling the mission of this workplace.	64%	34%	3%

proposed for their consideration.

Employers were asked to rate each of the proposed skills as "essential," "useful," or "optional." Most employers considered most of the skills to be essential; and four skills sets—Speaking and Listening, Professional Ethics, Reading and Writing, and Positive Work Ethic — were not rated optional by any employers. Despite the infusion of computer and other technologies in the workplace, technology skills were the most likely among the skills to be considered optional. On the other hand, a positive work ethic was thought to be required in every occupation.

Table 2 lists the skills in order by the percentage of employers considering each to be essential. Positive Work Ethic, Speaking and Listening, and Professional Ethics were the most highly rated of the 21 skills. These rankings are consistent with those in reported in *Are They Really Ready to Work?*[5], a major study commissioned by Partnership for 21st Century Skills and other national organizations. In this research, Professionalism/Work ethic, Teamwork/ Collaboration, and Oral Communications were at the top of the

lists for high school, two-year college, and four-year college graduates. [6]

In these comments and in the more detailed research that the Weldon Cooper Center did in the mid 1990s, Virginia employers call for the same skills found in national research results. Employers repeatedly assert that they want employees with a good work ethic, who get along with colleagues, and communicate effectively with customers and clients. While many aspects of the workplace have changed over the past two decades, the need for these basic workplace readiness skills has not changed. Employers have wanted these skills and capacities for as long as researchers have been asking about them.

National Research Highlights: Employers Seeking Basic Workplace Skills

The 1990 report from the Commission on the Skills of the American Workforce, *America's Choice, High Skills or Low Wages*, [7] found that:

> While businesses everywhere complained about the quality of their applicants, few talked about the kinds of skills acquired in school. The primary concern of more than 80 percent of employers was finding workers with a good work ethic and appropriate social behavior: "reliable," "a good attitude," "a pleasant appearance," "a good personality."

In 1991, under the authority of the United States Department of Labor, the Secretary's Commission on Achieving Necessary Skills (SCANS) published *What Work Requires of Schools*. [8] The Commission developed a complex schema of

Table 2. Percent of Virginia Employers Rating Skills "Essential"		
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	Understands 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%

Secretary's Commission on Achieving Necessary Skills (SCANS)

FIVE 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

THREE-PART FOUNDATION

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

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 competencies and a three-part foundation of skills and personal qualities at the heart of job performance. Twenty years later, these skills and competencies are still sought, both nationally and in Virginia.

In 2008, the Society for Human Resource Management[9] reported responses from human resource professionals when asked how skill requirements have changed over the past two years. Respondents, from companies employing workers from high school graduates through four- year graduates, indicated that workplace readiness skills are becoming more important in the workplace - not less. As Chart 1 shows, workplace readiness skills such as adaptability/flexibility, critical thinking/problem solving, and professionalism/work ethic, were judged as becoming more important than two years ago.

Chart 1. Skills Considered "Much More Important Now" than Two Years Ago for New Entrants


Percent Rating Skill "Much More Important"
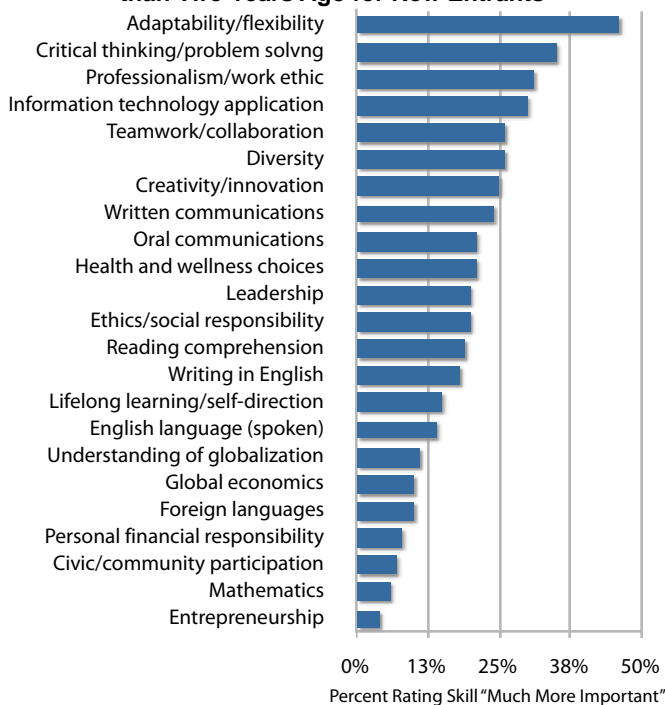
The largest and most important evaluation of workplace readiness skills in recent years was conducted jointly by The Conference Board, Partnership for 21st Century Skills, Corporate Voices for Working Families, and the Society for Human Resource Management, and captured in a report entitled: *Are They Really Ready to Work? Employers' Per-*

spectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U.S. Workforce. In this study over 400 employers across the nation ranked the importance of eleven "applied" skills (those called workplace readiness skills in Virginia), and nine basic or "academic" knowledge/skills. Respondents rated the importance of these skills for employees entering the workforce at three education levels: high school graduates, two-year college or technical school graduates, and four- year college graduates.[10] For these employers, applied skills topped the list of skills rated "very important" for employees at all three educational levels.

Charts 2a through 2c show the ratings of skills for four-year college graduates, two-year college/technical school graduates, and high school graduates, respectively. The charts illustrate that applied skills are sought by employers for those entering the workforce at all educational levels. While the order of skills is slightly different, Oral Communications, Teamwork, and Professionalism are the top three skills for all three educational levels. In fact, applied skills were more likely to be considered very important for four-year college graduates than for high school graduates.
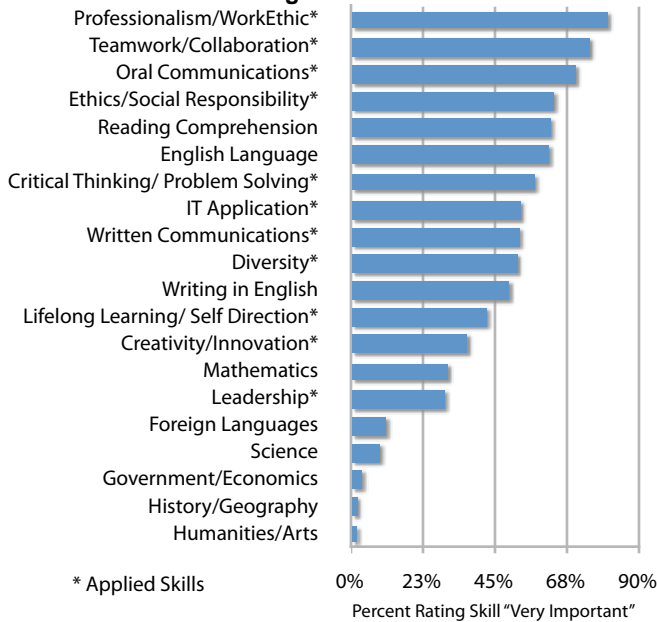
Chart 2a. "Very Important" Skills for 4-year College Graduates

* Applied Skills

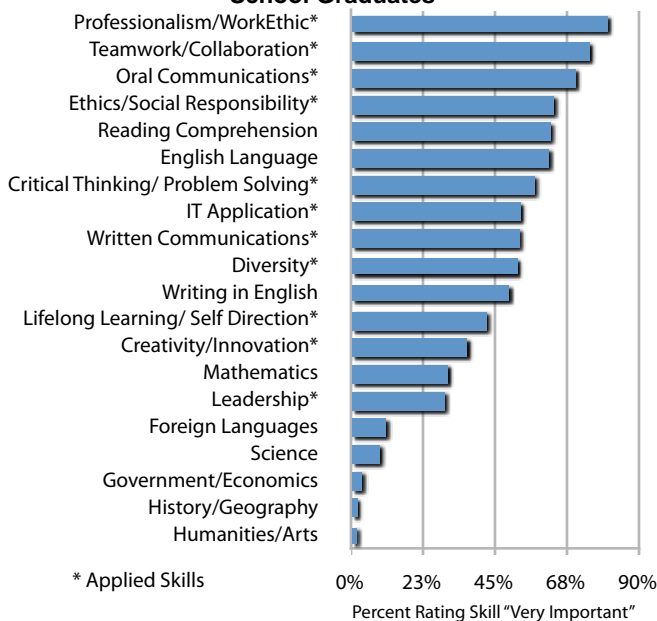Percent Rating Skill "Very Important"
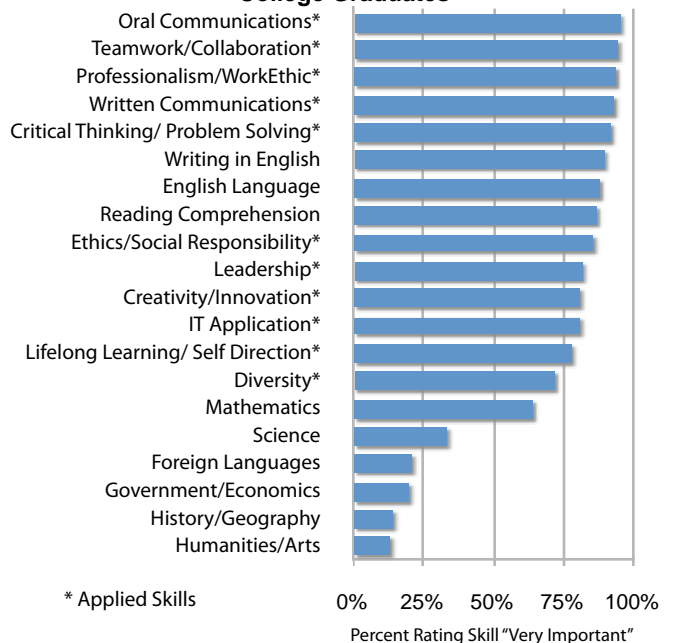
In *Are They Really Ready to Work?*, as in many other studies, a larger percentage of employers rate applied skills

Chart 2b. "Very Important" Skills for 2-year College Graduates

Skill	
Professionalism/WorkEthic*	
Teamwork/Collaboration*	
Oral Communications*	
Ethics/Social Responsibility*	
Reading Comprehension	
English Language	
Critical Thinking/ Problem Solving*	
IT Application*	
Written Communications*	
Diversity*	
Writing in English	
Lifelong Learning/ Self Direction*	
Creativity/Innovation*	
Mathematics	
Leadership*	
Foreign Languages	
Science	
Government/Economics	
History/Geography	
Humanities/Arts	

* Applied Skills

Percent Rating Skill "Very Important" (0% 23% 45% 68% 90%)

"very important" than gave this rating to academic skills. This shows that applied, or workplace readiness, skills are valued by a wide range of employers across a range of industries. No matter what field of work a student eventually

Chart 2c. "Very Important" Skills for High School Graduates

Skill	
Professionalism/WorkEthic*	
Teamwork/Collaboration*	
Oral Communications*	
Ethics/Social Responsibility*	
Reading Comprehension	
English Language	
Critical Thinking/ Problem Solving*	
IT Application*	
Written Communications*	
Diversity*	
Writing in English	
Lifelong Learning/ Self Direction*	
Creativity/Innovation*	
Mathematics	
Leadership*	
Foreign Languages	
Science	
Government/Economics	
History/Geography	
Humanities/Arts	

* Applied Skills

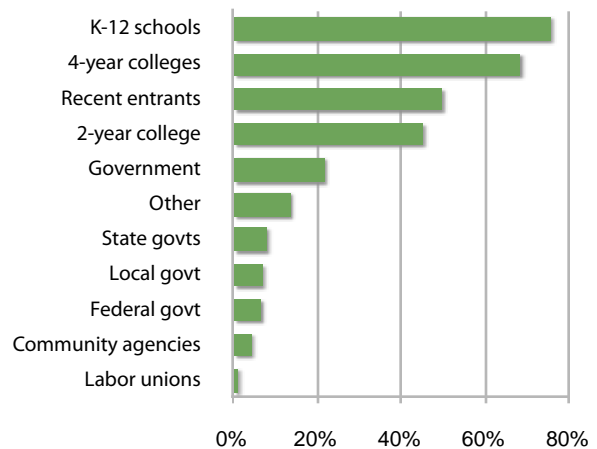Percent Rating Skill "Very Important" (0% 23% 45% 68% 90%)

enters, he or she will need to demonstrate these skills. The academic skills are generally rated "important" by a smaller percentage of employers because they are much more likely to be job specific. Foreign languages, science, economics, and art are crucial in some occupations, but not in every occupation. Because the applied skills are general rather than specific to any occupation, they have as a rule not been given a place in any specific curriculum. However, employers are now looking for these skills to be given more curricular support.

Workplace Readiness Skills Are Important, But Should They Be Taught In School?

How do students develop the workplace readiness skills that employers want? Are parents, families, and communities solely responsible for character and skill development in students? Do schools and curriculum have a role to play in this area so important to Virginia employers?

As part of the study *Are They Really Ready To Work?*, employers were asked "who should be responsible for providing the necessary basic knowledge and applied skills for their new entrants?" [11] While many respondents wrote in "parents," which was not included on the list of options, 75 percent of employers indicated that K-12 schools should be responsible (Chart 3).

Chart 3. Who is Responsible for Workplace Readiness

K-12 schools	
4-year colleges	
Recent entrants	
2-year college	
Government	
Other	
State govts	
Local govt	
Federal govt	
Community agencies	
Labor unions	

(0% 20% 40% 60% 80%)

Traditionally, many young people have been expected to develop workplace readiness skills through actual work experience. The family business, paper route, summer job, and after-school job have long been a part of the experience of American youth; however, like the paper route, opportunities and time to gain work experience for young people is less common today.

According to Andrew Sum of Northeastern University's Center for Labor Market Studies, experience in the workplace among youth is declining significantly. From 1979 to 2009 the employment to population ratio [12] of youth 16 to 19 fell by half for young men and by a third for young women (See Chart 4). The 2009 employment to population ratio for teens of both genders is the lowest ever recorded in post-World War II history. [13]

Chart 4. Employment/Population Ratios of Male and Females Teens
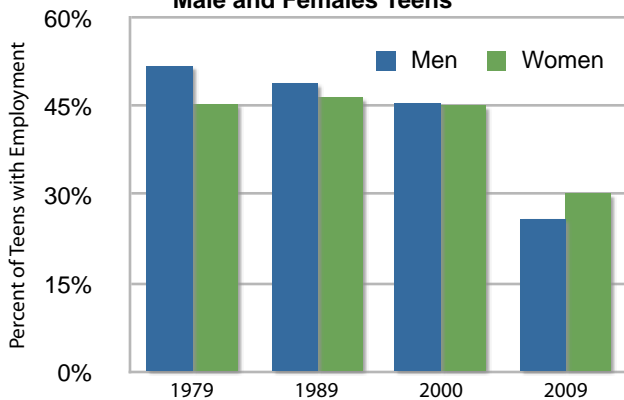
Low-income youth are significantly less likely than their middle class peers to build work experience in their teenage years (see Chart 5). Racial and ethnic disparities are also very large. Black and Hispanic teens have lower em-

Chart 5. Teen Employment by Family Income, June 2010
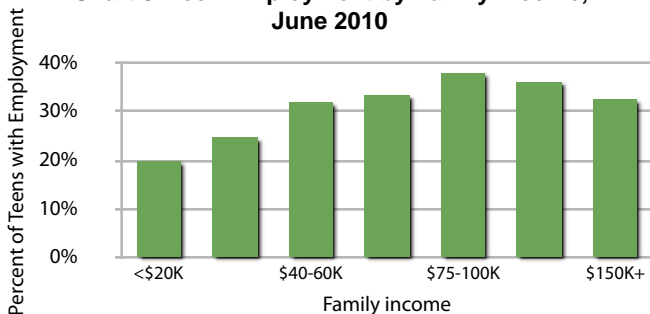
ployment rates than white teens from families of the same income level. The disparity is particularly severe for black teens. Sum reports that, "the employment rate for upper middle income White teens was four times as high as that for low income Black teens, (40.1% vs. 9%), an extremely large gap in employment prospects." [14]

Many non-working teens spend their out-of-school time in valuable activities, including art, sports, and even additional studies.[15] Despite the advantages that participating teens gain from these activities, Sum is concerned that they lack valuable experience by missing out on work. Work experience:

> can instill youth with employer valued soft skills, such as attendance and punctuality, interpersonal skills, customer relations, team work, and occupational skills that are best learned in a workplace setting. A substantial and growing body of literature on the early labor market experiences of young adults over the past thirty years indicates quite consistently that employment during the high school years can generate a diverse number of favorable short-term and long-term positive impacts on their employability, wages, and earnings. These labor market impacts tend to be larger for those high school graduates who do not go on to complete any substantive amount of post-secondary education.[16]

Since youth engagement in work experience has decreased significantly over recent decades, schools may now need to provide training in these basic workplace skills that young people once developed in other ways. Workplace readiness skills instruction along with instruction toward specifically employment-related credentials may help to compensate for lack of work experience and give students an understanding of the world of work that they hope to join.

Summary

This review of research on workplace readiness found that:

- Despite changes in the workplace over the past twenty years, employers from all sectors and across the nation rate workplace skills, character, and behavior as vital qualities for entry-level employees;
- These skills are important for a wider range of occupations than are most individual academic skills;

- These skills are considered important for students graduating from high schools, two-year colleges, and four-year colleges and universities;

- Employers believe schools play an important role in teaching these skills, and value work experience as evidence of exposure to sound workplace skills and attitudes;

- Over the past thirty years, the youth employment to population ratio has fallen 50% for males and 30% for females;

- In Virginia, teachers in career and technical education courses have incorporated workplace readiness skills instruction since 1999. These skills have recently been reevaluated and updated and a new assessment is being developed.

Implications/Recommendations

In light of current research on workplace readiness, Virginia policymakers should consider the following points:

1. Career and Technical Education programs in Virginia may be a model for incorporating employer-valued workplace readiness skills into Virginia's schools and classrooms. After 10 years of experience with workplace readiness skills, career and technical educators and programs are established as a proving ground for both the value of these skills and approaches to teaching them.

2. Workplace readiness "skills" include skills, behaviors, attitudes, and values. While career and technical education courses can be a place to learn these skills, the skills must be incorporated into the entire curriculum so that all students have the opportunities provided to those enrolled in CTE courses.

3. In addition, a commitment to workplace skills and attitudes should be reflected in the entire school environment and endorsed by administrators, parents, PTA organizations, and community leaders. Timeliness, appropriate dress, manners, integrity, and interpersonal respect (among other things) can be nurtured in an or-

derly school environment that demands the best from everyone. Allowing students to dress inappropriately, miss multiple days of school, or behave rudely to others does a disservice to the school environment, to their fellow students, to the employers and citizens of Virginia, and to the future of the students themselves.

4. Employers cannot leave schools on their own to prepare students for the demands of the work environment. While youth work experience through direct employment is falling for many reasons and probably cannot be returned to previous levels, students need experience with and exposure to work environments. This exposure helps them to make sense of their studies in school, and better prepares them for entry into the workplace.

5. Employer involvement in Virginia's schools can create these opportunities. School visits, participating in job and career fairs, offering internships, hosting student work-site visits, sending speakers to career days, and recruiting young workers directly through high schools are all crucially important to developing work-ready graduates from Virginia.

6. The link between high schools and Virginia's community colleges has been bolstered by career coaches - individuals hired by community colleges and located within the high schools to help students develop sound academic and career plans. This model could be adapted to build linkages between schools and the employment community. Economic development or other state funds could be dedicated to creating a network of individuals, one in each school division, to build school/employer partnerships and engagement. Just as the statewide system of career coaches was built incrementally, several positions could be created in a range of Virginia communities as a pilot project, with results evaluated for possible program expansion.

1. This research on changing workplace skills was commissioned by the Virginia Occupational Information Coordinating Committee and the Virginia Department of Education Vocational, Adult, and Employment Training Services to guide future development of career and technical education.

2. Julia H. Martin, Achsah H. Carrier, and Elizabeth A. Hill, *Virginia's Changing Workplace: Employers Speak.* (Weldon Cooper Center for Public Service, University of Virginia, 1997) p. 15-16.

3. Comments on the proposed list were invited from employers on the Career and Technical Education State Advisory Board; employers involved with school division Career and Technical Education programs as advisory board members or in other capacities; and employers indirectly contacted through local Chambers of Commerce, Workforce Centers, and a number of statewide associations.

4. The revised list was developed by the Career and Technical Education Consortium of States, Virginia's CTE Resource Center, and the Weldon Cooper Center and was based on an evaluation of national research, national assessment programs (including Equipped for the Future Content Standards), and workplace skills curricula in use in seven other states.

5 J. Casner-Lotto and L. Barrington, *Are They Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U.S. Workforce*. The Conference Board, Corporate Voices for Working Families, Partnership for 21st Century Skills, and Society for Human Resource Management (2006).

6 Career and technical education programs in Virginia have now been revised in light of these employer comments and related state national research. A revised list of 21 workplace readiness skills was prepared and adopted in 2010. These skills have been integrated into all career and technical education programs and an assessment is being prepared for implementation as part of the secondary industry credentialing initiative. The new list of 21 workplace readiness skills and supporting curriculum materials can be seen at the website of Virginia's CTE Resource Center: www.CTEresourcecenter.org.

7. National Center on Education and the Economy, *America's Choice: High Skills or Low Wages!* The Report of the Commission on the Skills of the American Workforce (1990) p. 3.

8. Department of Labor, The Secretary's Commission on Achieving Necessary Skills, *What Work Requires of Schools: A SCANS Report for America 2000* (1991).

9. Society for Human Resource Management and WSJ.com/Careers, *Critical Skills Needs and Resources for the Changing Workplace* (2008) p. 9.

10. J. Casner-Lotto and L. Barrington, *Are They Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U.S. Workforce.* The Conference Board, Corporate Voices for Working Families, Partnership for 21st Century Skills, and Society for Human Resource Management (2006) p. 9.

11. Ibid., p. 31.

12. The employment to population ratio measures youth working one or more hours for pay, or without pay in a family business, for 15 or more hours per week. These data on employment to population ratios come from the national Current Population Survey conducted by the U. S. Bureau of Labor Statistics and are not available at the state level.

13. Andrew Sum, "The Collapse of the Nation's Labor Market for Teens and Young Adults (20-24): Designing A Set of Workforce Development Strategies to Improve the Immediate and Long-Term Employment Prospects of the Nation's Youth." Center for Labor Market Studies Northeastern University (2009) Powerpoint.

14. Andrew Sum, et al., Vanishing Work Among U.S. Teens, 2000-10: What A Difference a Decade Makes! Four Million Missing Workers in June 2010. Prepared for the Charles S. Mott Foundation (July 2010) p. 8.

15 Teresa Morisi, "The Early 2000s: A Period of Declining Teen Summer Employment Rates." *Monthly Labor Review* (May 2010) 23-35.

16. Andrew Sum, et al., "Education and Labor Market Outcomes for the Nation's Teens and Young Adults since the Publication of America's Choice: A Critical Assessment." Paper Commissioned by the National Center on Education and the Economy for the New Commission on the Skills of the American Workforce (January 2006) p. 20.