MEETING EMPLOYER NEEDS
FOR
WORKPLACE SKILL EDUCATION

AUTHORS

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A RESEARCH REPORT
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Background

One of our great national debates is the role of educational institutions in career preparation. The traditional view of educators is that education is the imparting of knowledge and wisdom and that training is the responsibility of employers. Even in career focused disciplines such as engineering, business, and the health professions, faculty would rather focus on the ‘science’ of the discipline rather than the practice.

Federal school-to-work legislation has moved the nation in a different direction. States that adopt the federal school-to-work model are provided funding to implement/create a number of school reforms. The goal of these reforms is to prepare students for careers they will have after high school or college. This legislation has been vigorously criticized by the conservatives as more evidence of federal interference with local school systems.

Often left out of this debate is what employers really need from our educational institutions. When employers are consulted, they tend to be comprised of the nation’s elite businesses.

Rarely have the nation’s front line employers been consulted about their educational needs.

The study presented in this paper focuses on the educational needs of a cross-section of employers in one state (West Virginia) and how these needs can be met within academic programs.

The West Virginia Needs Assessment Project

West Virginia is a small state with an economy comprised of many of our nation’s basic industries. Coal, metals, glass, wood products, and chemicals are important industries in West Virginia. However, new business segments in telecommunications, software engineering, automotive parts, and tourism are becoming increasingly more important to the state’s economy.

West Virginia employers constitute a microcosm of the nation and offer a useful laboratory for discovering the workforce needs of the nation as a whole. The small size of the state makes it possible to reveal the needs of the state’s employer base without a massive data collection effort.

The West Virginia Business Roundtable, with support from the Claude Worthington Benedum Foundation and the College and University systems, undertook a project to assess the educational needs of West Virginia employers. The Center for Entrepreneurial Studies and Development, Inc., (CESD) at West Virginia University was asked to serve as the project manager for this effort.
The goals of the project were to

- Identify characteristics of the West Virginia workforce and the development needs of the workforce in the state’s various economic segments.
- Identify hiring patterns of West Virginia employers including critical skill requirements, hiring decision practices, and experiences with recent hires.
- Identify how employees acquire skills once they are hired.
- Identify improvement opportunities in the overall workforce development process already in place in West Virginia.

Interviews were conducted with over 200 employers in virtually every segment of the state’s economy, including every one of the state’s 55 counties. Particular attention was given to capturing the needs of all sizes of businesses. While the project was not designed with statistical accuracy in mind, some consideration was given to conducting interviews in rough proportion to the state’s economic makeup. Exhibits A and B provide data on the employers that were interviewed.

EXHIBIT A

DISTRIBUTION BY THE NUMBER OF EMPLOYEES

<table>
<thead>
<tr>
<th>Profiles Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
</tr>
<tr>
<td>50-99</td>
</tr>
<tr>
<td>100-199</td>
</tr>
<tr>
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</tr>
<tr>
<td>Insufficient data</td>
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A survey asked employers to describe the knowledge and skills they require when hiring frontline employees. In the context of this study, frontline employees were those employees who carry a major responsibility for manufacturing the goods or providing the service(s) of the business. The work of frontline employees varies from one type of business to another as shown in exhibit C.
### Distribution by SIC Classifications

<table>
<thead>
<tr>
<th>SIC</th>
<th>Description</th>
<th>Profiles Completed</th>
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<tbody>
<tr>
<td>12</td>
<td>Coal Mining</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>Nonmetallic Minerals, except fuels</td>
<td>1</td>
</tr>
<tr>
<td>15-17</td>
<td>Construction</td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>Food and Kindred Products</td>
<td>6</td>
</tr>
<tr>
<td>22, 23</td>
<td>Textile Mill Products/Apparel and Other Textile Products</td>
<td>2</td>
</tr>
<tr>
<td>24, 25</td>
<td>Lumber and Wood Products/Furniture and Fixtures</td>
<td>13</td>
</tr>
<tr>
<td>26, 27</td>
<td>Paper and Allied Products/Printing and Publishing</td>
<td>8</td>
</tr>
<tr>
<td>28, 29</td>
<td>Chemicals and Allied Products/Petroleum &amp; Coal Products</td>
<td>13</td>
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<tr>
<td>30</td>
<td>Rubber and Misc. Plastics Products</td>
<td>10</td>
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<tr>
<td>32</td>
<td>Stone, Clay, and Glass Products</td>
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<tr>
<td>33, 34</td>
<td>Primary Metal Products/Fabricated Metal Products</td>
<td>11</td>
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<td>35</td>
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<td>36</td>
<td>Electronics and Other Electronic Equipment</td>
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<tr>
<td>37</td>
<td>Transportation Equipment</td>
<td>3</td>
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<tr>
<td>38</td>
<td>Instruments and Related Products</td>
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<tr>
<td>42</td>
<td>Trucking and Warehousing</td>
<td>3</td>
</tr>
<tr>
<td>48</td>
<td>Communications</td>
<td>10</td>
</tr>
<tr>
<td>49</td>
<td>Electric, Gas, and Sanitation Services</td>
<td>5</td>
</tr>
<tr>
<td>50</td>
<td>Wholesale Trade</td>
<td>3</td>
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<tr>
<td>51-59</td>
<td>Retail Trade</td>
<td>3</td>
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<tr>
<td>60</td>
<td>Finance, Insurance, and Real Estate</td>
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<tr>
<td>65</td>
<td>Real Estate</td>
<td>1</td>
</tr>
<tr>
<td>70</td>
<td>Hotels and Other Lodging</td>
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<tr>
<td>73</td>
<td>Business Services</td>
<td>22</td>
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<tr>
<td>75</td>
<td>Auto Repair Services</td>
<td>3</td>
</tr>
<tr>
<td>80</td>
<td>Health Services</td>
<td>16</td>
</tr>
<tr>
<td>82</td>
<td>Educational Services</td>
<td>3</td>
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<td>87</td>
<td>Engineering</td>
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<td>91</td>
<td>Federal Government</td>
<td>5</td>
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<tr>
<td>92</td>
<td>State Government</td>
<td>5</td>
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</table>
## Exhibit C
### Frontline Employee Descriptions

<table>
<thead>
<tr>
<th>SIC</th>
<th>Description</th>
<th>Frontline Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Coal Mining</td>
<td>Coal miners</td>
</tr>
<tr>
<td>14</td>
<td>Nonmetallic Minerals, excepts fuels</td>
<td>Mineral miners</td>
</tr>
<tr>
<td>15-17</td>
<td>Construction</td>
<td>Construction trades workers</td>
</tr>
<tr>
<td>20-39</td>
<td>Manufacturing (all types)</td>
<td>Factory workers</td>
</tr>
<tr>
<td>42</td>
<td>Trucking and Warehousing</td>
<td>Truck drivers, warehouse staff</td>
</tr>
<tr>
<td>48</td>
<td>Communications</td>
<td>Customer service staff, equipment support staff</td>
</tr>
<tr>
<td>49</td>
<td>Electric, Gas, and Sanitation Services</td>
<td>Customer service staff, equipment support staff</td>
</tr>
<tr>
<td>50</td>
<td>Wholesale Trade</td>
<td>Warehouse staff</td>
</tr>
<tr>
<td>51-59</td>
<td>Retail Trade</td>
<td>Sales staff</td>
</tr>
<tr>
<td>60</td>
<td>Finance, Insurance, Real Estate</td>
<td>Customer service staff, sales staff</td>
</tr>
<tr>
<td>65</td>
<td>Real Estate</td>
<td>Agents</td>
</tr>
<tr>
<td>70</td>
<td>Hotels and Other Lodging</td>
<td>Customer service staff</td>
</tr>
<tr>
<td>73</td>
<td>Business Services</td>
<td>Facilities maintenance staff</td>
</tr>
<tr>
<td></td>
<td>• Security</td>
<td>• Protection staff</td>
</tr>
<tr>
<td></td>
<td>• Software</td>
<td>• Software development professionals</td>
</tr>
<tr>
<td></td>
<td>• Other</td>
<td>• Unique to each business</td>
</tr>
<tr>
<td>75</td>
<td>Auto Repair Services</td>
<td>Maintenance staff</td>
</tr>
<tr>
<td>80</td>
<td>Health Services</td>
<td>Medical care staff, Facilities maintenance staff, Patient assistance staff</td>
</tr>
<tr>
<td>82</td>
<td>Educational services</td>
<td>Trainers and material developers</td>
</tr>
<tr>
<td>83</td>
<td>Engineering</td>
<td>Engineers</td>
</tr>
<tr>
<td>91</td>
<td>Federal government</td>
<td>Technicians, Mission unique staff</td>
</tr>
<tr>
<td>92</td>
<td>State government</td>
<td>Mission unique staff</td>
</tr>
</tbody>
</table>
West Virginia Employer Needs

Throughout the interviewing process, it became increasingly apparent that there were several categories of employers that have distinctive workforce needs for their frontline employees. Summarized below are descriptions of these employers and representative employers that might fit into these categories. These categories were then used to display the information obtained from the employer interviews.

Category A: These employers tend to pay entry-level wages (minimum wage-$7/hr.) with minimal benefits. They have high turnover rates and usually have low skill requirements. There are minimal career paths for employees, but these jobs do provide an employee a chance to establish work credentials.

Representative employers
- Hospitality (maids, custodians, and food service)
- Retail

Category B: These employers offer moderate wages ($7-$10/hr.) with benefits. The turnover rate is fairly low due to geography, employee abilities, job benefits, or job security. The skill requirements are generally low, but prior work experience is important. Some career paths are available.

Representative employers
- Low-skill manufacturing
- Low-skill government positions
- Financial services (entry level positions)
- Healthcare (rural areas) (noncare-giving positions)
- Warehousing

Category C: These employers offer moderate pay levels ($7-$10/hr.) with some benefits. Skill requirements are generally significant in the hiring decisions, with some jobs requiring certification. Turnover is fairly high as employees use their experience and skills to move to higher paying positions with different employers in the same industry.

Representative employers
- Nursing homes (Care-giving positions)
- Construction (entry level positions)
- Healthcare (urban areas)
- Automotive repair
- Teleservice
- Security services
Category D: These employers offer higher rates of pay (> $10/hr.) with good benefits for jobs that generally do not require formal education above high school. Skill requirements are high but largely developed on the job. Turnover is low. New employees are expected to have work experience, a good work attitude, and basic skills. Career paths do exist.

Representative employers
- Mining
- High-skilled manufacturing
- Construction (equipment operation)
- Public utilities

Category E: These employers are in the knowledge industry and require employees with specific knowledge. Rates of pay are high (> $15/hr.). Turnover can be high due to the project nature of the business and competitive hiring practices. Career paths do exist.

Representative employers
- Consulting
- Education services
- Engineering services
- Software development
- Financial services (higher skill positions)
- Healthcare (care-giving positions)

Most employers indicated that they had specific technical skill requirements for their frontline jobs (see exhibit D). The specific technical skills that employers require their employees to possess varied from business to business. Exhibit E summarizes these technical skills.

Employers seemed to be satisfied with the technical skill education. The issue with technical skill preparation was not that students were being well prepared but that there was not always a match between what the employer needed and what local institutions provided in terms of technical skill programs.
EXHIBIT D

EMPLOYERS WHO NEED JOB SPECIFIC TECHNICAL SKILLS

<table>
<thead>
<tr>
<th>Employer Category</th>
<th>Percent of Employers With Specific Skill Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>76.92%</td>
</tr>
<tr>
<td>B</td>
<td>75.00%</td>
</tr>
<tr>
<td>C</td>
<td>89.47%</td>
</tr>
<tr>
<td>D</td>
<td>78.72%</td>
</tr>
<tr>
<td>E</td>
<td>85.71%</td>
</tr>
</tbody>
</table>

As employers described their job requirements, it became clear that technical skills were only one aspect of what employers required of employees. Of equal importance were a collection of workplace skills in such areas as communications, working with others, problem solving, self-management, understanding organizations, and continuous learning.

If a career is viewed as a ladder, employers would say that the technical skills would get the person up the first few steps of the ladder, but the workplace skills were necessary to progress any further.

The particular skills that were most often described in the workplace skill category are shown in appendix 1. While some would argue that these workplace skills can only be acquired through experience, employers respond that they can’t afford to have employees learning these skills on the job.

The requirements of West Virginia employers match those identified in other studies. In studies of employee competency, Spencer and Spencer (1) describe five characteristics of competent individuals:

1. Motives—Why a person does something
2. Traits—Physical characteristics and normal responses to situations
3. Self-concept—How a person views himself or herself
4. Knowledge—What a person knows
5. Skills—What a person can do

In the work of Spencer and Spencer, “Surface knowledge and skill competencies are relatively easy to develop; training is the most cost-effective way to secure these employee abilities. Core motive and trait competencies are more difficult to assess and develop.” When Spencer and Spencer reflect on the hiring process of employers they
### EXHIBIT E
### REPRESENTATIVE TECHNICAL SKILLS

#### Technical/Vocational Education
- Maintenance practices
- Automation practices
- Computer numerical control
- Measurement tools
- Commercial driver’s license
- Surveying
- Soldering
- Computer-aided design
- Secretarial/clerical skills
- Automotive maintenance/repair
- Building maintenance
- Commercial printing technology
- Computer diagnostic and repair
- Mortuary practices
- Electrician skills
- Metal workers
- Programmable logic control
- Woodworking technology
- Wood grading
- Construction trades
- Welding
- Mechanical drawing/blue print reading
- Metal painting
- Heating, ventilation, air conditioning

#### Employer Provided Training
- Water testing
- Color differentiation
- Customer service
- Sales techniques
- Food preparation
- Facilitation practices
- Training skills
- Hazardous chemical control

#### On-The-Job Experience
- Project management
- Cost estimation

#### High School Education
- Computer use
- Software packages

#### Individual Education
- Mechanical skills
- Videography
- Web site development

#### Other Education
- Public safety

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state: “Organizations should select for core motive and trait competencies and teach the knowledge and skills required to do specific jobs.”

The American Council on Education, in its study *What Business Wants from Higher Education* (2), concluded that businesses want graduates who are ‘successfully intelligent.’ The curriculum requirements that this study suggests are needed include

- Systems thinking—seeing the big picture and being able to integrate knowledge from all aspects of their education
- Problem solving—being able to structure information, define objectives, identify options, evaluate alternatives, and develop an action plan
- Information technology—being able to use technology to gather information, reconfigure it, use it for analyses, and maintain information for future use
- Communication—being effective in written and oral communication and through communications being able to ensure that outcomes are successful
- Teamwork—being able to appreciate the value of a diverse mix of people and work together to ensure results are achieved
- Interpersonal skills—having the ability to relate to others’ needs and respond to the needs of others

These requirements match very closely with what West Virginia employers are saying.

**Challenges to Teaching Workplace Skills**

The issue that arises from these employer requirements is who should be responsible for developing the critical workplace skills. Educational institutions are reluctant to accept responsibility for teaching workplace skills. Institutions cite a number of reasons for this reluctance.

- Workplace skills are not in the domain of an educational institution.
- The curriculum is already filled with important courses and something would have to be sacrificed.
- Many of the skills are already incorporated into the basic education curriculum.
- There is no academic home for these skills.
- Some of the workplace skills can’t be taught. A person either possess these skills or doesn’t.

An interesting aspect regarding workplace skills is that they are also the skills that lead to successful academic performance. Students who acquire these skills should perform better in the classroom. If educational institutions accept the responsibility for their
own student’s performance, then these skills are clearly in the domain of an educational institution.

The claim that the curriculum is already filled and nothing else can be added is a claim that is always made before any curriculum change is suggested. The reality is that curricula have always changed to reflect societal priorities.

While educators may claim that many of the topics in appendix 1 are now in the curriculum, the fact is that students may be exposed to these topics in existing courses, but they rarely acquire the skills that will enable them to handle issues they will face on the job. For example, academics may cite group projects as opportunities to acquire team skills but rarely are students taught how to function effectively in groups. The same could be said about many of the other topics in appendix 1. Passing reference to a topic is not the same as developing skills in the topic.

It is true that there may not be a home for the workplace skills, but the premise for this argument is false. Workplace skills should be the responsibility of every program and not be assigned to a specific academic unit. Just as critical thinking, ethical behavior, and an appreciation for diversity are integrated into an academic program so to should workplace skills be integral to every academic unit.

Finally, workplace skills are teachable and in fact are being taught by many organizations. To state that these topics cannot be taught is basically an acceptance that human behavior cannot be improved through a well-planned instructional design.

**Integrating Workplace Skills into the Curriculum**

Several options exist for introducing these workplace skills into the curriculum. The actual approach that is implemented should reflect the realities of the individual academic program, but there are some general guidelines that should be followed.

- Workplace skills instruction cannot be passive. Students need to practice these skills in order for the instruction to be meaningful.
- Workplace skills development must include a clinical experience to be meaningful. Clinical in this case refers to opportunities for students to practice their discipline area over a sustained period of time (e.g., a semester).
- Students need a career coach who will work with them outside of class to help them develop the career skills they need, especially those that are in the self-management category of appendix 1. The career coach must know the student very well and develop a relationship with the student that permits critical but yet supportive discussions of the student’s personal needs.
- Clinical experiences must be supplemented with other practical experiences as frequently as possible. The program must be an active program that helps
students find summer jobs, co-op experiences, or work-study opportunities that support their career development.

- Students must be taught how to become ‘reflective practitioners.’ In this sense, students must be able to evaluate their own performance, draw lessons from this evaluation, and take actions to improve themselves.
- The program needs to have an assessment system that monitors the performance of graduates and feeds this information back to the faculty for ongoing curriculum improvement.

Several models exist that illustrate how an academic program can incorporate workplace skills into a curriculum.

**Model A**
In model A, workplace skills are integrated into specific courses, and students obtain these skills along with the contact courses in their major. The academic program concludes with a capstone internship that will develop the workplace skills that could not be developed in the academic setting.

**Model B**
In model B, workplace skills are taught as stand alone courses within the student’s major. These courses are generally for one-hour of credit and are required in each semester of the student’s course of study. Clinical experience is provided through a mandatory summer internship.

**Model C**
In model C, workplace skills are taught as stand alone courses within the general education curriculum. Students in all majors learn the same workplace skills. Individual academic programs have either a capstone internship or a summer internship requirement followed by a capstone ‘practice of the discipline’ course for majors only.

There are other variants of these models that could also be used effectively. The important consideration in the selection of a model is how the academic program meets the guidelines mentioned earlier.

**A Case Study**

The Industrial Engineering program at West Virginia University provides an example of how workplace skills can be incorporated into the curriculum. Students enter the program as sophomores after completing their freshman year as general engineering majors. The program utilizes Model A with a few variants.

Many of the workplace skills are integrated into content courses utilizing projects as the vehicle for exposure to and instruction in the workplace skill. Students are encouraged to pursue summer internships and co-op opportunities, and the department conducts a
one-hour (non-required) course for students seeking experience. Nearly every student has at least one summer job or co-op experience prior to graduation.

All sophomore students are given a senior student mentor to help them make the transition to their major. The mentoring program conducts weekly activities that provide practical student-to-student support. Many of the workplace skills are reinforced through this program as seniors can relate their own experiences to sophomores.

All seniors go through a two-semester internship where some workplace skills are taught, and others are reinforced. Each student is provided with a specific assignment within a specific organization. Employers provide the greatest percentage of the student’s grade.

One faculty member serves as a career coach to the department’s approximately 110 undergraduates. This faculty member works with students on pre-graduation experiences and provides support to seniors on finding full-time positions. In addition, the faculty member helps counsel students on areas where they have career development needs.

None of the career support provided to students is considered extra duty for faculty where course relief or other reduction in duties is provided. This approach reinforces the concept that career development is integral to academic development.

**Summary**

It is clear from the West Virginia needs assessment as well as studies done in other areas that employers are looking for both a specific discipline-based skill as well as a set of workplace skills. Academic programs are meeting employer expectations when it comes to discipline-specific skill development but are not achieving employer expectations for workplace skills. There are several models for meeting employer expectations for workplace skills that should be feasible for any academic program to adopt.

**Authors**

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Holly Clark is a Technical Associate of CESD.
APPENDIX 1
CRITICAL WORKPLACE SKILLS

Communications
- Communicating ideas
- Taking rational positions
- Making presentations
- Active listening
- Following oral directions
- Giving oral directions
- Nonverbal communications
- Writing for impact

Working with Others
- High performance teams
- Making decisions by consensus
- Working through conflict
- Team behavior
- Providing corrective feedback
- Providing positive feedback
- Handling criticism
- Respecting others

Problem-Solving
- Thinking through unstructured problems
- Gathering information
- Assessing information accuracy
- Generating and developing ideas
- Testing ideas
- Separating symptoms from root causes
- Analyzing cause and effect
- Being a critical thinker

Self-Management
- Accepting responsibility
- Avoiding distractions
- Being consistent
- Organizing yourself
- Managing your time
- Showing perseverance
- Taking initiative
- Checking your work
- Correcting mistakes
- Setting goals
- Asserting yourself
- Being decisive
- Maintaining priorities
- Living up to your potential
- Developing a successful attitude
- Living without excuses

Understanding Organizations
- Understanding functional areas in organizations
- Employer expectations
- Meeting work realities
- Understanding the paycheck
- Achieving good performance evaluations
- Building credentials
- Working with a boss
- Understanding how changes are made

Continuous Learning
- Strategies for learning a new job
- Understanding your learning style
- Improving your job knowledge
- Assessing your own performance
- Learning from experience
- Advancing the state of the art
REFERENCES
