

THE UNIVERSITY OF KANSAS
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RESEARCH PAPERS

**The Kansas Workforce:
Employer Assessment**

**prepared for
Kansas Inc.**

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EXECUTIVE SUMMARY

In 1989, an IPPBR/Kansas, Inc. study asked employers to assess the skills of the Kansas workforce, both basic academic skills and other skills needed to meet job requirements. Firms reported that employees needed to improve skills. Since that time, many changes have occurred in the way work is performed and in the way students are educated. Have changes in education produced students who enter the workforce with skills that match job skill requirements? Has the rapid pace of technological change outstripped the rate of improvement in workers' skills? The purpose of the present study was to survey owners or managers of Kansas firms to determine whether employers' perceptions of the Kansas workforce changed from 1989 to 1996.

METHODOLOGY

A telephone survey (similar to that conducted in 1989) asked 600 Kansas firms questions about the training and competence of new hires and present employees, future training requirements, and the utilization and quality of training programs. Firms surveyed represented manufacturers and nonmanufacturers, firms of different sizes (small, medium, and large), and firms in different settings (rural, mid-sized, and urban counties).

RESULTS

The results of the survey confirmed that employers needed employees with good basic skills (reading, writing, computation), technical skills, and work habits. Finding workers with these skills has become increasingly difficult and will become even more difficult in the next two to three years. Skill requirements for entry level jobs increased over the past five years, but skills of newly hired employees have not kept pace. Most employers required a minimum of a high school diploma, but expected changes in technology over the next two to three years to increase the level of technical/vocational skills employees will need. Employers described the gap between job requirements and workers' qualifications as slight to moderate, and predicted that gap would increase. Firms also predicted that technological changes would increase the level of technical skills required.

High school graduates were not adequately prepared to add productive value to firms. While high school students' skills were less than adequate in meeting businesses' needs, employers reported that they were satisfied with those trained at community colleges, AVTSs, and universities. When asked what skills newly hired employees needed to improve, employers focused upon basic skills (listening/oral communication, writing, computation), thinking skills (problem solving, decision making, comprehension, creative thinking, willingness to learn), and personal qualities (work habits, goal setting/personal motivation, leadership, teamwork, interpersonal relations, adaptability). Technical skills such as computer and business/management skills also needed improvement. Employers also reported that current employees needed to improve skills. To help improve employee skills, approximately half the firms used technical/

vocational training programs in the past five years and most paid for that training. Most firms would consider paying higher wages, up to 10 percent more, to workers with higher skills.

IMPLICATIONS

That workers' skills do not meet job skill requirements was the overriding finding of this report. The pace of change, driven by technological advances and changes in how work was organized, continued to outstrip the rate at which workers' skills improved. Educators, employers, and employees have been chasing, and will continue to chase, a moving target. This has serious implications for Kansas and requires a serious, committed response at all levels of private and public activity.

1. Development of a highly skilled workforce must continue to be a strategic objective for Kansas economic development.

The workforce is a state strength, but it is also a weakness. Kansas does not have a large reservoir of unemployed or underemployed skilled workers. In fact, regional shortages of skilled workers exist.¹ Similar shortages exist nationwide, so the state cannot solve labor shortages or skill deficits by importing labor from other states. Ways must be found to better utilize the existing population. Skills must be improved through training and retraining and those not currently in the work force must be encouraged to enter or re-enter the labor market. Employers must commit resources to train and retrain their current employees, both in basic academic skills and technical skills.

The state's education and training system must have the institutional capability to provide training for workers to upgrade existing and develop new skills as job skill requirements change. Institutions must have the capability to meet the workforce's training needs, from the production worker who needs to improve communication and math skills to the computer programmer or engineer who needs to keep abreast of cutting edge technology. The state must have a quality educational system that includes K-12, technical training and associate degree programs, baccalaureate programs, and post-graduate programs to produce and maintain the quality workforce needed by Kansas businesses which must do business in the new, competitive, global economy. Post-secondary institutions, especially community colleges, must encourage employers and employees to access training to improve basic academic skills and technical skills by providing classes that meet the needs of nontraditional students and customized training that meets the needs of businesses. Educators and government officials must focus upon removing barriers

¹See the 1996 Kansas Strategic Plan, Kansas, Inc., for a thorough discussion of a broad range of workforce issues.

created by a fragmented training system.² Duplication of training within the training system must be reduced so savings that result can be used to provide advanced equipment for training programs.

Current workforce problems will require both private and public action to solve existing and future challenges, but that can happen because Kansas has a history of solving problems through private-public cooperation. Employers, workers, parents of students, students, educators, and government officials at the community as well as the state level must understand that their prosperity depends upon their commitment to developing a skilled workforce. Employers must commit resources to train and retrain their current employees, both in basic academic skills and technical skills. Students, supported by parents and educators, must develop good work attitudes and habits in school and transfer those skills to the workplace. Students, and their parents, must also realize that post-secondary training is essential and life long learning will be necessary to develop new and upgrade existing technical skills. While college education is not required for all, some form of technical/vocational training in apprenticeship programs or at community colleges and AVTSs is required.

2. Educators, supported by parents and employers, must provide business and industry with workers who add productive value to the firms which employ them.

Educators, supported by parents and employers, must continue to improve curriculum, focus on educational outcomes, and demand high standards for high school graduation. The K-12 education system should continue to focus upon improving the skills of its students. Business needs students to develop competency in basic skills (e.g., reading, writing, computation, communication), thinking skills (e.g., problem solving, decision making, etc.), and personal qualities (e.g., work habits, teamwork, etc.). Schools should continue to focus upon outcome measures and make certain high standards are set. Students seeking a high school diploma must meet high performance standards and demonstrate competency in a set of basic skills, thinking skills, and personal work habits. The curriculum must not be too loose and undemanding or the **average** student will not be prepared to meet the increasingly sophisticated needs of business and industry. The K-12 system must prepare non-college bound students for post-secondary technical training and associate degree programs as well as it prepares students who seek admission to four-year baccalaureate programs.

²Krider, C.E., Redwood, A.L., & Stella, M.E. *Kansas Workforce Employment and Training Programs: Do They Function as a System?* Institute for Public Policy and Business Research, University of Kansas, 1994.

3. Business and industry needs to communicate job skill requirements to educators on a continuous basis.

Business must communicate to educators what job skills are required. While donating funds or items to support academic and extracurricular activities is important, the role of business could evolve toward providing more frequent and effective support and feedback to teachers and educators. Educators need to know more about the quality of the product they produce (i.e., the students). Is the client (i.e., the employer) happy with the quality of the product or (if it were like other products) would it be returned for repairs or replacement? How well prepared are **average** students to enter the workplace? Are they prepared to go to work, or are they entering the work world lost and unprepared.

Schools get frequent and useful feedback about the performance of their college-bound students through college entrance exam scores and college placement rates. Similar feedback is not available for non-college bound students. Educators and the business community in each school district should consider what this lack of feedback is costing the community. Are businesses less competitive due to poorly trained workers? If businesses become less competitive and fail, what is the loss to the school district in terms of lost revenue? When these costs are examined, perhaps both educators and businesses will realize effective, working partnerships which provide feedback and improve training are a good investment. Information exchange should focus upon how the nature of work is changing -- what impact technology or new management practices have on job skill requirements.

4. The business community and the education system must commit to developing effective business-education partnerships.

Business-education partnerships should be created and strengthened in every community in Kansas. What is an effective working partnership? Each community must decide what works. However, several elements should be considered. The partnerships must evolve so the K-12 education system does not continue to produce graduates who add little productive value to the firms which employ them. Business-education partnerships must focus upon developing technical preparation programs and school-to-work programs that produce students who are ready to enter the labor market with skills needed by employers. This will require the business community to become more familiar with current educational practices and teachers to become more familiar with the workplace. Are teachers familiar with and comfortable in non-educational work settings? Can teachers participate in summer programs, internships, or sabbatical programs in business and industry that prepare them to train students for high-skill, high-wage jobs? Do teachers (and their students) have access to hands-on experiences in business and industrial settings? Do teachers get credit (in terms of promotion, salary, etc.) for such training in the same way that they get credit for attending education classes at colleges and universities? Are there communities in this state and in neighboring states where business-education partnerships are providing this type of information exchange and teacher support? Other communities may find it useful to examine how

those partnerships evolved so they can begin to develop effective partnerships in their own communities.

5. Inform students and parents of post-secondary training options.

Parents and students must realize that some form of post-secondary education or training is essential and that many options are available. For students who do not wish to enter a four-year degree program, other options must be available and well publicized. Guidance counselors must be prepared to help these students and their parents learn about school-to-work programs, apprenticeship programs, two-year associate degree programs, and technical training programs. Students must have available to them a coordinated system which provides quality training and allows credit for training in one part of the system (e.g., community college) to count in another part of the system (e.g., university) as their training goals change. As clients of the education system, students should be assured that the system will be flexible enough to recognize skills developed on the job and not require training or course work in areas where competency already exists.

6. Create tech prep programs, school-to-work programs, and apprenticeship programs that are academically sound and linked to the business world.

Businesses and industries in desperate need of more qualified workers and unhappy with new recruits from the state's secondary schools must support and invest in training high school students through apprenticeship programs and other programs that link school to jobs. Teachers and employers must work together to develop courses that develop necessary skills and demand high performance levels. Working together, employers and teachers can share information and solve problems regarding curriculum (i.e., what skills need to be trained), performance evaluation (i.e., student grades), quality issues (i.e., how to improve low grades or unacceptable performance). Involvement at the level of the teacher, not just at the level of the administrator (e.g., principal or state curriculum planning committees), may benefit all. Businesses communicate their needs directly, teachers get support, and students are given a reason to learn by making their academic courses relevant to their lives and focused upon the need for quality performance.

The state has been moving too slowly in this area. Lack of or weak tech prep programs contribute to the serious gap between job skill requirements and the skills of the young worker. Every school district should have a serious, high-quality tech prep program by the year 2000. Tech prep programs are not old vo-tech programs with new names. Serious, high-quality tech programs should be linked to two-year technical training or associate degree programs so students receive the post-secondary technical training that current and future jobs require.

7. Support Adult Basic Education (ABE) to enable those who have already left the education system improve their basic skills.

Many workers or potential workers in Kansas have basic skills (reading, math, writing, communication) which are under- or undeveloped. These people may have graduated many years ago, may have completed high school last year, may have dropped out of high school, or may be entering the job market because of welfare reform. ABE programs need to be a higher priority in Kansas. Instead of asking what is the least amount of state dollars needed to receive Federal support for these programs, the state needs to adopt a more strategic view and invest at levels that address the need for ABE created by older workers as well as welfare reform and school drop outs. Currently ABE programs focus upon those preparing to take GED tests. Resources barely meet those needs, so programs have difficulty serving those who need to upgrade basic skills but do not need a GED.³ With adequate funding, ABE programs provide support for those seeking to improve basic skills.

³Krider, C.E., Ash, R., Schwaller, H., & Stella, M.E. *Adult Basic Skills and the Kansas Workforce*. Institute for Public Policy and Business Research, University of Kansas, 1991.

INTRODUCTION

Kansans, like people all over the world, want to prosper. Individual and family prosperity and quality of life depends upon the ability to earn good wages, whether as an employee or as an employer. A more competitive global economy places Kansans in competition with other states and other countries for jobs and industries that pay good wages. Those states and countries that are competitive attract high-skill, high-wage jobs and acquire or retain their position as First World economies. Those that are not competitive are left with low paying, labor-intensive jobs and remain or become Third World economies.

Competing in the global economy has changed the way business does business. Some businesses have adapted to global competition through technological innovation and through new business practices that require employees to assume more management and problem-solving responsibilities. However, not all businesses have made the transition. Some are unable or unwilling to invest in technology or to alter old management practices. A business's ability to adapt to a more competitive, global economy may directly affect its survival. Those who adapt improve their chances of survival in a very competitive marketplace.

The quality of the Kansas workforce critically affects the competitiveness of Kansas businesses. A well-trained, efficient, dedicated workforce supports and strengthens business productivity and thus strengthens the state's economy. Since wages are based upon productivity, wages provide a measure of competitiveness. Kansas wage rates lag behind national rates. Kansas ranks thirty-fifth in average annual pay and thirty-fourth in average annual pay growth.⁴ A recent survey found that 11.2 percent of the Kansas labor force had more than one job.⁵ This is well above the national average of 6.3 percent. These findings confirm that, for many Kansans, one job does not provide adequate income.

The reasons for low wages and lagging productivity need to be identified. Are low wages and lagging productivity due to low skill levels of the workforce? Based upon high school graduation rates (percent of students graduating), high school attainment (number of citizens who have already graduated from high school), and college attainment scores (number of citizens who have graduated from college), Kansas was given a B in Human Resources.⁶ These measures of education levels suggest that the Kansas workforce should be well trained, if the education system and its students are doing their jobs. The state's K-12 system, parents, and students are responsible for producing workers with skills that businesses require. The post-secondary system

⁴*The 1996 Development Report Card for the States*. Washington, DC: The Corporation for Enterprise Development, 1996.

⁵Robert H. Glass, Charles, E. Krider, & Kevin Nelson. *The Effective Labor Force in Kansas: Employment, Unemployment, and Underemployment*. Topeka, Kansas: Kansas, Inc., 1996.

⁶*The 1996 Development Report Card for the States*. Washington, DC: The Corporation for Enterprise Development, 1996.

and other training providers must furnish adult basic education, technical training, and retraining to workers whose competitiveness depends upon life-long education.

If workers have attained a high school degree, does that mean they are productive workers? Do the workers have the skills necessary to perform high-skill jobs that pay high wages? Kansas is experiencing the trend seen nationwide: skill requirements within occupations are increasing. Demand for workers with more education and higher skills is driven by two forces:

- The application of technology across a wide array of occupations; and
- Changes in how work is organized.

For example, introduction of technology such as computers increases the skills required of employees. Clerical workers must master the use of computers, word processing and database software, electronic mail, and Internet usage. Those employed in manufacturing must understand complex robotics and computer-aided manufacturing. Workers in all types of businesses are also facing increased responsibility as many firms operate with fewer levels of management in order to be more efficient and competitive.

To survive in increasingly competitive global markets, businesses are replacing mass production and its long production runs with high performance work places characterized by:

- Flexible and decentralized production techniques;
- Employee empowerment (more decision making, wages tied to skills and education);
- Strong emphasis on excellence, on continually improving work performance, and on management for quality to reduce rework, increase customer satisfaction, and cut costs;
- Continual training to upgrade employee skills and ability to function effectively and efficiently in a problem-oriented environment; and
- Increasing integration of tasks through work teams which are responsible for the products or services they produce.

Employees who function in high performance work places must be well trained, flexible, assume decision making responsibilities, solve problems, work as a team, produce high quality goods and services, and constantly learn or improve skills.

While scores on academic tests and high school graduation rates are important, they do not provide a comprehensive measure of a state's human resources because they do not measure the other, higher-order skills (e.g., problem solving, teamwork, flexibility, etc.) required by high-skill, high-wage jobs. In 1989, an IPPBR/Kansas Inc. study measured employers' assessment of the Kansas workforce's skills, both basic academic skills as well as those other skills needed to survive in the new economy. Kansas business firms were surveyed to establish an empirical

database of employer's assessment of the skill level and training needs of the workforce.⁷ Firms reported that employees, whether seeking their first job or already in the workforce, needed to improve skills. The ten skills identified most frequently as needing improvement in 1989 were:

1. Goal setting and personal motivation skills;
2. Proper attitudes toward work and work habits;
3. Organizational effectiveness and leadership skills;
4. Listening and oral communication skills;
5. Problem solving skills;
6. Team skills;
7. Adaptability and flexibility;
8. Comprehension and understanding skills;
9. Interpersonal relations; and
10. Writing skills.

Responses to the survey also revealed that firms expected technological changes to increase the skills needed by workers. Employers reported difficulty in finding skilled employees and that finding skilled workers would become more difficult in the near future.

While statistics showed Kansas had a well-educated workforce, as measured by high school graduation, the 1989 survey results suggested that students who had completed high school did not enter the workforce with skills developed to the extent desired or required by employers. Since 1989, changes have occurred at the state and local level in the education system and the employment and training system. In 1991, the State Board of Education adopted Quality Performance Accreditation (QPA), which required schools to demonstrate student performance in basic skills (reading, writing, math, social studies, and science) through state assessments. QPA also encouraged schools to focus on "higher order" skills (communication, problem-solving, critical thinking, interpersonal skills). All Kansas public schools are in the QPA process, but not all have experienced the complete cycle of evaluation.⁸ Reading, writing, and math assessments have been fully implemented, but science and social studies are still in development stages. Other changes included the 1992 School Finance Act, which increased funding for schools, lengthened the minimum school year, required the development of state curriculum standards and assessments, and created site councils.⁹ In addition, many schools and teachers implemented

⁷Charles E. Krider, M. Elizabeth Stella, Genna Ott, and Ron Ash. *Workforce Training: The Challenge for Kansas*. Topeka, Kansas: Kansas, Inc., 1989.

⁸Schools collect baseline data on student performance, identify areas needing improvement, design a plan to improve student performance, implement the plan, measure change in student performance. Once performance improves in targeted areas, new areas and goals are identified and the cycle repeats.

⁹Site councils are composed of parents, business leaders and educators to advise local school boards on improvement strategies for each school in the state.

teaching strategies to help students develop problem solving skills, learn to work in teams, and apply academic skills to real world problems.

Have these changes produced students who enter the workforce with skills required by employers? Has the rapid pace of technological change outstripped the rate of improvement in student and worker skills? The state is in a unique position to monitor changes in employers' perceptions of workforce skills and training needs that have occurred since 1989. The purpose of the present study was to survey owners or managers of Kansas firms to determine:

1. Have employers' perceptions of the Kansas workforce changed from 1989 to 1996?
2. In what areas have workforce skills improved?
3. In what areas have workforce skills not improved or have deteriorated?
4. Have job skills and business needs increased? If so, in what areas?
5. What minimal education requirements do businesses require of entry level positions?
6. Are private firms increasing their investment in training and retraining of their employees? If yes, how? If no, why not?
7. How effective is the education and training system in meeting employer needs?
8. Are retraining programs available, accessible, and effective?

METHODOLOGY

Survey Sample

Sampling procedures used in 1989 were replicated. A computer database of 63,968 firms furnished by the Kansas Department of Human Resources (KDHR) was used to select businesses to be surveyed. Certain businesses were eliminated on the basis of SIC code (Personal Services, Miscellaneous Retail, Eating and Drinking Places, Food Stores, and Membership Organizations), and no businesses with fewer than five employees were surveyed.¹⁰ This eliminated over half or 37,292 firms, leaving 26,676 firms. A stratified random sample was drawn from the remaining firms to produce a list of 2,488 firms to contact. The sampling strategy was designed to produce a sample with equal numbers of manufacturing (300) and non-manufacturing (300) firms (Table 1) to permit inferences about each separately. As compared with the actual distribution of firms in Kansas, this sample was over-weighted for manufacturing, medium, and large firms, due to the smaller number of firms in those categories in the KDHR database. Kansas is the land of small, non-manufacturing businesses. Firm size was defined as small (five to 49 employees), medium (50 to 250 employees), and large (251+ employees). Of the 600 firms completing the survey, 250 were small, 239 were medium, and 111 were large. Firms completing the survey were located in

¹⁰In 1989, firms with fewer than five employees or firms of certain types were eliminated on the basis that the likely impact of such firms in terms of usage of technical and vocational facilities would be low.

rural counties, mid-sized counties, and urban counties.¹¹ Mid-sized counties were those that were neither urban or rural relative to Kansas' population but had a city with a population between 10,000 and 50,000.

Survey Instrument

Information was collected during telephone interviews, with some questions sent to respondents in advance to facilitate data collection. In addition to collecting information about the size of the firm, the survey asked questions about the training and competence of new hires, the training and competence of present employees, future training requirements, utilization and quality of training programs, background information on the individual completing the survey on behalf of the firm, and additional information on the firm itself.

RESULTS

Description of Firms

Self-Assessment of Current Practices.

To determine how they viewed their competitive position, firms were asked to describe their current strategy regarding technology, employee skill levels, and compensation (Table 2). Sixty-three percent of the firms surveyed judged that they used moderately sophisticated technology. Most firms reported they required average skill levels for employees performing core work processes, and most firms considered their wages to be average or slightly above average. Based upon this self-assessment, a little over 25 percent of the firms considered themselves to be high-tech, high-skill businesses, but only four percent considered themselves to be high wage businesses. Modest linear relationships existed between wages paid and employee skill levels, technology level used, and employee skills and employee compensation. Because firms defined their own standards, these self-reported estimates may or may not conform to externally imposed definitions. For example, the Corporation for Enterprise Development ranked Kansas thirty-fifth in average annual pay. This suggests that Kansas firms actually pay relatively low wages, rather than average or slightly above average.

¹¹*Urban counties (No. Firms=256):* Johnson, Leavenworth, Miami, Wyandotte, Douglas, Shawnee, Butler, Harvey, Sedgwick. *Mid-sized (No. Firms=143):* Atchison, Barton, Cowley, Crawford, Ellis, Finney, Ford, Franklin, Geary, Labette, Lyon, McPherson, Montgomery, Reno, Riley, Saline, Seward. *Rural (No. Firms=116):* All other counties.

Table 1
Types of Firms Participating

Number of Firms in KDHR Database				
Meeting Inclusion Criteria:				
	<u>Total</u>	<u>Small</u> <u>(5-49)</u>	<u>Medium</u> <u>(50-250)</u>	<u>Large</u> <u>(251+)</u>
Manufacturing	2,006	1,410	462	134
Non-Manufacturing	24,670	21,630	2,599	441
Total	26,676	23,040	3,061	575
Number of Firms Selected:				
	<u>Total</u>	<u>Small</u> <u>(5-49)</u>	<u>Medium</u> <u>(50-250)</u>	<u>Large</u> <u>(251+)</u>
Manufacturing	1,096	500	462	134
Non-Manufacturing	1,392	500	500	392
Total	2,488	1,000	962	526
Number of Firms Completing the Survey:				
	<u>Total</u>	<u>Small</u> <u>(5-49)</u>	<u>Medium</u> <u>(50-250)</u>	<u>Large</u> <u>(251+)</u>
Manufacturing	300	154	114	32
	50%	26%	19%	5%
Non-Manufacturing	300	96	125	79
	50%	16%	21%	13%
Total	600	250	239	111
	100%	42%	40%	18%

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 2
Firms' Basic Productivity Strategy

<i>Technology for Core Business Processes:</i>	Percent Responding:
Use highly sophisticated technology	26%
Use moderately sophisticated technology	63%
Use less sophisticated technology	11%
 <i>Employee Skill Level Required for Core Work Processes:</i>	
Use very high skill levels	29%
Use average skill levels	63%
Use relatively low skill levels	8%
 <i>Employee Compensation:</i>	
Wages well above the market	4%
Wages slightly above the market	37%
Wages attempt to match the market	47%
Wages slightly below the market	11%
Wages well below the market	1%

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Types of Jobs Provided.

Kansas firms hired people for positions that required various types of skills. Figure 1 shows that the largest percentage of employees hired by Kansas firms were general labor/operatives, business/management personnel, skilled trades/crafts, clerical, and other. Positions requiring more advanced technical skills (e.g., engineers, chemical process/lab technicians, designer/draftsmen, computer support staff) were few in number. Based upon the number of employees filling each type of position, Kansas firms would not be characterized as employers seeking large numbers of persons with very advanced technical skills. A large percentage of the state's employees perform jobs which do not require advanced technical skills.¹²

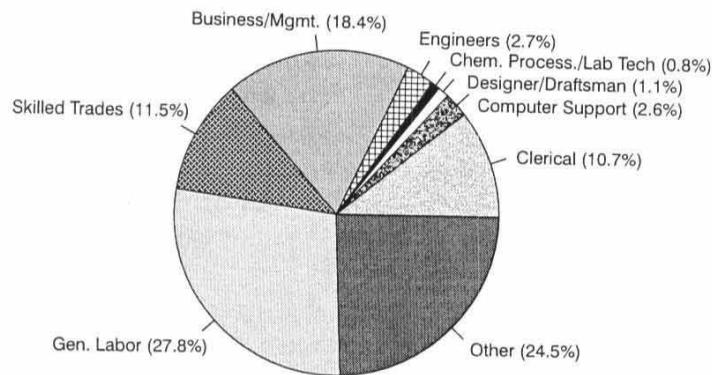
Table 3 shows the average percentage of employees performing various types of work by firm size. For small firms employing five to 49 persons, the largest percentage of their employees (34 percent) were skilled trades or crafts personnel. General labor/operatives comprised 19 percent of small firms' employees. Engineers, computer staff, designer/draftsmen, and chemical process/lab technicians accounted for very small percentages in small firms as well as in medium

¹²Kansas ranks forty fourth in number of Ph.D. scientists and engineers per 1,000 workers in the workforce, but seventh in number of science and engineering graduate students per one million population. The state produces graduates with advanced skills, but it does not employ them in the state. The number of Ph.D. scientists and engineers in the workforce is a measure of the potential pool of innovators in a state and the capacity for innovation. Source: *The 1996 Development Report Card for the States*. Washington, DC: The Corporation for Enterprise Development, 1996.

(50 to 250 employees) and large (251+ employees) firms. General labor/operatives formed larger percentages of employees in medium and large firms than in small firms. Small firms were the haven for skilled trades and crafts personnel while larger firms required larger numbers of general labor/operatives.

To summarize, while firms perceived that they were paying average to slightly above average wages, Kansas actually ranked fairly low when compared to national wage levels. In addition to paying wages that might not attract and retain the best workers, few Kansas firms described themselves as high-technology firms. Likewise, most jobs they offered did not require highly sophisticated technical skills. Thus, if wages are a measure of productivity and if a large pool of innovators (e.g., scientists and engineers) improves a state's ability to fuel industrial innovation and spawn new businesses, Kansas may not be positioned to compete in a business climate where survival is increasingly driven by the application of technology across a wide array of occupations. In addition, paying wages below national averages may limit the state's ability to retain highly skilled workers needed to improve the competitive position of the state's businesses.

Figure 1
Percentage of Employees by Job Type



Definitions:
Computer support staff = programming, data processing, etc.
Skilled trades/crafts personnel = machine operators, heavy equipment operators, mechanics/machinists, electronic, electrical technicians, etc.

Table 3
Average Percentage of Employees Performing Various Types of Work by Firm Size

	Small (5-49)	Medium (50-250)	Large (251 +)
Clerical	10%	11%	10%
Computer support staff*	4%	3%	2%
Designer/draftsmen	1%	2%	1%
Chemical process/lab technicians	3%	1%	1%
Engineers	2%	2%	3%
Business/management personnel	12%	17%	18%
Skilled trades/crafts personnel*	34%	19%	6%
General labor/operatives	19%	29%	27%
Other	16%	17%	31%

*Definition of categories: Computer support staff: programming, data processing, etc. Skilled trades/crafts personnel: machine operators, heavy equipment operators, mechanics/machinists, electronic/electrical technicians. Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Type of Skills and Education Required

According to Kansas employers, skill requirements for entry level jobs have changed. Compared to five years ago, entry level job skill requirements have increased slightly (Table 4, mean 2.98 where 3.0 on the scale was Increased Slightly). Forty-nine percent of firms surveyed reported a slight increase and 22 percent reported a significant increase, for a total of 71 percent describing some degree of increase. While entry level job skill requirements increased over the past five years, the skills of newly hired workers remained unchanged (Table 4, mean 2.23 where 2.0 on the scale was Remained Unchanged). Thirty-three percent said newly hired workers' skill level had not changed (despite an increase in skill requirements), an additional 23 percent said skills had decreased slightly (16 percent) or significantly (seven percent). While 43 percent said newly hired workers' skills had improved slightly (32 percent) or significantly (11 percent), these results alone do not confirm that worker skills matched job requirements. A gap between job requirements and worker skills at the entry level may still exist.

Most firms (57 percent) reported that their minimum educational and training standards for employment was a high school degree (Table 5), but 26 percent accepted workers with no high school degree. Only 17 percent of firms surveyed required some postsecondary education as a minimum standard for employment. The two largest categories of employees (see Figure 1 above) were general laborers (32.3 percent) and other (28.5%). General laborers probably do not need technical training, and the miscellaneous "other" category probably includes a mix of unskilled and skilled jobs. Even if both categories were assumed to require no special training or job skills, the remaining categories represented almost 40 percent of employees hired, and those categories would seem to require some training or special skills. These two sets of data suggest

that Kansas firms have jobs that required some training, but because from 30 to 60 percent of the jobs probably required no special skills, most firms do not have high expectations and set fairly minimal educational standards.

Table 4
Job Requirements vs. Worker Skill Levels Compared to Five Years Ago

<i>Scale:</i>	For Entry Level Jobs:	Of New Hires:
(0) Decreased significantly	1%	7%
(1) Decreased slightly	2%	16%
(2) Remain unchanged	26%	33%
(3) Increased slightly	49%	32%
(4) Increased significantly	22%	11%
<i>Mean</i>	2.89	2.23
<i>Median</i>	3.00	2.00
<i>S.D.</i>	0.79	1.08

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 5
Firms' Current Educational/Training Requirements

<i>Scale:</i>	Percent Responding:
(0) Less than high school degree	26%
(1) High school degree	57%
(2) High school degree & some technical/vocational training	10%
(3) Some college	4%
(4) College degree	3%
<i>Mean: 1.02 S.D. 0.90</i>	

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Job Requirements and Workers' Skills

Do Gaps Exist?

In 1989, and again in 1996, firms were asked to describe the gap between the qualifications of newly hired skilled workers and the needs of the businesses. On both occasions, more firms described a moderate gap (Figure 2). When asked how two other groups, newly hired skilled workers with vocational training and their current skilled workers (Figure 3) met the needs of the business, most firms felt there was only a slight gap. Clearly, two response patterns emerged. Newly hired skilled workers in 1989 and 1996 were not meeting employers' expectations (Table 6, first data column). Their skills did not match the needs of the business; a moderate gap existed. Newly hired skilled workers with vocational training and current workers more closely matched business needs, with only a slight gap between qualifications and job requirements (Table 6, center and right columns).

Figure 2
Gap Between Firms' Needs and Skills
of Newly Hired Skilled Workers

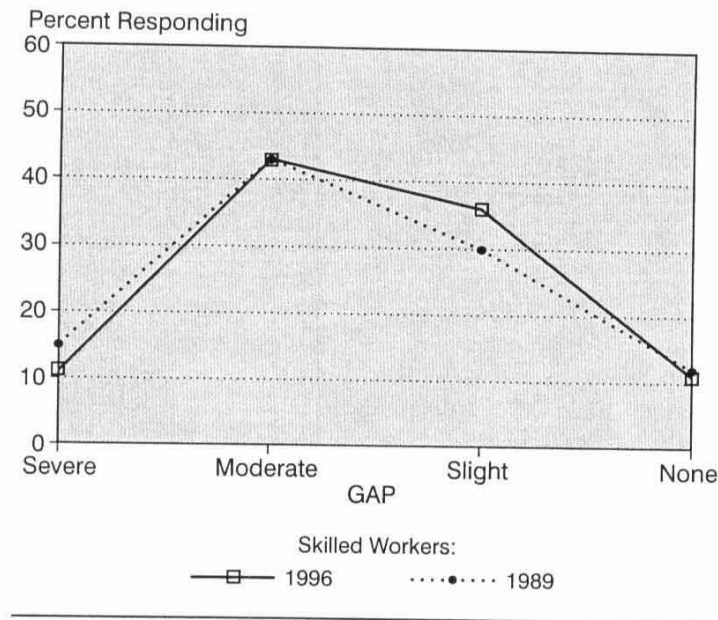


Figure 3
Gap Between Firms' Needs and Skills of Newly Hired Trained Workers and Current Workers

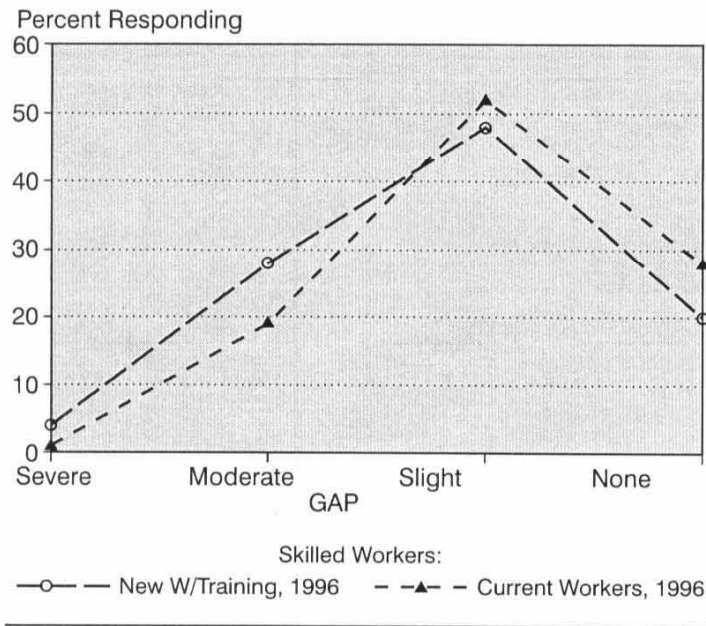


Table 6
Gap Between Newly Hired Skilled Workers and Firms' Needs

	Newly Hired Skilled Workers	Newly Hired w/ Vocational Training	Present Skilled Workers
<i>Scale:</i>			
(1) Severe gap	11% (15%)*	4%	1%
(2) Moderate gap	43% (43%)	28%	19%
(3) Slight gap	36% (30%)	48%	52%
(4) No gap	11% (12%)	20%	28%
<i>Mean/Median</i>	2.47/2.0	2.84/3.0	3.06/3.0
<i>Std. Dev.</i>	0.82	0.79	0.72

* 1989 data

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Improvements Needed

In 1989, and again in 1996, businesses in Kansas perceived a gap between skilled workers' qualifications and job skill requirements, and they were quite explicit about what skills needed improvement (Table 7). In 1996, over half the firms identified 16 of the 22 areas or 73 percent of skills surveyed for improvement:

Basic Skills

1. Listening/oral communication
2. Writing
3. Computation

Thinking Skills

4. Problem solving
5. Decision making
6. Comprehension/understanding
7. Creative thinking
8. Willingness to learn

Personal qualities

9. Work attitudes/work habits
10. Goal-setting/personal motivation
11. Organizational effectiveness/leadership
12. Teamwork
13. Interpersonal relations
14. Adaptability/flexibility

Technical skills

15. Computer
16. Business/management

In four areas, employers were more satisfied with employee skill levels in 1996 than in 1989. Skills showing significant improvement included reading, comprehension and understanding, goal-setting and personal motivation, and skilled trades. That was not the case for two other skills. Significantly more firms said employees' computer skills and comprehension and understanding skills needed improvement in 1996 than in 1989. In the case of computer skills and comprehension/understanding skills, the skills required increased more rapidly than employee skills.¹³ All other skills showed no significant change from 1989 to 1996.

¹³Despite the critical need for computer skills, the State has refused to adopt any strategy that would gain Internet Access for Kansas schools. Iowa, Nebraska, and Missouri have adopted strategies for school Internet Access.

What percentage of those hired by Kansas firms needed to improve skills and in what areas? In most skill areas, the percentage of those who needed to improve ranged from a mean of 28.73 percent for reading to 41.68 percent for goal setting and personal motivation skills (Table 8). Thus, according to their employers, almost one third of those hired needed some form of skill improvement.

While these results were sobering in that large numbers of firms cited the need for improvement of skills of large percentages of employees they hired, there were some encouraging signs. Improvement in reading skills was significant. The state K-12 educational system has focused upon reading, writing, and computation skills as part of its Quality Performance Accreditation system. Perhaps this improvement in employers' assessment of newly hired employees' reading skills is a result of many schools' efforts to improve teaching and outcomes in that area.

Key Findings

- More than half the firms set their minimal educational and training standards for employment at a high school degree, although 26 percent accept workers with no degree.
- Firms reported they used moderately sophisticated technology, required average skill levels of employees performing core work processes, and paid average or slightly above average wages. These self-evaluations reflect employer perception, not national or even regional realities. For example, Kansas ranks thirty-fifth in average annual pay. Kansas firms may be winning the local battle for employees, but may be losing the war regionally and nationally as skilled employees seeking higher wages leave the state.
- One fourth of the firms considered themselves to be high-tech, high-skill businesses, but only four percent described themselves as high-wage firms. These firms are also at risk if they are not paying their high-skill employees competitive wages.
- Jobs that required average skill levels and paid average wages would not be described as high-wage/high-skill jobs, despite employer perceptions to the contrary.
- The largest number of jobs provided by firms surveyed were general labor/operatives, clerical, and business/management personnel, confirming that large numbers of high-wage, high-skill jobs do not exist.
- Skill levels required for entry level jobs increased slightly from 1989 to 1996.
- In 1996, as in 1989, a moderate gap existed between the qualifications of newly hired skilled workers and businesses' needs.

- A slight gap existed between newly hired skilled workers with vocational training and businesses' needs.
- A slight gap existed between current workers and businesses' needs.
- More than half of the firms reported their workers needed improvement in 16 of 22 skills (73 percent).¹⁴
- Skills showing significant improvement from 1989 to 1996 included reading, goal-setting/personal motivation, and skilled trades.
- Skills showing significant deterioration from 1989 to 1996 were computer skills and comprehension/understanding. Employee skill levels have not kept pace with increases in skill requirements.
- All other skill areas showed no change.
- In most skill areas, the percentage of employees who needed to improve ranged from a mean of 28.7 percent (reading) to 41.7 percent (goal-setting/personal motivation).

¹⁴Basic skills (listening/oral communication, writing, computation), thinking skills (problem solving, decision making, comprehension/understanding, creative thinking, willingness to learn), personal qualities (work attitudes/work habits, goal-setting/personal motivation, organizational effectiveness/leadership, teamwork, interpersonal relations, adaptability/flexibility), and technical skills (computer, business/management).

Table 7
Skills Which Employees Hired by Firm Need to Improve

	Number & Percent Responding Yes:				
	1996		1989		1996-1989
	N	%	N	%	% Difference
<i>Basic Skills</i>					
Listening/oral communication	543	76%	613	72%	4
Writing	545	59%	613	60%	-1
Computation	536	57%	609	52%	5
Reading	547	39%	612	57%	-18*
<i>Thinking Skills</i>					
Problem solving	536	75%	612	70%	-5
Decision making	545	70%			
Comprehension/understanding	542	68%	611	60%	8*
Creative thinking	539	66%			
Willingness to learn	544	53%			
<i>Personal qualities</i>					
Work attitudes/work habits	543	72%	611	77%	-5
Goal-setting/personal motivation	541	73%	615	79%	-9*
Organizational effectiveness/ leadership	542	70%	613	75%	-5
Teamwork	543	69%	616	70%	-1
Interpersonal relations	545	66%	615	60%	6
Adaptability/flexibility	539	62%	612	66%	-4
<i>Technical Skills</i>					
Computer	543	58%	595	47%	11*
Business/management	544	50%	609	57%	-7
Mechanical	545	36%	605	38%	-2
Machine operation	543	34%	603	37%	-3
Skilled trades/crafts	539	32%	604	40%	-8*
General labor	544	32%	609	31%	1
Electrical	534	24%	601	25%	-1

* $p \leq .05$

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 8
What percentage of your employees need improvement?

	Number Firms	% of Employees:		S.D.
		Mean	Median	
<i>Basic Skills</i>				
Reading	214	29%	25%	21.62
Writing	323	36%	30%	24.49
Computation	306	34%	30%	23.00
Listening/oral communication	413	41%	33%	26.46
<i>Thinking Skills</i>				
Creative thinking	357	41%	40%	25.57
Decision making	382	39%	35%	23.30
Problem solving	401	40%	33%	24.85
Comprehension/understanding	369	35%	30%	23.09
Willingness to learn	287	34%	25%	25.77
<i>Personal qualities</i>				
Interpersonal relations	359	37%	30%	25.01
Teamwork	373	38%	30%	25.99
Goal-setting/personal motivation	397	42%	40%	26.26
Organizational effectiveness/ leadership	377	38%	30%	25.16
Adaptability/flexibility	337	37%	30%	23.90
Work attitudes/work habits	393	40%	30%	27.57
<i>Technical Skills</i>				
Computer	313	40%	30%	27.89
Electrical	130	32%	25%	26.60
Business/management	270	30%	20%	24.46
Mechanical	197	31%	25%	22.94
Machine operation	181	31%	25%	23.60
Skilled trades/crafts	172	31%	25%	25.15
General labor	174	31%	25%	25.18

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Training: Utilization and Evaluation of Training System

With the need for large numbers of employees to improve across a broad range of skills, the issue of training moves to center stage. A recent survey of Kansas workers revealed that more than 11 percent of the labor force are training to get a better job.¹⁵ As reported in the previous section, employers estimated that as many as one third of their employees needed to improve their skills. Since a large percentage of the Kansas labor force has at least a high school diploma, lack of training may not be the primary issue. Rather, training outcomes or what a diploma or advanced degree guarantees becomes the critical issue.

High school Training

While most firms required a minimum of a high school diploma of their employees, employers were not overly enthusiastic about the readiness of high school graduates to join the labor force. Nearly 180 firms, or one third of those responding, said high school graduates were poorly or inadequately prepared, while less than 100 felt they were more than adequately or well prepared (Figure 4, far left and far right sections of the scale or graph). The remaining 307 firms described high school graduates as adequately prepared (Figure 3, center section). The overall picture was not one of overwhelming enthusiasm for these workers' skills. Table 9 shows employers gave high school graduates' productive value a mean score of 2.77 (inadequately prepared), which would be a C- on a five-point scale (A = 5, C = 3, F = 1).

Post-Secondary

Although most firms report that a high school education is the minimum education level considered when hiring, a sizable number of firms reported intentionally employing people who had received technical or vocational training at the post-secondary level. Table 10 shows that a large percentage of firms intentionally hired employees who had trained in technical or vocational areas at local community colleges, area vocational technical schools, and state universities. In addition, when asked to rate their satisfaction on a five-point scale, these firms reported they were satisfied (mean approximately 3.0) with the technical and vocational skills of those employees.

Employers also report using technical or vocational training programs to upgrade employee skills (Table 11). Over half the firms used technical/vocational training in the last five years. Similar levels were reported in 1989. Firms were most likely to send employees to professional association seminars for training (Table 12). Other sources used by over half the firms who trained employees included community colleges and consultants or other commercial trainers. Not all firms used community colleges equally. Analysis of use of training programs by firm size (Table 13) revealed that small firms relied very heavily upon professional association seminars for training and utilized community colleges and consultants/commercial trainers less than medium and large firms.

¹⁵Glass, Robert H., Krider, Charles, E., & Nelson, Kevin. "The Effective Labor Force in Kansas: Employment, Unemployment, and Underemployment," *Kansas Business Review*, 1996 (Vol. 20, No. 1), p. 9 - 19.

Figure 4
How Well Prepared are High School Graduates
to Add Productive Value to Firms?

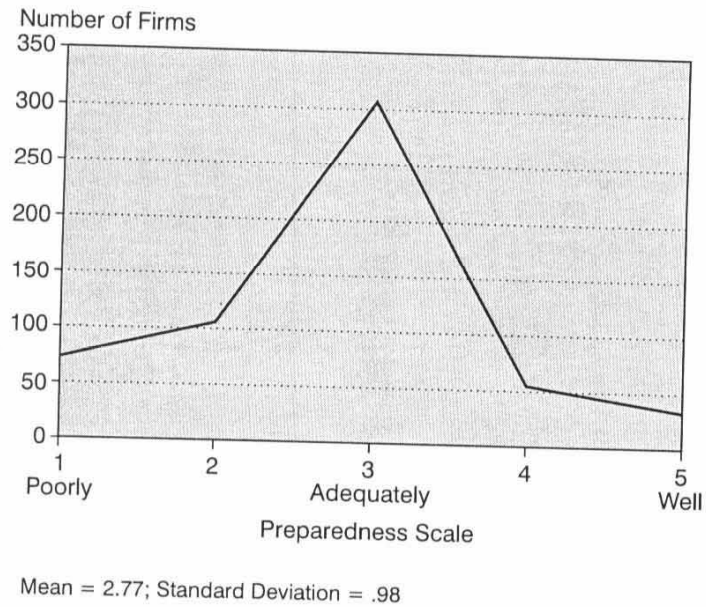


Table 9
How ready is the typical high school graduate to add productive value to a firm?

<i>Scale:</i>	N	% Responding
(1) Poorly prepared	73	13%
(2)	106	18%
(3) Adequately prepared	307	53%
(4)	55	10%
(5) Well prepared	33	6%
<i>Mean</i>	2.77	<i>Std. Dev.</i> 0.98

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 10
Effect of Post-Secondary Training on Hiring Practices

Institution	% Intentionally Hiring	Satisfaction* (Mean/Std.Dev.)
Community colleges	41%	2.90/0.88
AVTS	37%	2.82/0.94
State universities	37%	3.33/0.75

* Scale: 0 = Very dissatisfied, 1 = Dissatisfied, 2 = Neutral, 3 = Satisfied, 4 = Very satisfied
 Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 11
Used Technical/Vocational Training Programs for Employee Training in Last Five Years

	1996		1989	
	N	%	N	%
No	276	47%	310	51%
Yes	314	53%	303	49%
<i>Total</i>	<i>590</i>		<i>613</i>	

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 12
Sources of Technical or Vocational Training for Employees

	1996		1989	
	N	% Using	N	% Using
Professional association seminars	306	77%	302	76%
Community college	308	58%	302	64%
Consultants/other commercial trainers	300	53%	300	62%
Area vocational technical school	303	45%	301	61%
State university	305	31%	301	47%
Other	291	25%	231	13%
Local high schools	307	17%	299	23%
Private college/university	305	9%	299	22%
Union apprenticeship training	306	5%	299	20%
KSU-Salina College of Technology	303	5%	285	10%

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 13
Sources of Technical or Vocational Training for Employees
Percent Using By Firm Size

	Small		Medium		Large	
	No	Yes	No	Yes	No	Yes
Professional association seminars	30%	70%	22%	78%	17%	83%
Community college**	60%	40%	35%	65%	29%	71%
Consultants/commercial trainers**	58%	42%	47%	53%	32%	68%
Area vocational technical school	62%	38%	53%	47%	49%	51%
State university**	83%	17%	65%	35%	54%	46%
Other	79%	21%	71%	29%	75%	25%
Local high schools	88%	12%	82%	18%	76%	24%
Private college/university*	96%	4%	89%	11%	85%	15%
Union apprenticeship training**	98%	2%	90%	10%	99%	1%
KSU-Salina College of Technology	96%	4%	96%	4%	91%	9%

*Chi Square $p \leq .05$

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

In 1996, as in 1989, firms were more likely to learn about the training from vendors, advertising, the training institution, or a business associate (Table 14). Vendors provide information to a large percentage of firms, regardless of their size (Table 15). Differences based upon firm size existed in other areas. For example, more large- and medium-sized firms learned about training from training institutions and local officials than did small firms. Compared to large firms, small- and medium-sized firms were more likely to learn about training opportunities through advertising from professional associations or commercial trainers.

Employers were asked if the training they used was customized (designed or adapted to meet their special needs. Training provided by consultants and commercial trainers, and union apprenticeship training was more likely to be customized than training obtained from other sources (Table 16). Table 17 shows that most firms had never been approached by community colleges or AVTSs about customized training.

The quality of the training provided by all sources was adequate (Table 18). That provided by state universities, private colleges/universities, professional associations, consultants or commercial trainers, community colleges and AVTSs was judged to be adequate to good (mean 3.50 to 3.79) by those using those sources of training.

All firms were asked to rate the vocational technical training system in Kansas on a four-point scale, where one was very poor and four was good (Table 19). The system received adequate to good ratings in all areas: geographical accessibility, program and course content, instructors, equipment used, and scheduling convenience. Firms felt that equipment used by training institutions must be technically advanced. Eighty percent responded that it was important or very important for community colleges and AVTSs to have the most technically advanced equipment, an opinion that has not changed since 1989 (Table 20). In contrast to the state's current funding strategy for training equipment, employers want students to be trained on the most technically advanced equipment. The current strategy assumes that students can learn "concepts" on obsolete equipment and then learn to use state-of-the-art equipment at the employer's expense (on-the-job training). That added cost affects Kansas firms' competitive position. This is a further symptom of how the state's employers and employees lose competitive advantage due the state's failure to invest in training equipment. At some point, the question must change from "How do we scrape by?" using low tech equipment and unskilled workers to "How do we move forward?" toward a more technically advanced and competitive new economy.

Table 14
How did you learn about the training?

<i>From:</i>	1996		1989	
	N	Yes	N	Yes
Vendor	297	72%	300	75%
Training institution	298	71%	302	78%
Advertising (prof. assoc/ commercial trainers)	298	71%	301	69%
Business associate	298	57%	302	58%
Corporate headquarters	299	31%	301	32%
Local officials	299	27%	300	32%
State officials	298	24%	300	27%
Other	290	22%	228	10%

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 15
How did you learn about the training?
By firm size

<i>From:</i>	Small		Medium		Large	
	No	Yes	No	Yes	No	Yes
Vendor	36%	64%	24%	76%	25%	75%
Training institution**	43%	57%	25%	75%	16%	84%
Business associate	52%	48%	39%	61%	38%	62%
Corporate headquarters	73%	27%	71%	29%	58%	42%
State officials	83%	17%	74%	26%	71%	29%
Local officials**	90%	10%	69%	31%	54%	46%
Advertising (prof. assoc/commercial trainers)**	42%	58%	25%	75%	14%	36%
Other	82%	18%	79%	21%	72%	28%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 16
Was the training customized?

	N	Yes
Consultants/commercial trainers	157	85%
Union apprenticeship training	16	81%
Other	297	72%
Private college/university	29	52%
Area vocational technical school	135	49%
Community college	174	45%
Professional association seminars	233	44%
Local high schools	52	38%
State university	94	35%
KSU-Salina College of Technology	15	33%

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 17
Percentage of Firms Contacted by Institutions Promoting Customized Training

<i>Scale:</i>	Community Colleges		AVTSs	
	1996	1989	1996	1989
(1) Never	61%	65%	72%	70%
(2) Once in 3 years	10%	10%	9%	12%
(3) Once per year	13%	12%	10%	10%
(4) Twice or more per year	15%	13%	9%	8%
<i>Mean</i>	<i>1.8</i>	<i>1.7</i>	<i>1.6</i>	<i>1.0</i>
<i>Std. Dev.</i>	<i>1.1</i>	<i>1.1</i>	<i>1.6</i>	<i>1.0</i>

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 18
How would you evaluate the quality of this training?
 Scale: 1 = very poor; 2 = needs improvement; 3 = adequate; 4 = good

	N	Mean	Median	Std.Dev.
State university	90	3.79	4.00	.46
Private college/university	28	3.68	4.00	.55
Professional association seminars	226	3.63	4.00	.62
Consultants/other commercial trainers	153	3.62	4.00	.73
Community college	167	3.59	4.00	.67
Area vocational technical school	130	3.50	4.00	.72
KSU-Salina College of Technology	15	3.47	4.00	.64
Union apprenticeship training	15	3.40	4.00	.91
Local high schools	49	3.12	3.00	.75

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 19
Evaluation of Vocational and Technical Training in Kansas

	1996		1989	
	Mean*	S.D.	Mean*	S.D.
Geographic accessibility	3.3	0.90	3.2	0.90
Program/course content	3.3	0.87	3.1	0.80
Instructors	3.4	0.75	3.2	0.71
Equipment	3.3	0.82	3.0	0.89
Scheduling convenience	3.3	0.87	3.1	0.80

*Scale: 1 = very poor; 2 = needs improvement; 3 = adequate; 4 = good.

*Scale: 1 = very poor; 2 = needs improvement; 3 = adequate; 4 = good

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 20
Importance of Community Colleges and AVTSs Training with
Most Technically Advanced Equipment

<i>Scale:</i>	Percent Responding:	
	1996	1989
Not important	10%	6%
Of minor importance	10%	11%
Important	24%	30%
Very important	56%	53%
Don't know	6%	

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Barriers to Training

Businesses stated that employee skill levels needed to improve, that the vocational and technical training system was accessible, but 47 percent of firms surveyed had not used technical and vocational training for employees in the past five years. Small firms were less likely to utilize training programs (Table 21). Those who had not utilized employee training were asked to identify reasons for not utilizing training programs to upgrade employee skills. Only 20 percent stated their employees had not needed training, down from levels reported in 1989 (Table 22). The most frequently cited reasons for not using technical and vocational training programs were the use of on-the-job and in-house training programs.

The cost of employee training was usually borne by the firms themselves. Seventy-six percent said the firms paid for all of the training, six percent paid using public resources, and 27 percent paid with a combination of firm and public resources (Table 23). The amount spent on training was about five percent of their total payroll.

Table 21
In the last five years, has your organization utilized technical or vocational training programs to upgrade the skills of its employees?

	1996		1989			
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>		
All Firms:						
No	276	47%	310	51%		
Yes	314	53%	303	49%		
<i>Total</i>	<i>590</i>		<i>613</i>			
By Firm Size:**						
	Small		Medium		Large	
1996	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
No	139	56%	100	43%	37	33%
Yes	108	44%	132	57%	74	67%
<i>Total</i>	<i>247</i>	<i>42%</i>	<i>232</i>	<i>39%</i>	<i>111</i>	<i>19%</i>
By Firm Type:						
	Manufacturing		Non-manufacturing			
1996	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
No	144	49%	132	45%		
Yes	151	51%	163	55%		
<i>Total</i>	<i>295</i>	<i>50%</i>	<i>295</i>	<i>50%</i>		
By Firm Setting:						
	Rural		Mid-Sized		Urban	
1996	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
No	61	53%	68	49%	112	44%
Yes	53	47%	72	51%	142	56%
<i>Total</i>	<i>114</i>	<i>22%</i>	<i>140</i>	<i>28%</i>	<i>254</i>	<i>50%</i>

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 22
Firms Not Using Technical/Vocational Training Programs
to Upgrade Employees' Skills

<i>Reasons identified:</i>	Firms Responding:			
	1996		1989	
	N	Yes	N	Yes
Do on-the-job training	264	88%	296	88%
Developed in-house training programs	262	79%	295	75%
Can't find type of training needed	261	40%	288	38%
Training is too expensive	257	36%	266	25%
Other	260	34%	310	13%
Employees haven't needed training	263	20%	294	41%

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 23
How does your firm fund technical or vocational training for its employees?

	N	No	Yes
Firm pays for all of it	600	24%	76%
Public resources pay for all of it	143	94%	6%
Firm pay for some, public resources pay for some	143	73%	27%

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Key Findings

- High school graduates' ability to add productive value to firms was less than adequate.
- Businesses gave the state's K-12 system a C- for their ability to provide students who added productive value to the firms who hired them.
- Firms were satisfied with the technical and vocational skills of employees who trained at local community colleges, area vocational technical schools, and state universities.

- In the last five years, approximately half the firms (53 percent) used technical/vocational training programs to upgrade employee skills.
- The quality of training received from all providers was adequate.
- The state's vocational and training system was adequate to good in geographic accessibility, program and course content, instructors, equipment used, and scheduling convenience.
- While equipment used by the state's vocational and training system was described as adequate rather than good, employers insisted that equipment used by training institutions needed to be technically advanced to meet firms' training needs.
- Small firms were less likely than large- and medium-sized firms to utilize technical and vocational training programs.
- Firms of all sizes who did not use technical and vocational training programs did not do so because they used on-the-job or in-house training programs.
- Seventy-six percent of all firms paid for all of the training they provided. The amount spent was about five percent of their total payroll.

Implications for Future

Availability of Workers

Firms reported that it was moderately difficult to find skilled employees (Table 24). On a four point scale (1 = extremely difficult; 4 = rather easy), responses were fairly evenly distributed, with 29 percent reporting moderate difficulty finding skilled employees today. Compared to two or three years ago, 23 percent said it was much more difficult to find skilled employees today, 32 percent said it was slightly more difficult, and 36 percent said it was slightly less difficult. Firms predicted the tight labor market would continue. When asked how difficult it would be to hire full-time skilled employees two or three years from now, more firms predicted it would be slightly more difficult.

Table 24
Availability of Skilled Employees

<i>Scale:</i>	Percent Responding:				<i>Mean/Median (S.D.)</i>
	<i>(1)</i> Extremely Difficult	<i>(2)</i> Moderately Difficult	<i>(3)</i> Somewhat Difficult	<i>(4)</i> Rather Easy	
Difficulty finding today	24%	29%	25%	22%	2.44/2.0 (1.08)
	<i>Level of Difficulty:</i>				
	<i>(1)</i> Much More	<i>(2)</i> Slightly More	<i>(3)</i> Slightly Less	<i>(4)</i> Much Less	<i>Mean/Median (S.D.)</i>
Today vs. 2-3 years ago	23%	32%	36%	8%	2.30/2.0 (0.92)
2-3 years from now	26%	31%	33%	10%	2.28/2.0 (0.96)

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Skilled employees were more difficult to find today in urban than in rural areas.¹⁶ For example, firms located in rural counties (Figure 5, far left section, black bar) said skilled workers were somewhat difficult to moderately difficult to find, resulting in a mean of 2.69. Firms located in urban counties (white bar) described a tighter labor market (or were looking for workers with higher or different skills). More urban firms said it was moderately difficult to extremely difficult to find skilled employees (mean of 2.34).¹⁷

Compared to two or three years ago (Figure 5, center section), firms in rural and mid-sized counties were fairly evenly divided between thinking it was slightly more or slightly less difficult (mean = 2.48 and 2.41). Firms in urban counties thought it was slightly more difficult (mean = 2.15).¹⁸ When asked to predict availability of skilled workers two to three years from now, there was no significant difference between responses of firms in urban, mid-sized, and rural counties (Figure 5, far right section). Urban and mid-sized counties predicted skilled workers would be more difficult to

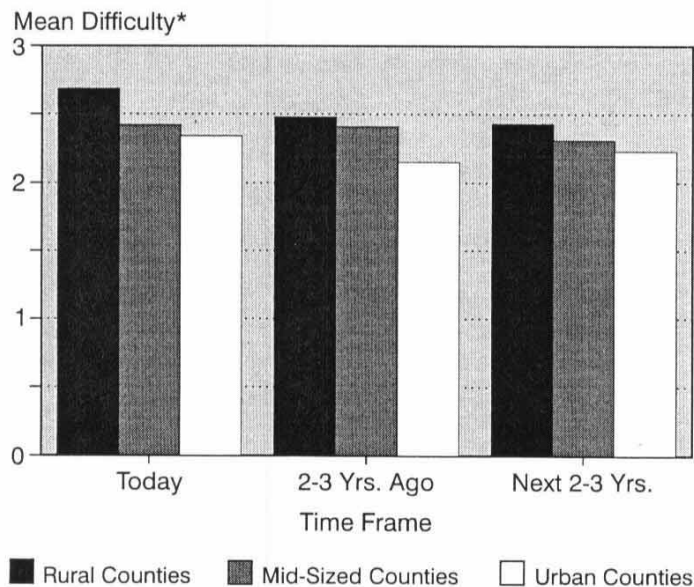
¹⁶*Urban counties:* Johnson, Leavenworth, Miami, Wyandotte, Douglas, Shawnee, Butler, Harvey, Sedgwick. *Mid-sized:* Atchison, Barton, Cowley, Crawford, Ellis, Finney, Ford, Franklin, Geary, Labette, Lyon, McPherson, Montgomery, Reno, Riley, Saline, Seward. *Rural:* All others.

¹⁷Overall F-Ratio 4.10, $p \leq .05$.

¹⁸Overall F-Ratio 5.80, $p \leq .01$.

find (mean: urban = 2.23; mid-sized = 2.31) and rural counties were more evenly divided between predicting slightly more and slightly less difficulty (mean = 2.43).

Figure 5
Availability of Skilled Employees by Firm Setting



*Scales:
 Today: 1 = extremely difficult; 4 = rather easy
 2-3 years ago: 1 = much more difficult; 4 = much less difficult
 2-3 years from now: 1 = much more difficult; 4 = much less difficult

Seventy-eight percent of the firms surveyed would be willing to pay higher wages to attract workers who had the fundamental background necessary to quickly learn and competently do their job (Table 25). When asked how great a percentage increase over current wages they would be willing to pay, the median was 10 percent (mean = 14.4 percent; std. dev. = 10.39).

Table 25
Businesses Willing to Pay Higher Wages
to Attract Competent* Workers

	Firms Responding:	
	N	Yes
Total Sample	572	78%
<i>By firm size:</i>		
Small firms	238	79%
Medium firms	229	80%
Large firms	105	71%
<i>By firm setting:</i>		
Rural firms	110	73%
Mid-size firms	135	75%
Urban firms	247	82%
<i>By firm type:</i>		
Manufacturing firms	283	76%
Non-manufacturing firms	289	80%

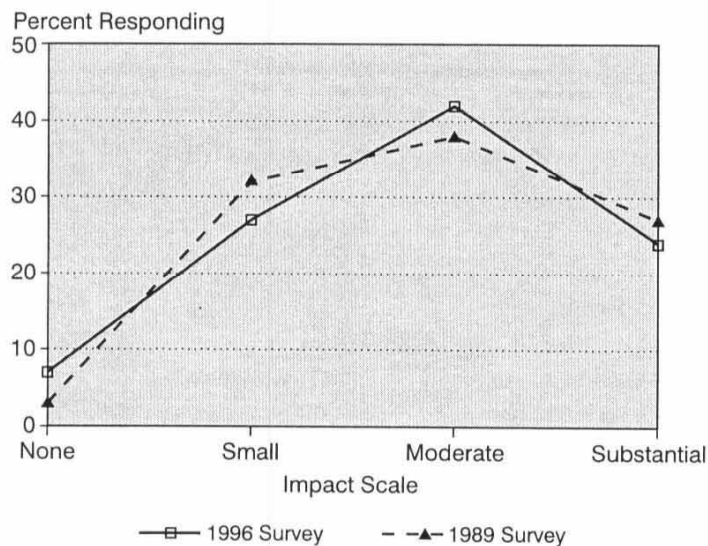
*Competent workers: Workers who had the fundamental background necessary to quickly learn and competently do their jobs.

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Skills Workers Will Need

Employers predicted that, over the next two to three years, technology changes in their industry and their firm would increase, to a moderate degree, the level of technical or vocational skills needed by their employees. Figure 6 shows that, in 1996, employers expected employee skill requirements to increase to a moderate degree (median = 3.0; mean = 2.83; std. dev. = .869). The larger the firm, the greater the anticipated demand for improved employee skills (Table 26). Small firms said skill requirements would increase to a small or moderate degree, while medium and large firms expected skill requirements to increase to a moderate degree. Non-manufacturing firms expected technology to impact their employees more than manufacturers. Firms located in mid-sized and urban counties predicted skill requirements would increase more than did firms located in rural counties.

Figure 6
Impact of Technology on Employee Skill
Requirements in Two to Three Years



Skills that employers predicted their present employees would need to improve included most of the basic skills, all types of thinking skills, and all types of personal qualities from work habits to interpersonal relations (Table 27). The technical skill most likely to need improvement was computer skills. Several skills showed improvements over 1989 estimates. Fewer employers were concerned about the impact of technology upon employee adaptability/flexibility, business/management skills, and machine operation skills in 1996. However, over 30 percent of the firms expressed concern about the impact of technology upon **all** skills, indicating they expect technology to place demands upon all types of skills. In addition to the large percentage of firms expressing concern about all skills, the percentage of employees who will need to improve skills as a result of technological change over the next few years was quite high (Table 28), ranging from a low of approximately 30 percent to a high of 45 percent of all employees.

Table 26
Over the next two to three years, how much will technology changes in your industry and your firm increase the level of technical or vocational skills required by your employees?
 Scale: 1 = Not at all; 2 = To a small degree; 3 = To a moderate degree; 4 = To a substantial degree

	N	Mean	Median	Std. Dev.
<i>Total:</i>	577	2.83	3.00	.869
 <i>By Firm Size:**</i>				
Small	240	2.64		.856
Medium	229	2.92		.830
Large	108	3.05		.900
<i>Overall F Ratio</i>	<i>10.47</i>			
 <i>By Firm Type:**</i>				
Manufacturing	286	2.73		.855
Non-Manufacturing	291	2.92		.873
<i>T-Value</i>	<i>-2.64</i>			
 <i>By Firm Setting:**</i>				
Rural	114	2.58		.911
Mid-Sized	135	2.93		.895
Urban	247	2.81		.825
<i>Overall F-Ratio</i>	<i>5.16</i>			

** p ≤ .01

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 27
What skills will your present employees need to improve or acquire to adapt to technological changes anticipated over the next two to three years?

	1996		1989		% Difference 1996-1989
	N	%	N	%	
<i>Basic Skills</i>					
Listening/oral communication	527	71%	551	65%	6
Computation	525	53%	549	56%	-3
Writing	524	52%	552	49%	3
Reading	522	44%	552	51%	-7
<i>Thinking Skills</i>					
Problem solving	522	69%	551	72%	-3
Decision making	522	65%			
Comprehension/understanding	522	65%	550	68%	-3
Creative thinking	515	63%			
Willingness to learn	522	56%			
<i>Personal Qualities</i>					
Work attitudes/work habits	521	67%	548	70%	-3
Goal-setting/personal motivation	520	67%	552	71%	-4
Teamwork	524	64%	551	71%	-7
Organization effectiveness/ leadership	519	64%	551	68%	-4
Adaptability/flexibility	518	64%	550	72%	-8*
Interpersonal relations	523	61%	551	56%	5
<i>Technical Skills</i>					
Computer	521	63%	547	67%	-4
Business/management	523	47%	549	58%	-11*
Mechanical	519	37%	546	40%	-3
Machine operation	519	36%	544	44%	-8*
Skilled trades/crafts	519	35%	547	41%	-6
General labor	519	31%	547	30%	1
Electrical	515	31%	543	33%	-2

* $p \leq .05$

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

Table 28
Percentage of Firms' Employees Needing Improvement

<i>Basic Skills</i>	<u>N</u>	<u>Mean %</u>	<u>S.D.</u>
Reading	229	29	21.84
Writing	270	34	24.85
Computation	277	34	23.91
Listening/oral communication	374	39	26.92
 <i>Thinking Skills</i>			
Creative thinking	321	41	27.06
Decision making	336	39	25.90
Problem solving	361	29	25.67
Comprehension/understanding	336	37	25.65
Willingness to learn	293	40	27.93
 <i>Personal qualities</i>			
Interpersonal relations	320	38	26.24
Teamwork	334	39	28.76
Goal-setting/personal motivation	348	40	28.35
Organizational effectiveness/ leadership	326	37	25.69
Adaptability/flexibility	327	40	28.43
Work attitudes/work habits	346	41	29.96
 <i>Technical Skills</i>			
Computer	326	45	30.81
Electrical	155	30	26.35
Business/management	240	32	25.19
Mechanical	190	33	26.22
Machine operation	184	34	26.74
Skilled trades/crafts	182	34	26.92
General labor	159	32	24.37

Source: IPPBR University of Kansas survey of 600 Kansas businesses, 1996.

The bottom line was that large percentages of employees not only needed to improve skills now (presented earlier in Table 8), but the pressure to upgrade skills will not subside. Technological changes will increase skill demands upon employees whose skills already lag behind job requirements. Given the degree of criticism, are employers concerned about having access to retraining programs through community colleges or area vocational technical schools? Not necessarily. When asked how important access would be over the next three years, employers described access to retraining

through community colleges or area vocational technical schools to be of minor importance. This apparent disagreement between employers' description of the need to improve employee skill levels now and over the next two to three years and the need for access to retraining programs through community colleges reflects the tendency to do no training, do on-the-job training, use professional association seminars, or to turn to consultants or other commercial trainers.

Key Findings

- Employers reported moderate difficulty finding skilled workers today.
- Compared to two or three years ago, finding skilled workers today was slightly more difficult.
- In two or three years, finding skilled workers will be slightly more difficult.
- Employers in urban counties reported more difficulty finding skilled employees than did employers in rural counties, and that trend was predicted to continue in the future.
- Employers (78 percent or 446 firms) would be willing to pay higher wages (up to 10 percent more) for workers with higher skills.
- Over the next two or three years, technological advances will increase, to a moderate degree, the job skills employees will need.
- Small firms and firms in rural counties predicted less impact by technology upon employee skills.
- Technology was expected to place demands upon all types of skills for a large percentage of employees.

SUMMARY

Have employers' assessment of the Kansas workforce changed from 1989 to 1996? Not much. In 1989, employers reported a gap between newly hired workers' skills and job requirements. Only two of the top ten skills needing improvement were basic academic skills--listening/oral communication skills and writing skills. The remaining eight were "higher order" skills, such as goal setting/personal motivation, work attitudes and habits, organizational/leadership skills, problem solving, etc. Much the same picture emerged in 1996. The only basic skill among 1996's top ten problem areas was listening/oral communication, and the other nine were all higher order skills. That did not mean that basic skills were of no concern to employers. Over 50 percent of all employers reported that writing and computation skills needed improvement. While reading, goal-setting/personal motivation, and skilled trades improved significantly from 1989 to 1996, computer skills and comprehension/understanding skills showed significant deterioration. All other skill areas showed no change, continuing to be areas of concern.

What does this mean in terms of the state's competitive position? Are workers poorly prepared to add productive value to the firms that hire them or were employers' expectations unreasonable? Employers reported high school graduates were not always adequately prepared to add productive value to their firm. Was that because employers set impossibly high standards? Probably not. Most firms reported they required average skill levels and paid average wages. Kansas firms did not seem to have exceptionally high expectations or set exceptionally high standards because they were not trying to fill large numbers of high-skill, high-wage jobs which required highly-skilled workers. In fact, the largest percentage of workers in the state had jobs which probably required very little technical training (e.g., general laborers). However, Kansas firms were not frozen in time or unaffected by the national and global competition. Skill requirements for their entry level jobs increased from 1989 to 1996. A moderate gap continued to exist between the qualifications of newly hired skilled workers and job skill requirements. And a slight gap existed between current workers' skills and the firms' needs. Firms predicted that technological advances would increase the technical skills needed by employees.

In Kansas, workers' skills have not kept pace with job skill requirements. Firms have difficulty finding skilled workers, especially firms located in urban counties. All employers expect the situation to become more difficult in the near future, and would consider paying higher wages, up to 10 percent more, to workers with higher skills. If employer expectations are not unreasonable and worker skills are deficient, the state's businesses are in a poor position to survive or prosper in increasingly competitive national and global markets. What should be done to improve workers' skills? Firms were satisfied with the technical and vocational skills of employees trained at local community colleges, area vocational technical schools, and state universities. High school students and their parents should take note of this and plan to seek some form of post-secondary training. The K-12 educational system should also take note and prepare **all** students for some form of post-secondary training.

To prepare students to seek some form of post-secondary training and prepare for the continuous skill upgrading that technological change will place upon them, parents, students, and educators at **all** levels should expect and demand high performance. Students must demonstrate competency and not expect to graduate simply because of time spent in the school system. Parents and students must understand that education is an interactive process. Educators are not solely responsible for guaranteeing that students become competent in various skills. Learning can not occur without commitment from parents and students. Parents and educators must demand that students develop skills that will enable them to become productive contributors. Those skills include not only basic academic skills (e.g., reading, writing, computation, etc.), but other "higher" order thinking skills as well (e.g., problem solving, creative thinking, comprehension/understanding, etc.). Students must also exhibit a good work ethic at school. Parents and educators must demand good work attitudes and work habits, and help students learn to set goals, be adaptable, and work well in teams so those skills will follow them into the workplace.

Businesses should not be left out of the education process. While firms must invest in their current employees and provide support for training to upgrade skills of those adults, businesses must

also communicate and demonstrate to parents, students, and educators what skills are needed in the workplace. School-to-work programs and apprenticeship programs are obvious examples of ways business can ensure that qualified workers are available. The business community should also support efforts to measure student performance and help the education system move toward outcome-based education where students do not advance until competency (defined at sufficiently high levels) is demonstrated. Businesses are in a unique position to share what they have learned about quality control and employee assessment with educators. Using what they know about problem solving and teamwork, business professionals should be working with teachers to analyze why the quality of the product produced by the K-12 educational system (i.e., the student) does not meet the needs of the client (i.e., employers). If such discussions occurred frequently and continuously, educators would have the community support needed to educate students while dealing with some of the state's and nation's most difficult social issues. Businesses must communicate their needs to educators and then help develop an educational system and curriculum that prepares students to add productive value. Only then will parents, students, and educators be able to provide employers with what they need--workers who add productive value to their firms.

IMPLICATIONS

That workers' skills do not meet job skill requirements was the overriding finding of this report. The pace of change, driven by technological advances and changes in how work was organized, continued to outstrip the rate at which workers' skills improved. Educators, employers, and employees have been and will continue to chase a moving target. This has serious implications for Kansas and requires a serious, committed response at all levels of private and public activity.

1. Development of a highly skilled workforce must continue to be a strategic objective for Kansas economic development.

The workforce is a state strength, but it is also a weakness. Kansas does not have a large reservoir of unemployed or underemployed skilled workers. In fact, regional shortages of skilled workers exist.¹⁹ Similar shortages exist nationwide, so the state cannot solve labor shortages or skill deficits by importing labor from other states. Ways must be found to better utilize the existing population. Skills must be improved through training and retraining and those not currently in the work force must be encouraged to enter or re-enter the labor market. Employers must commit resources to train and retrain their current employees, both in basic academic skills and technical skills.

The state's education and training system must have the institutional capability to provide training for workers to upgrade existing and develop new skills as job skill requirements change. Institutions must have the capability to meet the workforce's training needs, from the production

¹⁹See the 1996 Kansas Strategic Plan, Kansas, Inc., for a thorough discussion of a broad range of workforce issues.

worker who needs to improve communication and math skills to the computer programmer or engineer who needs to keep abreast of cutting edge technology. The state must have a quality educational system that includes K-12, technical training and associate degree programs, baccalaureate programs, and post-graduate programs to produce and maintain the quality workforce needed by Kansas businesses which must do business in the new, competitive, global economy. Post-secondary institutions, especially community colleges, must encourage employers and employees to access training to improve basic academic skills and technical skills by providing classes that meet the needs of nontraditional students and customized training that meets the needs of businesses. Educators and government officials must focus upon removing barriers created by a fragmented training system.²⁰ Duplication of training within the training system must be reduced so savings that result can be used to provide advanced equipment for training programs.

Current workforce problems will require both private and public action to solve existing and future challenges, but that can happen because Kansas has a history of solving problems through private-public cooperation. Employers, workers, parents of students, students, educators, and government officials at the community as well as the state level must understand that their prosperity depends upon their commitment to developing a skilled workforce. Employers must commit resources to train and retrain their current employees, both in basic academic skills and technical skills. Students, supported by parents and educators, must develop good work attitudes and habits in school and transfer those skills to the workplace. Students, and their parents, must also realize that post-secondary training is essential and life long learning will be necessary to develop new and upgrade existing technical skills. While college education is not required for all, some form of technical/vocational training in apprenticeship programs or at community colleges and AVTSs is required.

2. Educators, supported by parents and employers, must provide business and industry with workers who add productive value to the firms which employ them.

Educators, supported by parents and employers, must continue to improve curriculum, focus on educational outcomes, and demand high standards for high school graduation. The K-12 education system should continue to focus upon improving the skills of its students. Business needs students to develop competency in basic skills (e.g., reading, writing, computation, communication), thinking skills (e.g., problem solving, decision making, etc.), and personal qualities (e.g., work habits, teamwork, etc.). Schools should continue to focus upon outcome measures and make certain high standards are set. Students seeking a high school diploma must meet high performance standards and demonstrate competency in a set of basic skills, thinking skills, and personal work habits. The curriculum must not be too loose and undemanding or the **average** student will not be prepared to meet the increasingly sophisticated needs of business and industry. The K-12 system must prepare

²⁰Krider, C.E., Redwood, A.L., & Stella, M.E. *Kansas Workforce Employment and Training Programs: Do They Function as a System?* Institute for Public Policy and Business Research, University of Kansas, 1994.

non-college bound students for post-secondary technical training and associate degree programs as well as it prepares students who seek admission to four-year baccalaureate programs.

3. Business and industry needs to communicate job skill requirements to educators on a continuous basis.

Business must communicate to educators what job skills are required. While donating funds or items to support academic and extracurricular activities is important, the role of business could evolve toward providing more frequent and effective support and feedback to teachers and educators. Educators need to know more about the quality of the product they produce (i.e., the students). Is the client (i.e., the employer) happy with the quality of the product or (if it were like other products) would it be returned for repairs or replacement? How well prepared are **average** students to enter the workplace? Are they prepared to go to work, or are they entering the work world lost and unprepared.

Schools get frequent and useful feedback about the performance of their college-bound students through college entrance exam scores and college placement rates. Similar feedback is not available for non-college bound students. Educators and the business community in each school district should consider what this lack of feedback is costing the community. Are businesses less competitive due to poorly trained workers? If businesses become less competitive and fail, what is the loss to the school district in terms of lost revenue? When these costs are examined, perhaps both educators and businesses will realize effective, working partnerships which provide feedback and improve training are a good investment. Information exchange should focus upon how the nature of work is changing -- what impact technology or new management practices have on job skill requirements.

4. The business community and the education system must commit to developing effective business-education partnerships.

Business-education partnerships should be created and strengthened in every community in Kansas. What is an effective working partnership? Each community must decide what works. However, several elements should be considered. The partnerships must evolve so the K-12 education system does not continue to produce graduates who add little productive value to the firms which employ them. Business-education partnerships must focus upon developing technical preparation programs and school-to-work programs that produce students who are ready to enter the labor market with skills needed by employers. This will require the business community to become more familiar with current educational practices and teachers to become more familiar with the workplace. Are teachers familiar with and comfortable in non-educational work settings? Can teachers participate in summer programs, internships, or sabbatical programs in business and industry that prepare them to train students for high-skill, high-wage jobs? Do teachers (and their students) have access to hands-on experiences in business and industrial settings? Do teachers get credit (in

terms of promotion, salary, etc.) for such training in the same way that they get credit for attending education classes at colleges and universities? Are there communities in this state and in neighboring states where business-education partnerships are providing this type of information exchange and teacher support? Other communities may find it useful to examine how those partnerships evolved so they can begin to develop effective partnerships in their own communities.

5. Inform students and parents of post-secondary training options.

Parents and students must realize that some form of post-secondary education or training is essential and that many options are available. For students who do not wish to enter a four-year degree program, other options must be available and well publicized. Guidance counselors must be prepared to help these students and their parents learn about school-to-work programs, apprenticeship programs, two-year associate degree programs, and technical training programs. Students must have available to them a coordinated system which provides quality training and allows credit for training in one part of the system (e.g., community college) to count in another part of the system (e.g., university) as their training goals change. As clients of the education system, students should be assured that the system will be flexible enough to recognize skills developed on the job and not require training or course work in areas where competency already exists.

6. Create tech prep programs, school-to-work programs, and apprenticeship programs that are academically sound and linked to the business world.²¹

Businesses and industries in desperate need of more qualified workers and unhappy with new recruits from the state's secondary schools must support and invest in training high school students through apprenticeship programs and other programs that link school to jobs. Teachers and employers must work together to develop courses that develop necessary skills and demand high performance levels. Working together, employers and teachers can share information and solve problems regarding curriculum (i.e., what skills need to be trained), performance evaluation (i.e., student grades), quality issues (i.e., how to improve low grades or unacceptable performance). Involvement at the level of the teacher, not just at the level of the administrator (e.g., principal or state curriculum planning committees), may benefit all. Businesses communicate their needs directly, teachers get support, and students are given a reason to learn by making their academic courses relevant to their lives and focused upon the need for quality performance.

The state has been moving too slowly in this area. Lack of or weak tech prep programs contribute to the serious gap between job skill requirements and the skills of the young worker. Every school district should have a serious, high-quality tech prep program by the year 2000. Tech

²¹Programs should focus upon training skills that result in employment in jobs that pay a living wage. Sending students to work making hamburgers at a fast food restaurant does not prepare the student to earn a living wage and should not be approved as a school-to-work program.

prep programs are not old vo-tech programs with new names. Serious, high-quality tech programs should be linked to two-year technical training or associate degree programs so students receive the post-secondary technical training that current and future jobs require.

7. Support Adult Basic Education (ABE) to enable those who have already left the education system improve their basic skills.

Many workers or potential workers in Kansas have basic skills (reading, math, writing, communication) which are under- or undeveloped. These people may have graduated many years ago, may have completed high school last year, may have dropped out of high school, or may be entering the job market because of welfare reform. ABE programs need to be a higher priority in Kansas. Instead of asking what is the least amount of state dollars needed to receive Federal support for these programs, the state needs to adopt a more strategic view and invest at levels that address the need for ABE created by older workers as well as welfare reform and school drop outs. Currently ABE programs focus upon those preparing to take GED tests. Resources barely meet those needs, so programs have difficulty serving those who need to upgrade basic skills but do not need a GED.²² With adequate funding, ABE programs provide support for those seeking to improve basic skills.

CONCLUSION

The state must continue to invest in education and training at all levels as a strategy for improving its human capital and hence its competitive position. Kansans must realize that, to avoid becoming a "Third World" state with low-paying jobs, Kansas must shift--and shift rapidly--to "knowledge" work. Knowledge work requires skilled workers, not just workers who hold high school diplomas. Diplomas seem not to be the answer for Kansas. The state ranks high in number of workers who have high school diplomas, but employers complain about the lack of skills. Fundamental, systemic changes may be necessary to produce workers who can perform knowledge work and escape from low paying, general labor jobs. Community, regional, and state leaders must focus upon utilizing limited education and training resources at all levels to improve service delivery. The state's leaders must take the lead in articulating the strategic importance of education in preparing the Kansas workforce for the twenty-first century. Kansas' competitive advantage will be its workforce.

²²Krider, C.E., Ash, R., Schwaller, H., & Stella, M.E. *Adult Basic Skills and the Kansas Workforce*. Institute for Public Policy and Business Research, University of Kansas, 1991.

Appendix A

Data Analysis for Each Survey Question

Table 1
Survey Sampling Strategy:
Number of Firms by Type and Size

Number of Firms in DHR Database				
Meeting Inclusion Criteria:*				
	<u>Total</u>	<u>Small</u> <u>(5-49)</u>	<u>Medium</u> <u>(50-250)</u>	<u>Large</u> <u>(251+)</u>
Manufacturing	2,006	1,410	462	134
Non-Manufacturing	24,670	21,630	2,599	441
Total	26,676	23,040	3,061	575
Number of Firms Picked Randomly to be Contacted:				
	<u>Total</u>	<u>Small</u> <u>(5-49)</u>	<u>Medium</u> <u>(50-250)</u>	<u>Large</u> <u>(251+)</u>
Manufacturing	1,096	500	462	134
Non-Manufacturing	1,392	500	500	392
Total	2,488	1,000	962	526
Firms Completing the Survey:				
	<u>Total</u>	<u>Small</u> <u>(5-49)</u>	<u>Medium</u> <u>(50-250)</u>	<u>Large</u> <u>(251+)</u>
Manufacturing	300	154	114	32
	50%	26%	19%	5%
Non-Manufacturing	300	96	125	79
	50%	16%	21%	13%
Total	600	250	239	111
	100%	42%	40%	18%

*Selection criteria: Five or more employees; Not a food store, eating and drinking place, membership organization, personal services, or miscellaneous type of business.

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q1a
How many employees do you have in your firm?

	No. of Firms	Mean	Std.Dev.
<i>Sample:</i>			
Total	598	251.11	807.66
<i>By Firm Size:</i>			
Small	249	38.61	116.79
Medium	238	214.01	787.28
Large	111	807.37	1325.39
<i>By Firm Type:</i>			
Manufacturing	300	149.77	538.06
Non-manufacturing	298	353.14	999.46
<i>By Firm Setting:</i>			
Rural	116	147.72	791.62
Mid-size	142	159.84	236.31
Urban	255	256.51	845.73

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q1b
**Approximately how many employees of each of the following types
does your company employ?**

	No. of Firms	Mean	Median	Std.Dev.
Clerical	591	27.05	4.00	91.01
Computer support staff	587	6.55	1.00	25.59
Designer/draftsmen	585	2.87	0.00	29.23
Chemical process/lab technicians	583	2.11	0.00	12.62
Engineers	582	6.84	0.00	98.49
Business/management personnel	587	46.97	5.00	294.08
Skilled trades/crafts personnel	587	29.31	4.00	104.45
General labor/operatives	580	71.74	5.00	436.19
Other	562	65.33	0.00	396.56

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q 1b
**Approximately how many employees of each of the following types
does your company employ?**
By firm size

	<i>Mean:</i>			Overall
	Small	Medium	Large	F-Ratio
Clerical	3.98	18.36	97.08	48.15**
Computer support staff	1.47	5.21	20.58	23.25**
Designer/draftsmen	0.51	2.86	8.08	2.54
Chemical process/lab technicians	1.15	1.26	6.01	6.60**
Engineers	0.64	2.53	29.46	3.63*
Business/management personnel	4.72	28.13	178.37	14.70**
Skilled trades/crafts personnel	13.37	31.57	59.59	7.67**
General labor/operatives	7.40	48.88	262.98	14.04**
Other	6.54	27.61	304.42	22.55**

*p ≤ .05

** p ≤ .01

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q1b
Approximately how many employees of each of the following types
does your company employ?
By firm type

	<i>Mean:</i>		T-Value
	Manufacturing	Non-Manufacturing	
Clerical	12.03	42.54	-4.1**
Computer support staff	3.35	9.86	-3.1**
Designer/draftsmen	2.09	3.69	-0.7
Chemical process/lab technicians	2.01	2.21	-0.2
Engineers	2.79	11.07	-1.0
Business/management personnel	22.66	71.87	-2.0*
Skilled trades/crafts personnel	34.48	23.99	1.2
General labor/operatives	83.17	59.82	0.6
Other	7.17	126.47	-3.6**

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q1b
Approximately how many employees of each of the following types
does your company employ?
By firm setting

	<i>Mean:</i>			Overall
	Rural	Mid-size	Urban	F-Ratio
Clerical	12.46	17.08	33.03	2.54
Computer support staff	3.04	3.20	7.78	2.59
Designer/draftsmen	0.86	1.11	5.22	1.13
Chemical process/lab technicians	1.07	1.56	2.84	0.83
Engineers	1.45	1.67	11.93	0.61
Business/management personnel	23.96	13.51	30.93	0.98
Skilled trades/crafts personnel	32.84	26.66	25.63	0.24
General labor/operatives	58.33	47.92	61.36	0.04
Other	15.32	32.06	71.08	1.26

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q2a

Indicate your firm's current strategy regarding technology in core business processes.

Sample:	Use Less Sophisticated		Use Moderately Sophisticated		Use Highly Sophisticated	
	Scale: (0)		(1)		(2)	
	N	%	N	%	N	%
Total	64	11%	379	63%	157	26%
By Firm Size:*						
Small	38	15%	154	62%	58	23%
Medium	19	8%	157	66%	63	26%
Large	7	6%	68	61%	36	32%
By Firm Type:						
Manufacturing	34	11%	199	66%	67	22%
Non-Manufacturing	30	10%	180	60%	90	30%
By Firm Setting:						
Rural	17	15%	76	65%	23	20%
Mid-Sized	20	14%	89	62%	34	24%
Urban	20	8%	165	64%	71	28%

*Chi Square $p \leq .02$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q2a

Indicate your firm's current strategy regarding technology in core business processes.

Scale: 0 = Use less sophisticated; 1 = Use moderately sophisticated; 2 = Use highly sophisticated

<i>Sample:</i>	Mean	Std. Dev.	N
Total	1.15	.59	600
 <i>By Firm Size:**</i>			
Small	1.08	.62	250
Medium	1.18	.56	239
Large	1.26	.57	111
<i>Overall F-Ratio</i>	4.19		
 <i>By Firm Type: *</i>			
Manufacturing	1.11	.57	300
Non-Manufacturing	1.20	.60	300
<i>T-Value</i>	-1.88		
 <i>By Firm Setting: *</i>			
Rural	1.05	.59	116
Mid-Sized	1.10	.61	143
Urban	1.20	.56	256
<i>Overall F-Ratio</i>	3.03		

* $p \leq .05$

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q2b
Indicate your firm's current strategy regarding employee skill levels.
Core work processes use...

	Relatively low skill levels		Average skill levels		Very high skill levels	
	<i>Scale:</i> (0)		(1)		(2)	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Sample:						
Total	47	8%	377	63%	176	29%
By Firm Size:						
Small	20	8%	148	59%	82	33%
Medium	20	8%	161	67%	58	24%
Large	7	6%	68	61%	36	32%
By Firm Type:**						
Manufacturing	29	10%	204	68%	67	22%
Non-Manufacturing	18	6%	173	58%	109	36%
By Firm Setting:						
Rural	12	10%	75	65%	29	25%
Mid-Sized	15	10%	90	63%	38	27%
Urban	12	5%	159	62%	85	33%

**Chi Square $p \leq .001$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q2b

Indicate your firm's current strategy regarding employee skill levels.

Scale: 0 = Relatively low; 1 = Average; 2 = Very high

<i>Sample:</i>	Mean	Std. Dev.	N
Total	1.21	.57	600
<i>By Firm Size:</i>			
Small	1.25	.59	250
Medium	1.16	.55	239
Large	1.26	.57	111
<i>Overall F-Ratio</i>	1.93		
<i>By Firm Type:**</i>			
Manufacturing	1.13	.55	300
Non-Manufacturing	1.30	.58	300
<i>T-Value</i>	-3.83		
<i>By Firm Setting:*</i>			
Rural	1.15	.58	116
Mid-Sized	1.16	.59	143
Urban	1.28	.55	256
<i>Overall F-Ratio</i>	3.45		

* $p \leq .05$

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q2c

Indicate your firm's current strategy regarding employee compensation.
Wages relative to the market are...

Sample:	Low		Moderately Low		Average		Moderately High		High	
	Scale: (0)		(1)		(2)		(3)		(4)	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Total	7	1%	68	11%	279	47%	223	37%	23	4%
By Firm Size:										
Small	3	1%	26	10%	111	44%	103	41%	7	3%
Medium	1	<1%	31	13%	108	45%	90	38%	9	4%
Large	3	3%	11	10%	60	54%	30	27%	7	6%
By Firm Type:										
Manufacturing	0	0%	33	11%	143	48%	110	37%	14	5%
Non-Manufacturing	7	2%	35	12%	136	45%	113	38%	9	3%
By Firm Setting:										
Rural	1	1%	14	12%	57	49%	37	32%	7	6%
Mid-Sized	1	1%	23	16%	63	44%	51	36%	5	3%
Urban	2	<1%	22	9%	123	48%	102	40%	7	3%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q2c

Indicate your firm's current strategy regarding employee compensation.
Wages relative to the market.

Scale: 0 = Low; 1 = Moderately low; 2 = Average; 3 = Moderately high; 4 = High

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.31	.77	600
<i>By Firm Size:</i>			
Small	2.34	.75	250
Medium	2.31	.76	239
Large	2.24	.82	111
<i>Overall F-Ratio</i>	.61		
<i>By Firm Type:</i>			
Manufacturing	2.35	.74	300
Non-Manufacturing	2.27	.80	300
<i>T-Value</i>	1.22		
<i>By Firm Setting:</i>			
Rural	2.30	.79	116
Mid-Sized	2.25	.79	143
Urban	2.35	.71	256
<i>Overall F-Ratio</i>	.82		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q2a, 2b, 2c
Self-Evaluation of Employee Skills and Compensation by Technology Sophistication
Percentage of Firms

	Technology Used in Core Business Processes:		
	Less Sophisticated	Moderately Sophisticated	Highly Sophisticated
Employee Skill Level:*			
Low skill level	25%	7%	3%
Average skill level	55%	69%	52%
Very high skill level	20%	24%	45%
Employee Compensation:**			
Low: Well below market level	3%	1%	1%
Moderately low: Slightly below the market	19%	12%	6%
Average: Attempt to match the market	47%	48%	43%
Moderately high: Slightly above the market	30%	36%	44%
High: Well above the market	1%	3%	6%

* Chi Square $p \leq .00001$

** Chi Square $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q2a, 2b, 2c
Self-Evaluation of Employee Compensation by Employee Skill Level
Percentage of Firms

	Employee Skill Level:		
	Low	Average	High
Employee Compensation:*			
Low: Well below market level	2%	1%	1%
Moderately low: Slightly below the market	26%	11%	8%
Average: Attempt to match the market	57%	50%	35%
Moderately high: Slightly above the market	13%	35%	49%
High: Well above the market	2%	3%	7%

* Chi Square $p \leq .00001$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q3a
**Over the last five years, have the skill requirements increased or decreased
for entry level jobs at your firm?**

Sample:	Decreased Significantly		Decreased Slightly		Remained Unchanged		Increased Slightly		Increased Significantly	
	<i>Scale:</i> (0)		(1)		(2)		(3)		(4)	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Total	4	1%	13	2%	159	26%	292	49%	131	22%
<i>By Firm Size:*</i>										
Small	2	1%	5	2%	85	34%	109	44%	49	20%
Medium	2	1%	6	3%	55	23%	127	53%	48	20%
Large	0	0%	2	2%	19	17%	56	50%	34	31%
<i>By Firm Type:**</i>										
Manufacturing	2	<1%	6	2%	90	30%	155	52%	47	16%
Non-Manufacturing	2	<1%	7	2%	69	23%	137	46%	84	28%
<i>By Firm Setting:</i>										
Rural	0	0%	2	2%	40	35%	52	45%	21	18%
Mid-Sized	1	1%	2	1%	41	29%	73	51%	26	18%
Urban	3	1%	7	3%	62	24%	122	48%	62	24%

*Chi-Square $p \leq .05$

**Chi-Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q3a

**Over the last five years, have the skill requirements increased or decreased
for entry level jobs at your firm?**

Scale: 0 = Decreased significantly; 1 = Decreased slightly; 2 = Remained unchanged; 3 = Increased slightly;
4 = Increased significantly

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.89	.79	599
 <i>By Firm Size:**</i>			
Small	2.79	.80	250
Medium	2.89	.77	238
Large	3.10	.74	111
<i>Overall F-Ratio</i>	5.95		
 <i>By Firm Type:**</i>			
Manufacturing	2.80	.75	300
Non-Manufacturing	2.98	.82	299
<i>T-Value</i>	-2.92		
 <i>By Firm Setting:</i>			
Rural	2.80	.75	115
Mid-Sized	2.85	.75	143
Urban	2.91	.83	256
<i>Overall F-Ratio</i>	.84		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q3b

How do the skill levels of the newly hired employees today compare to the skill levels of newly hired employees five years ago?

Sample:	Decreased Significantly		Decreased Slightly		Remained Unchanged		Increased Slightly		Increased Significantly	
	Scale: (0)		(1)		(2)		(3)		(4)	
	N	%	N	%	N	%	N	%	N	%
Total	44	7%	97	16%	196	33%	189	32%	66	11%
By Firm Size:*										
Small	21	8%	34	14%	9	39%	72	29%	24	10%
Medium	13	5%	47	20%	77	33%	72	31%	27	11%
Large	10	9%	16	14%	24	22%	45	41%	15	14%
By Firm Type:**										
Manufacturing	28	9%	59	20%	100	34%	80	27%	29	10%
Non-Manufacturing	16	5%	38	13%	96	32%	109	37%	37	13%
By Firm Setting:										
Rural	3	3%	16	14%	45	40%	37	33%	10	9%
Mid-Sized	13	9%	21	15%	49	34%	42	30%	17	12%
Urban	21	8%	44	17%	79	31%	77	30%	33	13%

*Chi-Square $p \leq .05$

**Chi-Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q3b

How do the skill levels of the newly hired employees today compare to the skill levels of newly hired employees five years ago?

Scale: 0 = Decreased significantly; 1 = Decreased slightly; 2 = Remain unchanged; 3 = Increased slightly; 4 = Increased significantly

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.23	1.08	592
<i>By Firm Size:</i>			
Small	2.18	1.06	246
Medium	2.22	1.07	236
Large	2.35	1.16	110
<i>Overall F-Ratio</i>	1.00		
<i>By Firm Type:**</i>			
Manufacturing	2.08	1.11	296
Non-Manufacturing	2.38	1.03	296
<i>T-Value</i>	-3.44		
<i>By Firm Setting:</i>			
Rural	2.31	.92	111
Mid-Sized	2.20	1.12	142
Urban	2.22	1.13	254
<i>Overall F-Ratio</i>	.37		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q3c

What are your minimum educational and training standards for employment at your firm?

Sample:	Less than HS degree		HS Degree		HS + Tech.Degree		Some College		College Degree	
	Scale: (0)		(1)		(2)		(3)		(4)	
	N	%	N	%	N	%	N	%	N	%
Total	152	26%	343	57%	59	10%	23	4%	20	3%
By Firm Size:										
Small	63	25%	135	54%	30	12%	12	5%	8	3%
Medium	70	29%	138	58%	17	7%	6	3%	7	3%
Large	19	17%	70	63%	12	11%	5	4.5%	5	4.5%
By Firm Type:**										
Manufacturing	81	27%	176	59%	31	10%	7	2%	3	1%
Non-Manufacturing	71	24%	167	56%	28	9%	16	5%	17	6%
By Firm Setting:										
Rural	29	25%	72	62%	10	9%	2	2%	3	3%
Mid-Sized	41	29%	85	59%	13	9%	2	1%	2	1%
Urban	58	23%	138	54%	29	11%	16	6%	13	5%

**Chi-Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q3c
**What are your minimum educational and training standards
for employment at your firm?**

<i>Sample:</i>	Mean	Std. Dev.	N
Total	1.02	.90	597
 <i>By Firm Size:*</i>			
Small	1.06	.93	248
Medium	.92	.85	238
Large	1.16	.92	111
<i>Overall F-Ratio</i>	3.25		
 <i>By Firm Type:**</i>			
Manufacturing	.91	.74	298
Non-Manufacturing	1.13	1.02	299
<i>T-Value</i>	-3.07		
 <i>By Firm Setting:**</i>			
Rural	.95	.80	116
Mid-Sized	.87	.74	143
Urban	1.16	1.02	254
<i>Overall F-Ratio</i>	5.50		

* $p \leq .05$

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q3d

Consider the typical high school graduate who is hired by your firm. How ready is this person to add productive value to your firm?

Sample:	Poorly Prepared		Adequate				Well Prepared			
	Scale: (1)		(2)		(3)		(4)		(5)	
	N	%	N	%	N	%	N	%	N	%
Total	73	13%	106	18%	307	53%	55	10%	33	6%
By Firm Size:										
Small	34	14%	39	16%	127	53%	20	9%	18	8%
Medium	27	12%	42	18%	127	56%	21	9%	12	5%
Large	12	11%	25	23%	53	50%	14	13%	3	3%
By Firm Type:**										
Manufacturing	47	16%	59	21%	148	51%	20	7%	14	5%
Non-Manufacturing	26	9%	47	16%	159	56%	35	12%	19	7%
By Firm Setting:										
Rural	8	7%	20	18%	59	54%	10	9%	12	11%
Mid-Sized	16	12%	30	22%	72	52%	14	10%	6	4%
Urban	38	16%	40	16%	131	54%	25	10%	10	4%

**Chi-Square $p \leq 0.01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q3d

Consider the typical high school graduate who is hired by your firm. On a five point scale, how ready is this person to add productive value to your firm?

Scale: 1 = Poorly prepared; 3 = Adequate; 5 = Well prepared

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.77	.98	574
<i>By Firm Size:</i>			
Small	2.79	1.04	238
Medium	2.78	.95	229
Large	2.73	.93	107
<i>Overall F-Ratio</i>	.13		
<i>By Firm Type:**</i>			
Manufacturing	2.63	1.0	288
Non-Manufacturing	2.91	.95	286
<i>T-Value</i>	-3.36		
<i>By Firm Setting:*</i>			
Rural	2.98	1.01	109
Mid-Sized	2.74	.95	138
Urban	2.71	.99	244
<i>Overall F-Ratio</i>	3.06		

* $p \leq .05$

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q4a-b

Does your firm intentionally employ people trained in technical or vocational areas at local community colleges?

1996	N	%
No	348	59%
Yes	244	41%
<i>Total</i>	<i>592</i>	

1989	N	%
No		55%
Yes		45%
<i>Total</i>	<i>615</i>	

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q4b

How satisfied are you with the technical or vocational skills of your employees with training from these community colleges?

		Very dis- satisfied	Dis- satisfied	Neutral	Satisfied	Very Satisfied
	<i>Scale: (1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>	
1996	N=240	1%	5%	20%	48%	25%
1989	N=253	(1) 3%	(2) 6%		(3) 70%	(4) 21%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q4b**How satisfied are you with the technical or vocational skills of
your employees with training from these community colleges?**

Scale: 0 = Very dissatisfied; 1 = Dissatisfied; 2 = Neutral; 3 = Satisfied; 4 = Very satisfied

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.90	.88	240
<i>By Firm Size:</i>			
Small	2.84	.95	71
Medium	2.92	.84	116
Large	2.94	.89	53
<i>Overall F-Ratio</i>	.24		
<i>By Firm Type:</i>			
Manufacturing	2.88	.88	126
Non-Manufacturing	2.93	.88	114
<i>T-Value</i>	-.43		
<i>By Firm Setting:</i>			
Rural	2.98	.93	41
Mid-Sized	2.87	.92	61
Urban	2.87	.86	99
<i>Overall F-Ratio</i>	.23		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q5a-b

Does your firm intentionally employ people trained in technical or vocational areas at local area vocational technical schools?

1996	N	%
No	369	63%
Yes	220	37%
<i>Total</i>	<i>589</i>	

1989	N	%
No		54%
Yes		46%
<i>Total</i>	<i>615</i>	

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q5b

How satisfied are you with the technical or vocational skills of your employees with training from these vocational technical schools?

		Very dis- satisfied	Dis- satisfied	Neutral	Satisfied	Very Satisfied
	<i>Scale:</i>	<i>(0)</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>
1996	N: 217	1%	10%	15%	51%	22%
1989	264	<i>(1)</i> 3%	<i>(2)</i> 8%		<i>(3)</i> 65%	<i>(4)</i> 24%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q5b

How satisfied are you with the technical or vocational skills of your employees with training from these vocational technical schools?

Scale: 0 = Very dissatisfied; 1 = Dissatisfied; 2 = Neutral; 3 = Satisfied; 4 = Very satisfied

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.82	.94	217
<i>By Firm Size:</i>			
Small	2.71	1.05	62
Medium	2.83	.92	109
Large	2.98	.80	46
<i>Overall F-Ratio</i>	1.09		
<i>By Firm Type:</i>			
Manufacturing	2.75	.99	122
Non-Manufacturing	2.93	.85	95
<i>T-Value</i>	-1.41		
<i>By Firm Setting:</i>			
Rural	2.97	1.01	33
Mid-Sized	2.80	.82	56
Urban	2.74	1.02	97
<i>Overall F-Ratio</i>	.68		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q6a

Does your firm intentionally employ people trained in technical or vocational areas at state universities?

	1996	N	%
No		370	63%
Yes		214	37%
<i>Total</i>		584	

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q6b

How satisfied are you with the technical or vocational skills of your employees with training from the state universities?

	Very dissatisfied	Dis- satisfied	Neutral	Satisfied	Very Satisfied
	<i>Scale: (0)</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>
1996	N=215 1%	<1%	10%	43%	46%
		<i>Mean 3.326</i>			
		<i>Median 3.000</i>			
		<i>Std. Dev. .746</i>			

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q6b

**How satisfied are you with the technical or vocational skills of
your employees with training from the state universities?**

Scale: 0 = Very dissatisfied; 1 = Dissatisfied; 2 = Neutral; 3 = Satisfied; 4 = Very satisfied

<i>Sample:</i>	Mean	Std. Dev.	N
Total	3.33	.75	215
<i>By Firm Size:</i>			
Small	3.35	.78	49
Medium	3.34	.70	102
Large	3.28	.81	64
<i>Overall F-Ratio</i>	.16		
<i>By Firm Type:</i>			
Manufacturing	3.41	.66	94
Non-Manufacturing	3.26	.80	121
<i>T-Value</i>	1.55		
<i>By Firm Setting:</i>			
Rural	3.38	.70	34
Mid-Sized	3.33	.74	51
Urban	3.29	.79	86
<i>Overall F-Ratio</i>	.19		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q7a

How would you describe the gap between the qualifications of newly hired skilled workers and the needs of your business?

Q7b

How would you describe the gap between the qualifications of newly hired skilled workers with vocational training and the needs of your business?

<i>Scale:</i>	Percent Responding:				<i>Mean/Median S.D.</i>
	(1) Severe Gap	(2) Moderate Gap	(3) Slight Gap	(4) No Gap	
Newly hired workers (N=503)	11%	43%	36%	11%	2.47/2.0 0.82
<i>Newly hired workers - 1989 survey (N=595)</i>	15%	43%	30%	12%	2.40/2.0 0.89
Workers with vocational training (N=178)	4%	28%	48%	20%	2.84/3.0 0.79

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q7a

How would you describe the gap between the qualifications of newly hired skilled workers and the needs of your business?

Scale: 1 = Severe gap; 2 = Moderate gap; 3 = Slight gap; 4 = No gap

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.47	.82	503
<i>By Firm Size:</i>			
Small	2.50	.86	208
Medium	2.48	.84	202
Large	2.35	.67	93
<i>Overall F-Ratio</i>	1.06		
<i>By Firm Type:</i>			
Manufacturing	2.42	.83	280
Non-Manufacturing	2.52	.80	223
<i>T-Value</i>	-1.45		
<i>By Firm Setting:*</i>			
Rural	2.65	.83	98
Mid-Sized	2.38	.81	117
Urban	2.42	.83	214
<i>Overall F-Ratio</i>	3.50		

* $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q7b

How would you describe the gap between the qualifications of newly hired skilled workers with vocational training and the needs of your business?

Scale: 1 = Severe gap; 2 = Moderate gap; 3 = Slight gap; 4 = No gap

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.84	.79	178
<i>By Firm Size:</i>			
Small	2.79	.81	38
Medium	2.85	.79	86
Large	2.87	.78	54
<i>Overall F-Ratio</i>	.12		
<i>By Firm Type:</i>			
Manufacturing	2.85	.73	83
Non-Manufacturing	2.83	.83	95
<i>T-Value</i>	.20		
<i>By Firm Setting:</i>			
Rural	2.83	.82	24
Mid-Sized	2.92	.77	48
Urban	2.82	.80	73
<i>Overall F-Ratio</i>	.22		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q8
How difficult is it to find skilled employees for your firm in Kansas?

Q9
How difficult is it to hire full-time skilled employees today compared to two or three years ago?

Q10
Compared to today, how difficult do you think it will be to hire full-time skilled employees two or three years from now?

<i>Scale:</i>	Percent Responding:				Mean/Median S.D.
	(1) Extremely Difficult	(2) Moderately Difficult	(3) Somewhat Difficult	(4) Rather Easy	
Difficulty finding today (N=583)	24%	29%	25%	22%	2.44/2.0 1.08
1989(N=611)	20%	31%	26%	23%	2.5/2.0 1.05

<i>Level of Difficulty:</i>					Mean/Median S.D.
	(1) Much More	(2) Slightly More	(3) Slightly Less	(4) Much Less	
Today vs. 2-3 years ago (N=526)	23%	32%	36%	8%	2.30/2.0 0.92
1989(N=555)	20%	42%	31%	7%	2.2/2.0 0.85
2-3 years from now (N=538)	26%	31%	33%	10%	2.28/2.0 0.96
1989(N=574)	27%	43%	24%	6%	2.1/2.0 0.87

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q8
How difficult is it to find skilled employees for your firm in Kansas?

Q9
How difficult is it to hire full-time skilled employees today compared to two or three years ago?

Q10
Compared to today, how difficult do you think it will be to hire full-time skilled employees two or three years from now?

	Small		Medium		Large	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
<i>Today:**</i>						
(1) Extremely difficult	57	23%	61	26%	23	21%
(2) Moderately difficult	69	28%	64	27%	35	33%
(3) Somewhat difficult	48	20%	70	30%	30	28%
(4) Rather easy	69	28%	38	16%	19	18%
Total Number	243	42%	233	40%	107	18%
<i>2-3 years ago:*</i>						
(1) Much more difficult	37	17%	58	27%	28	29%
(2) Slightly more difficult	65	30%	69	32%	35	36%
(3) Slightly less difficult	93	43%	68	32%	29	30%
(4) Much less difficult	19	9%	19	9%	6	6%
Total Number	214	41%	214	41%	98	19%
<i>2-3 years from now:*</i>						
(1) Much more difficult	49	22%	60	28%	29	28%
(2) Slightly more difficult	59	27%	66	31%	43	42%
(3) Slightly less difficult	83	38%	71	33%	23	22%
(4) Much less difficult	29	13%	18	8%	8	8%
Total Number	220	41%	215	40%	103	19%

Small, 5-49 employees; Medium, 50-250 employees; Large, 251+ employees.

*Chi Square $p \leq .05$

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q8
How difficult is it to find skilled employees for your firm in Kansas?

Q9
How difficult is it to hire full-time skilled employees today compared to two or three years ago?

Q10
Compared to today, how difficult do you think it will be to hire full-time skilled employees two or three years from now?

	Manufacturing		Non-Manufacturing	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
<i>Today:*</i>				
(1) Extremely difficult	76	26%	65	22%
(2) Moderately difficult	95	33%	73	25%
(3) Somewhat difficult	60	21%	88	30%
(4) Rather easy	60	21%	66	23%
Total Number	291	50%	292	50%
<i>2-3 years ago:</i>				
(1) Much more difficult	64	24%	59	23%
(2) Slightly more difficult	94	35%	75	29%
(3) Slightly less difficult	92	34%	98	38%
(4) Much less difficult	17	6%	27	10%
Total Number	267	51%	259	49%
<i>2-3 years from now:</i>				
(1) Much more difficult	69	25%	69	26%
(2) Slightly more difficult	90	33%	78	29%
(3) Slightly less difficult	88	32%	89	33%
(4) Much less difficult	24	9%	31	12%
Total Number	271	50%	267	50%

* Chi Square $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q8

How difficult is it to find skilled employees for your firm in Kansas?

Q9

How difficult is it to hire full-time skilled employees today compared to two or three years ago?

Q10

Compared to today, how difficult do you think it will be to hire full-time skilled employees two or three years from now?

	Rural		Mid-Sized		Urban	
	N	%	N	%	N	%
<i>Today:*</i>						
(1) Extremely difficult	21	19%	33	24%	71	28%
(2) Moderately difficult	23	21%	41	29%	77	31%
(3) Somewhat difficult	36	32%	38	27%	51	20%
(4) Rather easy	31	28%	27	19%	53	21%
Total Number	111	22%	139	28%	252	50%
<i>2-3 years ago:**</i>						
(1) Much more difficult	19	19%	22	18%	69	31%
(2) Slightly more difficult	24	23%	41	33%	69	31%
(3) Slightly less difficult	50	49%	47	38%	66	30%
(4) Much less difficult	9	9%	13	11%	18	8%
Total Number	102	23%	123	27%	222	50%
<i>2-3 years from now:</i>						
(1) Much more difficult	21	20%	28	22%	71	31%
(2) Slightly more difficult	33	31%	44	34%	60	27%
(3) Slightly less difficult	36	34%	46	36%	68	30%
(4) Much less difficult	15	14%	11	8%	27	21%
Total Number	105	32%	129	28%	226	49%

Urban counties: Johnson, Leavenworth, Miami, Wyandotte, Douglas, Shawnee, Butler, Harvey Sedgwick.
Mid-sized: Atchison, Barton, Cowley, Crawford, Ellis, Finney, Ford, Franklin, Geary, Labette, Lyon, McPherson, Montgomery, Reno, Riley, Saline, Seward. *Rural:* All others.

* Chi Square $p \leq .05$

** Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q8a

How difficult is it to find skilled employees for your firm in Kansas?

Scale: 1 = extremely difficult; 2 = moderately difficult; 3 = somewhat difficult; 4 = rather easy.

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.44	1.08	583
<i>By Firm Size:</i>			
Small	2.53	1.14	243
Medium	2.36	1.04	233
Large	2.42	1.02	107
Overall F-Ratio	1.44		
<i>By Firm Type:</i>			
Manufacturing	2.36	1.08	291
Non-Manufacturing	2.53	1.07	292
T-Value	-1.94*		
<i>By Firm Setting:</i>			
Rural	2.69	1.08	111
Mid-Sized	2.42	1.06	139
Urban	2.34	1.10	252
Overall F-Ratio	4.10*		

* $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q9a
How difficult is it to hire full-time skilled employees today
compared to two or three years ago?

Scale: 1 = Much more difficult; 2 = Slightly more difficult; 3 = Slightly less difficult; 4 = Much less difficult

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.29	.92	526
 <i>By Firm Size:**</i>			
Small	2.44	.88	214
Medium	2.22	.95	214
Large	2.13	.90	98
<i>Overall F-Ratio</i>	4.87		
 <i>By Firm Type:</i>			
Manufacturing	2.23	.89	267
Non-Manufacturing	2.36	.95	259
<i>T-Value</i>	-1.59		
 <i>By Firm Setting:**</i>			
Rural	2.48	.90	102
Mid-Sized	2.41	.90	123
Urban	2.15	.96	222
<i>Overall F-Ratio</i>	5.80		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q10a

**Compared to today, how difficult do you think it will be to hire full-time skilled employees
two or three years from now?**

Scale: 1 = Much more difficult; 2 = Slightly more difficult; 3 = Slightly less difficult; 4 = Much less difficult

<i>Sample:</i>	Mean	Std. Dev.	N
Total	2.28	.96	538
<i>By Firm Size:**</i>			
Small	2.42	.98	220
Medium	2.22	.95	215
Large	2.10	.90	103
<i>Overall F-Ratio</i>	4.66		
<i>By Firm Type:</i>			
Manufacturing	2.25	.94	271
Non-Manufacturing	2.31	.98	267
<i>T-Value</i>	-.72		
<i>By Firm Setting:</i>			
Rural	2.43	.97	105
Mid-Sized	2.31	.91	129
Urban	2.23	1.02	226
<i>Overall F-Ratio</i>	1.56		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q11a

How would you describe the gap between the qualifications of your present skilled workers and the needs of your business?

Scale: 1 = Severe gap; 2 = Moderate gap; 3 = Slight gap; 4 = No gap

<i>Sample:</i>	Mean	Std. Dev.	N
Total	3.06	.72	592
<i>By Firm Size:</i>			
Small	3.12	.76	244
Medium	3.06	.70	237
Large	2.90	.67	111
<i>Overall F-Ratio</i>	3.51*		
<i>By Firm Type:</i>			
Manufacturing	3.07	.75	295
Non-Manufacturing	3.04	.69	297
<i>T-Value</i>	.40		
<i>By Firm Setting:</i>			
Rural	3.03	.80	116
Mid-Sized	2.99	.69	138
Urban	3.08	.72	254
<i>Overall F-Ratio</i>	.70		

* $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q11

How would you describe the gap between the qualifications of your present skilled workers and the needs of your business?

<i>Scale:</i>	Percent Responding:
(1) Severe gap	1%
(2) Moderate gap	19%
(3) Slight gap	52%
(4) No gap	28%
 <i>Mean</i>	 3.06
<i>Median</i>	3.00
<i>S.D.</i>	0.72

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q11

How would you describe the gap between the qualifications of your present skilled workers and the needs of your business?

Scale:	Firm Size: *					
	Small		Medium		Large	
	N	%	N	%	N	%
(1) Severe gap	4	2%	3	1%	1	1%
(2) Moderate gap	45	18%	42	18%	28	25%
(3) Slight gap	113	46%	129	54%	63	57%
(4) No gap	82	34%	63	27%	19	17%
Total	244	41%	237	40%	111	19%

	Firm Type:			
	Manufacturing		Non-Manufacturing	
	N	%	N	%
(1) Severe gap	5	2%	3	1%
(2) Moderate gap	59	20%	56	19%
(3) Slight gap	142	48%	163	55%
(4) No gap	89	30%	75	25%
Total	295	50%	297	50%

	Firm Setting: *					
	Rural		Mid-Sized		Urban	
	N	%	N	%	N	%
(1) Severe gap	2	2%	0	0%	6	2%
(2) Moderate gap	29	25%	33	24%	38	15%
(3) Slight gap	48	41%	73	53%	139	55%
(4) No gap	37	32%	32	23%	71	28%
Total	116	23%	138	27%	254	50%

*Chi Square $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q12

In which of the following skills do employees hired by your firm need improvement?

	Number & Percent				1996-1989 % Difference
	Responding Yes:				
	1996		1989		
	N	%	N	%	
<i>Basic Skills</i>					
Listening/oral communication	543	76%	613	72%	4
Writing	545	59%	613	60%	-1
Computation	536	57%	609	52%	5
Reading	547	39%	612	57%	-18*
<i>Thinking Skills</i>					
Problem solving	536	75%	612	70%	-5
Decision making	545	70%			
Comprehension/understanding	542	68%	611	60%	8*
Creative thinking	539	66%			
Willingness to learn	544	53%			
<i>Personal qualities</i>					
Work attitudes/work habits	543	72%	611	77%	-5
Goal-setting/personal motivation	541	73%	615	79%	-9*
Organizational effectiveness/ leadership	542	70%	613	75%	-5
Teamwork	543	69%	616	70%	-1
Interpersonal relations	545	66%	615	60%	6
Adaptability/flexibility	539	62%	612	66%	-4
<i>Technical Skills</i>					
Computer	543	58%	595	47%	11*
Business/management	544	50%	609	57%	-7
Mechanical	545	36%	605	38%	-2
Machine operation	543	34%	603	37%	-3
Skilled trades/crafts	539	32%	604	40%	-8*
General labor	544	32%	609	31%	1
Electrical	534	24%	601	25%	-1
Other technical	541	14%			

* $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q 12
In which of the following skills do employees hired by your firm need improvement?
Percent responding by firm size.

	Small		Medium		Large	
	No	Yes	No	Yes	No	Yes
Basic Skills						
Reading**	70%	30%	59%	41%	43%	57%
Writing**	52%	48%	38%	62%	19%	81%
Computation**	52%	48%	37%	63%	32%	68%
Listening/oral communication**	33%	67%	20%	80%	9%	91%
Thinking Skills						
Creative thinking**	41%	59%	32%	68%	18%	82%
Decision making**	37%	63%	28%	72%	18%	82%
Problem solving**	31%	69%	22%	78%	18%	82%
Comprehension/understanding**	40%	60%	29%	71%	19%	81%
Willingness to learn**	55%	45%	42%	58%	38%	62%
Personal qualities						
Interpersonal relations**	48%	52%	28%	72%	14%	86%
Teamwork**	43%	57%	25%	75%	17%	83%
Goal-setting/personal motivation**	35%	65%	20%	80%	21%	79%
Organizational effectiveness/ leadership**	41%	59%	23%	77%	18%	82%
Adaptability/flexibility**	47%	53%	32%	68%	25%	75%
Work attitudes/work habits**	39%	61%	20%	80%	15%	85%
Technical Skills						
Computer **	50%	50%	41%	59%	28%	72%
Electrical	74%	26%	76%	24%	79%	21%
Business/management**	57%	43%	49%	51%	36%	64%
Mechanical	65%	35%	63%	37%	62%	38%
Machine operation	66%	34%	65%	35%	70%	30%
Skilled trades/crafts	71%	29%	66%	34%	66%	34%
General labor	72%	28%	65%	35%	67%	33%
Other technical*	91%	9%	83%	17%	83%	17%

*Chi Square $p \leq .05$

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q12

In which of the following skills do employees hired by your firm need improvement?
Percent responding by firm type.

	Manufacturing		Non-Manufacturing	
	No	Yes	No	Yes
Basic Skills				
Reading**	55%	45%	68%	32%
Writing	43%	57%	38%	62%
Computation**	36%	64%	51%	49%
Listening/oral communication	22%	78%	26%	74%
Thinking Skills				
Creative thinking	36%	64%	31%	69%
Decision making	31%	69%	28%	72%
Problem solving	26%	74%	24%	76%
Comprehension/understanding	28%	72%	36%	64%
Willingness to learn	45%	55%	50%	50%
Personal qualities				
Interpersonal relations	37%	63%	30%	70%
Teamwork	31%	69%	32%	68%
Goal-setting/personal motivation	26%	74%	27%	73%
Organizational effectiveness/ leadership	31%	69%	30%	70%
Adaptability/flexibility	37%	63%	37%	63%
Work attitudes/work habits	27%	73%	29%	71%
Technical Skills				
Computer	42%	58%	42%	58%
Electrical**	68%	32%	85%	15%
Business/management	49%	51%	51%	49%
Mechanical**	54%	46%	74%	26%
Machine operation**	50%	50%	84%	16%
Skilled trades/crafts**	59%	41%	79%	21%
General labor**	62%	38%	75%	25%
Other technical	84%	16%	89%	11%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q12
In which of the following skills do employees hired by your firm need improvement?
Percent responding by firm setting.

	Rural		Mid-Size		Urban	
	No	Yes	No	Yes	No	Yes
<i>Basic Skills</i>						
Reading	63%	37%	64%	36%	61%	39%
Writing	45%	55%	43%	57%	41%	59%
Computation	48%	52%	43%	57%	42%	58%
Listening/oral communication*	34%	66%	21%	79%	21%	79%
<i>Thinking Skills</i>						
Creative thinking*	39%	61%	39%	61%	28%	72%
Decision making**	41%	59%	31%	69%	23%	77%
Problem solving**	36%	64%	26%	74%	19%	81%
Comprehension/understanding**	44%	56%	27%	73%	28%	72%
Willingness to learn	50%	50%	43%	57%	48%	52%
<i>Personal qualities</i>						
Interpersonal relations*	43%	57%	33%	67%	29%	71%
Teamwork**	43%	57%	27%	73%	28%	72%
Goal-setting/personal motivation	33%	67%	30%	70%	24%	76%
Organizational effectiveness/ leadership*	39%	61%	29%	71%	26%	74%
Adaptability/flexibility	42%	58%	41%	59%	35%	65%
Work attitudes/work habits	31%	69%	23%	77%	28%	72%
<i>Technical Skills</i>						
Computer	47%	53%	45%	55%	38%	62%
Electrical	79%	21%	72%	28%	74%	26%
Business/management	57%	43%	52%	48%	46%	54%
Mechanical	62%	38%	57%	43%	64%	36%
Machine operation	66%	34%	61%	39%	64%	36%
Skilled trades/crafts	75%	25%	63%	37%	66%	34%
General labor	67%	33%	67%	33%	68%	32%
Other technical	87%	13%	83%	17%	87%	13%

*Chi Square $p \leq .05$

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q12
What percentage of your employees need improvement?

	Number Firms	% of Employees:		
		Mean	Median	S.D.
<i>Basic Skills</i>				
Reading	214	28.73	25.00	21.62
Writing	323	36.29	30.00	24.49
Computation	306	34.10	30.00	23.00
Listening/oral communication	413	40.70	33.00	26.46
<i>Thinking Skills</i>				
Creative thinking	357	40.77	40.00	25.57
Decision making	382	39.20	35.00	23.30
Problem solving	401	40.00	33.00	24.85
Comprehension/understanding	369	34.92	30.00	23.09
Willingness to learn	287	34.26	25.00	25.77
<i>Personal qualities</i>				
Interpersonal relations	359	36.69	30.00	25.01
Teamwork	373	38.03	30.00	25.99
Goal-setting/personal motivation	397	41.68	40.00	26.26
Organizational effectiveness/ leadership	377	38.41	30.00	25.16
Adaptability/flexibility	337	36.87	30.00	23.90
Work attitudes/work habits	393	40.18	30.00	27.57
<i>Technical Skills</i>				
Computer	313	39.53	30.00	27.89
Electrical	130	32.11	25.00	26.60
Business/management	270	30.26	20.00	24.46
Mechanical	197	31.04	25.00	22.94
Machine operation	181	31.10	25.00	23.60
Skilled trades/crafts	172	30.74	25.00	25.15
General labor	174	31.26	25.00	25.18
Other technical	73	27.82	20.00	24.19

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q13a

Would you be willing to pay a higher wage in order to get workers who had the fundamental background necessary to quickly learn and competently do their job?

<i>Sample:</i>	Firms Responding:	
	N	Yes
Total	572	78%
<i>By Firm Size:</i>		
Small firms	238	79%
Medium firms	229	80%
Large firms	105	71%
<i>By Firm Type:</i>		
Manufacturing firms	283	76%
Non-manufacturing	289	80%
<i>By Firm Setting:</i>		
Rural firms	110	73%
Mid-size firms	135	75%
Urban firms	247	82%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q13b

How great a percentage increase over current wages would you be willing to pay?

<i>Sample:</i>	N	Mean	Median	Std. Dev.
Total	395	14.4%	10%	10.39
 <i>By Firm Size:</i>				
Small	167	15.0%		11.89
Medium	163	13.9%		8.14
Large	65	14.2%		11.28
<i>Overall F Ratio</i>	<i>.53</i>			
 <i>By Firm Type:</i>				
Manufacturing	196	13.8%		9.24
Non-Manufacturing	199	15.0%		11.39
<i>T-Value</i>	<i>-1.21</i>			
 <i>By Firm Setting:</i>				
Rural	70	15.6%		8.65
Mid-Sized	88	13.4%		11.86
Urban	180	14.1%		10.20
<i>Overall F-Ratio</i>	<i>.87</i>			

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q14

Over the next two to three years, how much will technology changes in your industry and your firm increase the level of technical or vocational skills required by your employees?

<i>Skill increase predicted:</i>	Percent Responding:			
	1996		1989	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
(1) Not at all	40	7%	20	3%
(2) To a small degree	156	27%	190	32%
(3) To a moderate degree	245	42%	229	38%
(4) To a substantial degree	136	24%	161	27%
<i>Total:</i>	577		600	

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q14

Over the next two to three years, how much will technology changes in your industry and your firm increase the level of technical or vocational skills required by your employees?

<i>Scale:</i>	<i>Firm Size:**</i>					
	Small		Medium		Large	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
(1) Not at all	21	9%	11	5%	8	7%
(2) To a small degree	83	35%	56	24%	17	16%
(3) To a moderate degree	97	40%	103	45%	45	42%
(4) To a substantial degree	39	16%	59	26%	38	35%

	<i>Firm Type:*</i>			
	Manufacturing		Non-Manufacturing	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
(1) Not at all	21	7%	19	6%
(2) To a small degree	90	32%	66	23%
(3) To a moderate degree	120	42%	125	43%
(4) To a substantial degree	55	19%	81	28%

	<i>Firm Setting:*</i>					
	Rural		Mid-Sized		Urban	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
(1) Not at all	15	13%	9	7%	14	6%
(2) To a small degree	36	32%	32	24%	69	28%
(3) To a moderate degree	45	39%	54	40%	113	46%
(4) To a substantial degree	18	16%	40	29%	51	20%

** Chi Square $p \leq .01$

* Chi Square $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q14

Over the next two to three years, how much will technology changes in your industry and your firm increase the level of technical or vocational skills required by your employees?

Scale: 1 = Not at all; 2 = To a small degree; 3 = To a moderate degree; 4 = To a substantial degree

	N	Mean	Median	Std. Dev.
Total:	577	2.83	3.00	.869
By Firm Size:**				
Small	240	2.64		.856
Medium	229	2.92		.830
Large	108	3.05		.900
<i>Overall F Ratio</i>	10.47			
By Firm Type:**				
Manufacturing	286	2.73		.855
Non-Manufacturing	291	2.92		.873
<i>T-Value</i>	-2.64			
By Firm Setting:**				
Rural	114	2.58		.911
Mid-Sized	135	2.93		.895
Urban	247	2.81		.825
<i>Overall F-Ratio</i>	5.16			

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q15

What skills will your present employees need to improve or acquire to adapt to technological changes anticipated over the next two to three years?

	1996		1989		% Difference 1996-1989
	N	%	N	%	
<i>Basic Skills</i>					
Listening/oral communication	527	71%	551	65%	6
Computation	525	53%	549	56%	-3
Writing	524	52%	552	49%	3
Reading	522	44%	552	51%	-7
<i>Thinking Skills</i>					
Problem solving	522	69%	551	72%	-3
Decision making	522	65%			
Comprehension/understanding	522	65%	550	68%	-3
Creative thinking	515	63%			
Willingness to learn	522	56%			
<i>Personal Qualities</i>					
Work attitudes/work habits	521	67%	548	70%	-3
Goal-setting/personal motivation	520	67%	552	71%	-4
Teamwork	524	64%	551	71%	-7
Organization effectiveness/ leadership	519	64%	551	68%	-4
Adaptability/flexibility	518	64%	550	72%	-8*
Interpersonal relations	523	61%	551	56%	5
<i>Technical Skills</i>					
Computer	521	63%	547	67%	-4
Business/management	523	47%	549	58%	-11*
Mechanical	519	37%	546	40%	-3
Machine operation	519	36%	544	44%	-8*
Skilled trades/crafts	519	35%	547	41%	-6
General labor	519	31%	547	30%	1
Electrical	515	31%	543	33%	-2
Other technical skills	514	16%			

* $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q15
What skills will your present employees need to improve or acquire to adapt to technological changes anticipated over the next two to three years?
By firm size.

	Small		Medium		Large	
	No	Yes	No	Yes	No	Yes
<i>Basic Skills</i>						
Reading**	66%	34%	51%	49%	42%	58%
Writing**	58%	42%	46%	54%	30%	70%
Computation**	54%	46%	41%	59%	40%	60%
Listening/oral communication**	40%	60%	24%	76%	11%	89%
<i>Thinking Skills</i>						
Creative thinking**	45%	55%	33%	67%	28%	72%
Decision making**	44%	56%	32%	68%	21%	79%
Problem solving**	40%	60%	25%	75%	19%	81%
Comprehension/understanding**	45%	55%	30%	70%	24%	76%
Willingness to learn**	54%	46%	36%	64%	35%	65%
<i>Personal qualities</i>						
Interpersonal relations**	50%	50%	32%	68%	25%	75%
Teamwork**	46%	54%	32%	68%	19%	81%
Goal-setting/personal motivation**	44%	56%	26%	74%	20%	80%
Organizational effectiveness/ leadership**	46%	54%	32%	68%	22%	78%
Adaptability/flexibility**	46%	54%	31%	69%	24%	76%
Work attitudes/work habits**	44%	56%	28%	72%	19%	81%
<i>Technical Skills</i>						
Computer**	46%	54%	35%	65%	20%	80%
Electrical	70%	30%	70%	30%	70%	30%
Business/management**	60%	40%	48%	52%	46%	54%
Mechanical	66%	34%	63%	37%	56%	44%
Machine operation	64%	36%	63%	37%	67%	33%
Skilled trades/crafts	66%	34%	64%	36%	63%	37%
General labor	73%	27%	68%	32%	64%	36%
Other technical	87%	13%	81%	19%	83%	17%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q15

**What skills will your present employees need to improve or acquire to adapt to technological changes anticipated over the next two to three years?
By firm type.**

	Manufacturing		Non-Manufacturing	
	No	Yes	No	Yes
<i>Basic Skills</i>				
Reading**	51%	49%	62%	38%
Writing	48%	52%	49%	51%
Computation**	42%	58%	53%	47%
Listening/oral communication	28%	72%	30%	70%
<i>Thinking Skills</i>				
Creative thinking	38%	62%	37%	63%
Decision making	36%	64%	34%	66%
Problem solving	31%	69%	30%	70%
Comprehension/understanding	33%	67%	38%	62%
Willingness to learn	42%	58%	46%	54%
<i>Personal qualities</i>				
Interpersonal relations	40%	60%	37%	63%
Teamwork	34%	66%	37%	63%
Goal-setting/personal motivation	33%	67%	32%	68%
Organizational effectiveness/ leadership	36%	64%	37%	63%
Adaptability/flexibility	36%	64%	38%	62%
Work attitudes/work habits	32%	68%	35%	65%
<i>Technical Skills</i>				
Computer	38%	62%	35%	65%
Electrical**	62%	38%	78%	22%
Business/management	51%	49%	56%	44%
Mechanical**	53%	47%	75%	25%
Machine operation**	48%	52%	83%	17%
Skilled trades/crafts**	55%	45%	76%	24%
General labor**	61%	39%	78%	22%
Other technical	82%	18%	87%	13%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q15

What skills will your present employees need to improve or acquire to adapt to technological changes anticipated over the next two to three years?

By firm setting.

	Rural		Mid-Size		Urban	
	No	Yes	No	Yes	No	Yes
<i>Basic Skills</i>						
Reading	61%	39%	54%	46%	58%	42%
Writing	50%	50%	46%	54%	51%	49%
Computation	48%	52%	44%	56%	47%	53%
Listening/oral communication	36%	64%	28%	72%	29%	71%
<i>Thinking Skills</i>						
Creative thinking	42%	58%	38%	62%	35%	65%
Decision making	41%	59%	35%	65%	33%	67%
Problem solving*	42%	58%	29%	71%	27%	73%
Comprehension/understanding	40%	60%	36%	64%	34%	66%
Willingness to learn	46%	54%	41%	59%	45%	55%
<i>Personal qualities</i>						
Interpersonal relations	47%	53%	36%	64%	38%	62%
Teamwork	46%	54%	34%	66%	33%	67%
Goal-setting/personal motivation	42%	58%	28%	72%	34%	66%
Organizational effectiveness/ leadership	42%	59%	35%	65%	35%	65%
Adaptability/flexibility	45%	55%	37%	63%	34%	66%
Work attitudes/work habits	36%	64%	30%	70%	35%	65%
<i>Technical Skills</i>						
Computer	45%	55%	37%	63%	35%	65%
Electrical	75%	25%	63%	37%	69%	31%
Business/management	55%	45%	53%	47%	53%	47%
Mechanical	67%	33%	57%	43%	61%	39%
Machine operation	69%	31%	58%	42%	60%	40%
Skilled trades/crafts*	66%	34%	55%	45%	67%	33%
General labor	66%	34%	65%	35%	71%	29%
Other technical	86%	14%	79%	21%	85%	15%

*Chi Square $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q15

What percentage of your employees need improvement?

<i>Basic Skills</i>	<u>N</u>	<u>Mean %</u>	<u>S.D.</u>
Reading	229	29.45	21.84
Writing	270	34.46	24.85
Computation	277	34.22	23.91
Listening/oral communication	374	38.70	26.92
 <i>Thinking Skills</i>			
Creative thinking	321	41.20	27.06
Decision making	336	38.92	25.90
Problem solving	361	29.25	25.67
Comprehension/understanding	336	36.88	25.65
Willingness to learn	293	40.20	27.93
 <i>Personal qualities</i>			
Interpersonal relations	320	37.97	26.24
Teamwork	334	39.46	28.76
Goal-setting/personal motivation	348	39.82	28.35
Organizational effectiveness/ leadership	326	36.50	25.69
Adaptability/flexibility	327	40.34	28.43
Work attitudes/work habits	346	41.34	29.96
 <i>Technical Skills</i>			
Computer	326	45.45	30.81
Electrical	155	30.40	26.35
Business/management	240	32.00	25.19
Mechanical	190	33.47	26.22
Machine operation	184	34.00	26.74
Skilled trades/crafts	182	34.12	26.92
General labor	159	32.24	24.37
Other technical	80	28.70	25.39

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q15
What percentage of your employees need improvement?
By firm size

	Small			Medium			Large		
	<u>N</u>	<u>Mean</u>	<u>S.D.</u>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
<i>Basic Skills</i>									
Reading	79	31.61	22.66	99	28.05	20.80	51	28.84	22.68
Writing*	97	39.22	26.29	110	34.00	25.24	63	27.94	20.25
Computation*	104	38.50	23.99	119	32.50	24.63	54	29.78	21.09
Listening/oral communication*	138	43.40	27.20	154	37.10	26.76	82	33.82	25.81
<i>Thinking Skills</i>									
Creative thinking	124	41.14	26.48	133	41.95	27.28	64	39.75	28.05
Decision making	127	40.89	26.39	137	38.89	26.31	72	35.53	24.16
Problem solving	137	41.90	25.73	151	37.70	26.01	73	37.47	24.77
Comprehension/understanding	126	39.71	26.13	141	36.60	26.27	69	32.27	23.01
Willingness to learn	104	41.18	27.24	130	38.88	28.15	59	41.41	29.01
<i>Personal qualities</i>									
Interpersonal relations	114	36.82	25.64	137	38.28	26.87	69	39.26	26.23
Teamwork	124	38.31	27.39	138	42.35	30.47	72	35.89	27.51
Goal-setting/personal motivation	128	39.42	28.52	148	41.80	29.25	72	36.43	26.10
Organizational effectiveness/ leadership	123	39.41	25.55	136	36.13	26.10	67	31.91	24.72
Adaptability/flexibility	122	41.88	28.45	139	38.99	28.85	66	40.36	27.76
Work attitudes/work habits	129	40.01	28.73	145	42.89	31.11	72	40.58	30.05
<i>Technical Skills</i>									
Computer	124	48.83	32.12	130	43.31	31.30	72	43.50	27.30
Electrical	69	33.23	25.06	60	28.72	27.74	26	26.77	26.63
Business/management	89	35.67	25.61	104	30.74	25.30	47	27.85	23.70
Mechanical*	78	36.99	23.18	74	34.40	29.42	38	24.45	24.00
Machine operation**	81	39.39	28.40	75	32.77	26.10	28	21.68	18.42
Skilled trades/crafts	77	35.96	25.47	73	33.34	27.85	32	31.47	28.67
General labor	61	32.90	23.60	67	31.30	24.06	31	33.00	27.14
Other technical**	28	41.61	31.13	38	22.47	19.25	14	19.78	17.09

* $p \leq .05$

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q15
What percentage of your employees need improvement?
By firm type

	Manufacturing			Non- Manufacturing		
	<u>N</u>	<u>Mean</u>	<u>S.D.</u>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
<i>Basic Skills</i>						
Reading	139	29.72	21.77	90	29.04	22.06
Writing	149	33.89	24.78	121	35.16	25.03
Computation	167	34.98	23.70	110	33.07	24.29
Listening/oral communication	207	38.39	27.62	167	39.09	26.10
<i>Thinking Skills</i>						
Creative thinking	174	41.58	28.67	147	40.76	25.11
Decision making	181	39.87	26.87	155	37.82	24.76
Problem solving	195	40.39	26.41	166	37.90	24.79
Comprehension/understanding	191	37.49	25.78	145	36.07	25.55
Willingness to learn	165	38.27	26.65	128	42.69	29.43
<i>Personal qualities</i>						
Interpersonal relations	169	37.48	26.62	151	38.51	25.87
Teamwork	187	39.08	28.76	147	39.94	28.86
Goal-setting/personal motivation	188	39.15	28.27	160	40.60	28.52
Organizational effectiveness/ leadership	179	36.80	26.24	147	36.14	25.08
Adaptability/flexibility	181	39.56	28.64	146	41.32	28.23
Work attitudes/work habits	191	41.15	30.58	155	41.57	29.28
<i>Technical Skills</i>						
Computer	174	42.91	30.92	152	48.36	30.52
Electrical	104	29.74	26.56	51	31.74	26.13
Business/management	137	32.12	26.70	103	31.84	23.15
Mechanical	130	32.90	25.21	60	34.72	28.48
Machine operation	145	34.51	26.13	39	32.10	29.15
Skilled trades/crafts	126	32.83	26.13	56	37.02	28.63
General labor	109	31.04	24.44	50	34.86	24.24
Other technical	51	27.10	23.83	29	31.52	28.15

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q 15
What percentage of your employees need improvement?
By firm setting

	Rural			Mid-Size			Urban		
	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.
Basic Skills									
Reading	41	24.00	15.75	57	32.70	25.37	94	32.05	23.03
Writing	52	30.17	23.09	67	35.95	26.80	111	36.37	25.09
Computation	54	33.96	25.28	71	36.38	26.76	118	34.94	22.84
Listening/oral communication	67	37.97	27.49	91	42.74	29.91	160	38.37	26.14
Thinking Skills									
Creative thinking	58	39.96	26.65	77	43.93	30.10	145	41.52	27.53
Decision making	60	37.58	25.79	82	42.07	28.87	152	39.12	25.76
Problem solving	59	40.05	28.07	90	40.20	28.57	165	39.10	24.92
Comprehension/understanding	62	36.50	24.23	81	41.44	28.85	149	35.79	26.02
Willingness to learn	56	41.11	29.91	74	39.01	28.28	125	40.25	27.22
Personal qualities									
Interpersonal relations	55	37.27	28.44	81	42.26	28.46	141	36.22	24.43
Teamwork	56	39.55	29.25	84	40.76	31.07	149	40.19	28.19
Goal-setting/personal motivation	60	44.05	29.32	89	40.48	29.44	149	37.99	28.35
Organizational effectiveness/ leadership	61	36.41	24.34	81	37.78	28.58	145	37.87	26.57
Adaptability/flexibility	56	41.07	30.50	78	43.26	29.75	147	39.45	28.28
Work attitudes/work habits	67	43.33	30.64	86	43.86	30.25	147	40.84	30.51
Technical Skills									
Computer	57	43.51	31.98	78	48.37	30.44	146	45.49	31.27
Electrical	24	34.92	25.04	47	31.30	28.60	68	28.71	26.04
Business/management	44	33.36	28.03	58	29.43	25.68	107	32.91	24.97
Mechanical	33	33.94	28.20	53	36.41	27.94	87	31.10	23.70
Machine operation	31	31.58	27.82	51	34.51	26.94	89	35.50	26.67
Skilled trades/crafts	35	30.29	23.51	55	35.53	29.96	73	36.38	27.30
General labor	34	33.97	26.02	43	32.86	27.11	66	31.88	23.54
Other technical	15	31.07	30.37	24	24.67	22.65	33	31.76	27.27

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q16

In the last five years, has your organization utilized technical or vocational training programs to upgrade the skills of its employees?

	1996		1989	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
(0) No	276	47%	310	51%
(1) Yes	314	53%	303	49%
<i>Total</i>	590		613	

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q16

In the last five years, has your organization utilized technical or vocational training programs to upgrade the skills of its employees?

	By Firm Size:**					
	Small		Medium		Large	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
(0) No	139	56%	100	43%	37	33%
(1) Yes	108	44%	132	57%	74	67%
<i>Total</i>	247	42%	232	39%	111	19%

	By Firm Type:			
	Manufacturing		Non-manufacturing	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
(0) No	144	49%	132	45%
(1) Yes	151	51%	163	55%
<i>Total</i>	295	50%	295	50%

	By Firm Setting:					
	Rural		Mid-Sized		Urban	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
(0) No	61	53%	68	49%	112	44%
(1) Yes	53	47%	72	51%	142	56%
<i>Total</i>	114	22%	140	28%	254	50%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q17a1a - a10a

Where have you obtained technical or vocational training for your present employees?

	1996		1989	
	N	Yes	N	Yes
1a. Union apprenticeship training	306	5%	299	20%
2a. Local high schools	307	17%	299	23%
3a. Community college	308	58%	302	64%
4a. Area vocational technical school	303	45%	301	61%
5a. State university	305	31%	301	47%
6a. Private college/university	305	9%	299	22%
7a. KSU-Salina College of Technology	303	5%	285	10%
8a. Professional association seminars	306	77%	302	76%
9a. Consultants/other commercial trainers	300	53%	300	62%
10a. Other	291	25%	231	13%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q17a1a - a10a

**Where have you obtained technical or vocational training for your present employees?
By firm size**

	Small		Medium		Large	
	No	Yes	No	Yes	No	Yes
1a. Union apprenticeship training**	98%	2%	90%	10%	99%	1%
2a. Local high schools	88%	12%	82%	18%	76%	24%
3a. Community college**	60%	40%	35%	65%	29%	71%
4a. Area vocational technical school	62%	38%	53%	47%	49%	51%
5a. State university**	83%	17%	65%	35%	54%	46%
6a. Private college/university*	96%	4%	89%	11%	85%	15%
7a. KSU-Salina College of Technology	96%	4%	96%	4%	91%	9%
8a. Professional association seminars	30%	70%	22%	78%	17%	83%
9a. Consultants/commercial trainers**	58%	42%	47%	53%	32%	68%
10a. Other	79%	21%	71%	29%	75%	25%

*Chi Square $p \leq .05$

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q 17a1a - a10a

**Where have you obtained technical or vocational training for your present employees?
By firm type**

	Manufacturing		Non-manufacturing	
	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>
1a. Union apprenticeship training	95%	5%	95%	5%
2a. Local high schools	83%	17%	82%	18%
3a. Community college	45%	55%	39%	61%
4a. Area vocational technical school	51%	49%	59%	41%
5a. State university	73%	27%	65%	35%
6a. Private college/university	90%	10%	91%	9%
7a. KSU-Salina College of Technology	96%	4%	94%	6%
8a. Professional association seminars**	31%	69%	16%	84%
9a. Consultants/other commercial trainers	49%	51%	46%	54%
10a. Other	77%	23%	72%	28%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q17a1a - a10a

**Where have you obtained technical or vocational training for your present employees?
By firm setting**

	Rural		Mid-Size		Urban	
	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>
1a. Union apprenticeship training	96%	4%	97%	3%	93%	7%
2a. Local high schools*	73%	27%	85%	15%	88%	12%
3a. Community college	49%	51%	38%	62%	45%	55%
4a. Area vocational technical school*	50%	50%	69%	31%	50%	50%
5a. State university	76%	24%	60%	40%	72%	28%
6a. Private college/university*	96%	4%	83%	17%	91%	9%
7a. KSU-Salina College of Technology	90%	10%	96%	4%	97%	3%
8a. Professional association seminars	40%	60%	22%	78%	19%	81%
9a. Consultants/commercial trainers	55%	45%	47%	53%	46%	54%
10a. Other	70%	30%	74%	26%	76%	24%

*Chi Square $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q17a1b - a9b
Was the training customized?

	N	Yes
1a. Union apprenticeship training	16	81%
2a. Local high schools	52	38%
3a. Community college	174	45%
4a. Area vocational technical school	135	49%
5a. State university	94	35%
6a. Private college/university	29	52%
7a. KSU-Salina College of Technology	15	33%
8a. Professional association seminars	233	44%
9a. Consultants/commercial trainers	157	85%
10a. Other	297	72%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

17a1c - a9c

How many times in the past five years have you used this source for training?

	N	Mean	Median	Std.Dev.
1c. Union apprenticeship training	14	8.50	3.00	11.24
2c. Local high schools	53	5.79	3.00	13.53
3c. Community college	170	16.42	5.00	56.03
4c. Area vocational technical school	131	13.60	5.00	50.60
5c. State university	89	15.12	5.00	35.49
6c. Private college/university	25	6.76	3.00	10.26
7c. KSU-Salina College of Technology	15	5.00	3.00	4.12
8c. Professional association seminars	224	25.32	10.00	43.52
9c. Consultants/commercial trainers	154	17.79	5.00	36.28

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

17a1d - a9d

How would you evaluate the quality of this training?

Scale: 1 = very poor; 2 = needs improvement; 3 = adequate; 4 = good

	N	Mean	Median	Std.Dev.
1d. Union apprenticeship training	15	3.40	4.00	.91
2d. Local high schools	49	3.12	3.00	.75
3d. Community college	167	3.59	4.00	.67
4d. Area vocational technical school	130	3.50	4.00	.72
5d. State university	90	3.79	4.00	.46
6d. Private college/university	28	3.68	4.00	.55
7d. KSU-Salina College of Technology	15	3.47	4.00	.64
8d. Professional association seminars	226	3.63	4.00	.62
9d. Consultants/other commercial trainers	153	3.62	4.00	.73

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q17b1 - b8
How did you learn about the training?

<i>From:</i>	1996		1989	
	N	Yes	N	Yes
Vendor	297	72%	300	75%
Training institution	298	71%	302	78%
Business associate	298	57%	302	58%
Corporate headquarters	299	31%	301	32%
State officials	298	24%	300	27%
Local officials	299	27%	300	32%
Advertising (prof. assoc/commercial trainers)	298	71%	301	69%
Other	290	22%	228	10%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q17b1 - b8
How did you learn about the training?
By firm size

<i>From:</i>	Small		Medium		Large	
	No	Yes	No	Yes	No	Yes
Vendor	36%	64%	24%	76%	25%	75%
Training institution**	43%	57%	25%	75%	16%	84%
Business associate	52%	48%	39%	61%	38%	62%
Corporate headquarters	73%	27%	71%	29%	58%	42%
State officials	83%	17%	74%	26%	71%	29%
Local officials**	90%	10%	69%	31%	54%	46%
Advertising (prof. assoc/commercial trainers)**	42%	58%	25%	75%	14%	36%
Other	82%	18%	79%	21%	72%	28%

*Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q17b1 - b8
How did you learn about the training?
By firm type

<i>From:</i>	Manufacturing		Non-Manufacturing	
	No	Yes	No	Yes
Vendor	30%	70%	27%	73%
Training institution	32%	68%	26%	74%
Business associate	49%	51%	37%	63%
Corporate headquarters	74%	26%	64%	36%
State officials	79%	21%	74%	26%
Local officials	75%	25%	71%	29%
Advertising (prof. assoc/commercial trainers)**	36%	64%	21%	79%
Other	78%	22%	78%	22%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q17b1 - b8
How did you learn about the training?
By firm setting

<i>From:</i>	Rural		Mid-Size		Urban	
	No	Yes	No	Yes	No	Yes
Vendor	37%	63%	29%	71%	25%	75%
Training institution	35%	65%	27%	73%	30%	70%
Business associate	40%	60%	45%	55%	40%	60%
Corporate headquarters	71%	29%	67%	33%	71%	29%
State officials*	63%	37%	73%	27%	82%	18%
Local officials	71%	29%	69%	31%	78%	22%
Advertising (prof. assoc/commercial trainers)	43%	57%	27%	73%	26%	74%
Other	76%	24%	71%	29%	80%	20%

*Chi Square $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q18a1 - a6

Why hasn't your organization utilized technical or vocational training programs to upgrade the skills of its employees?

<i>Reasons identified:</i>	N.	1996		N.	1989	
		No	Yes		No	Yes
Employees haven't needed training	263	80%	20%	294	59%	41%
Can't find type of training needed	261	60%	40%	288	62%	38%
Training is too expensive	257	64%	36%	266	75%	25%
Developed in-house training programs	262	21%	79%	295	25%	75%
Do on-the-job training	264	12%	88%	296	12%	88%
Other	260	66%	34%	310	87%	13%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q18a1 - a6

**Why hasn't your organization utilized technical or vocational training programs to upgrade the skills of its employees?
By firm size**

<i>Reasons identified:</i>	Small		Medium		Large	
	No	Yes	No	Yes	No	Yes
Employees haven't needed training	78%	22%	81%	19%	86%	14%
Can't find type of training needed	60%	40%	61%	39%	60%	40%
Training is too expensive	63%	36%	66%	34%	62%	38%
Developed in-house training programs*	26%	74%	19%	81%	6%	94%
Do on-the-job training	15%	85%	8%	92%	8%	92%
Other*	73%	27%	56%	44%	63%	37%

*Chi Square $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q18a1 - a6
Why hasn't your organization utilized technical or vocational training programs
to upgrade the skills of its employees?
By firm type

Manufacturing	Manufacturing		Non-	
	Yes	No	Yes	No
<i>Reasons identified:</i>				
Employees haven't needed training	79%	21%	82%	18%
Can't find type of training needed	61%	39%	60%	40%
Training is too expensive	68%	32%	59%	41%
Developed in-house training programs**	27%	73%	12%	88%
Do on-the-job training	15%	85%	8%	92%
Other**	75%	25%	55%	45%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q18a1 - a6
Why hasn't your organization utilized technical or vocational training programs
to upgrade the skills of its employees?
By firm setting

<i>Reasons identified:</i>	Rural		Mid-sized		Urban	
	No	Yes	No	Yes	No	Yes
Employees haven't needed training	71%	29%	83%	16%	81%	19%
Can't find type of training needed	64%	36%	59%	41%	61%	39%
Training is too expensive	65%	35%	69%	31%	61%	39%
Developed in-house training programs	24%	76%	18%	82%	22%	78%
Do on-the-job training	16%	84%	4%	96%	14%	86%
Other*	82%	18%	66%	34%	63%	37%

*Chi Square $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q19

Over the past three years, how often has someone from your local community college formally called upon your firm about providing customized training?

	Percent Responding:	
	1996	1989
(1) Never	61%	65%
(2) Once in 3 years	10%	10%
(3) Once per year	13%	12%
(4) Twice or more per year	15%	13%

1996 Mean: 1.826 Median 1.00 Std. Dev.: 1.152 N=564
1989 Mean: 1.7 Median 1.0 Std. Dev.: 1.1 N=596

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q19

Over the past three years, how often has someone from your local community college formally called upon your firm about providing customized training?

Scale: 1 = Never; 2 = Once in 3 years; 3 = Once per year; 4 = Twice or more per year

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	564	1.83	1.15
<i>By Firm Size:**</i>			
Small	244	1.50	.96
Medium	220	1.94	1.18
Large	100	2.35	1.27
<i>Overall F-Ratio</i>	22.68		
<i>By Firm Type:</i>			
Manufacturing	287	1.83	1.15
Non-Manufacturing	277	1.82	1.15
<i>T-Value</i>	0.89		
<i>By Firm Setting:**</i>			
Rural	109	1.84	1.23
Mid-Sized	133	2.05	1.24
Urban	246	1.63	1.03
<i>Overall F-Ratio</i>	5.99		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q20

Over the past three years, how often has someone from your local area vocational technical school formally called upon your firm about providing customized training?

	Percent Responding:	
	1996	1989
(1) Never	72%	70%
(2) Once in 3 years	9%	12%
(3) Once per year	10%	10%
(4) Twice or more per year	9%	8%

1996 Mean: 1.574 Median 1.00 Std. Dev.: 1.010 N=566
1989 Mean: 1.6 Median 1.0 Std. Dev.: 0.97 N=594

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q20

Over the past three years, how often has someone from your local area vocational technical school formally called upon your firm about providing customized training?

Scale: 1 = Never; 2 = Once in 3 years; 3 = Once per year; 4 = Twice or more per year

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	566	1.57	1.01
<i>By Firm Size:**</i>			
Small	243	1.41	0.91
Medium	222	1.65	1.02
Large	101	1.79	1.16
<i>Overall F-Ratio</i>	<i>6.05</i>		
<i>By Firm Type:</i>			
Manufacturing	288	1.62	1.03
Non-Manufacturing	278	1.52	0.98
<i>T-Value</i>	<i>1.22</i>		
<i>By Firm Setting:</i>			
Rural	112	1.53	0.99
Mid-Sized	131	1.68	1.05
Urban	246	1.53	0.99
<i>Overall F-Ratio</i>	<i>1.09</i>		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q21
**How would you rate the geographic accessibility of
vocational and technical training in Kansas?**

	Percent Responding:	
	1996	1989
(1) Very poor	6%	3%
(2) Needs improvement	12%	16%
(3) Adequate	31%	43%
(4) Good	51%	37%
<i>1996 Mean: 3.262 Median 4.00 Std. Dev.: 0.897 N=485</i>		
<i>1989 Mean: 3.1 Median 3.0 Std. Dev.: 0.80 N=458</i>		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q21
**How would you rate the geographic accessibility of
vocational and technical training in Kansas?**
Scale: 1 = Very poor; 2 = Needs improvement; 3 = Adequate; 4 = Good

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	485	3.26	0.90
<i>By Firm Size:</i>			
Small	203	3.25	0.93
Medium	198	3.26	0.88
Large	84	3.01	0.88
<i>Overall F-Ratio</i>	<i>0.15</i>		
<i>By Firm Type:</i>			
Manufacturing	253	3.23	0.90
Non-Manufacturing	232	3.30	0.89
<i>T-Value</i>	<i>-0.84</i>		
<i>By Firm Setting:</i>			
Rural	100	3.07	0.99
Mid-Sized	118	3.31	0.88
Urban	200	3.30	0.87
<i>Overall F-Ratio</i>	<i>2.65</i>		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q22

How would you rate the content of programs and courses offered by the vocational technical training system in Kansas?

	Percent Responding:	
	1996	1989
(1) Very poor	5%	2%
(2) Needs improvement	13%	20%
(3) Adequate	34%	43%
(4) Good	48%	35%
<i>1996 Mean: 3.246 Median 3.00 Std. Dev.: 0.869 N=398</i>		
<i>1989 Mean: 3.1 Median 3.0 Std. Dev.: 0.80 N=488</i>		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q22

How would you rate the content of programs and courses offered by the vocational and technical training system in Kansas?

Scale: 1 = Very poor; 2 = Needs improvement; 3 = Adequate; 4 = Good

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	398	3.25	0.87
<i>By Firm Size:</i>			
Small	166	3.18	0.90
Medium	163	3.30	0.88
Large	69	3.27	0.78
<i>Overall F-Ratio</i>	<i>0.83</i>		
<i>By Firm Type:*</i>			
Manufacturing	219	3.16	0.92
Non-Manufacturing	179	3.35	0.80
<i>T-Value</i>	<i>-2.20</i>		
<i>By Firm Setting:</i>			
Rural	89	3.15	0.96
Mid-Sized	100	3.30	0.87
Urban	158	3.18	0.89
<i>Overall F-Ratio</i>	<i>0.78</i>		

* $p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q23

How would you rate the vocational and technical training instructors in Kansas?

	Percent Responding:	
	1996	1989
(1) Very poor	3%	2%
(2) Need improvement	6%	13%
(3) Adequate	37%	50%
(4) Good	53%	35%

1996 Mean: 3.406 Median 4.00 Std. Dev.: 0.749 N=315
 1989 Mean: 3.2 Median 3.0 Std. Dev.: 0.71 N=430

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q23

How would you rate the vocational and technical training instructors in Kansas?

Scale: 1 = Very poor; 2 = Needs improvement; 3 = Adequate; 4 = Good

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	315	3.41	0.75
By Firm Size:**			
Small	121	3.26	0.82
Medium	133	3.47	0.73
Large	61	3.56	0.56
<i>Overall F-Ratio</i>	4.30		
By Firm Type:			
Manufacturing	168	3.35	0.80
Non-Manufacturing	147	3.47	0.67
<i>T-Value</i>	-1.40		
By Firm Setting:			
Rural	66	3.41	0.74
Mid-Sized	79	3.44	0.76
Urban	124	3.32	0.80
<i>Overall F-Ratio</i>	0.64		

**p ≤ .01

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q24
How would you rate the equipment used by the vocational and technical training system in Kansas?

	Percent Responding:	
	1996	1989
(1) Very poor	3%	6%
(2) Needs improvement	14%	19%
(3) Adequate	36%	40%
(4) Good	47%	34%
<i>1996 Mean: 3.260 Median 3.00 Std. Dev.: 0.823 N=323</i>		
<i>1989 Mean: 3.0 Median 3.0 Std. Dev.: 0.89 N=435</i>		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q24
How would you rate the equipment used by the vocational and technical training system in Kansas?

Scale: 1 = Very poor; 2 = Needs improvement; 3 = Adequate; 4 = Good

Sample:	N	Mean	S.D.
Total	323	3.26	0.82
By Firm Size:			
Small	130	3.22	0.85
Medium	134	3.31	0.82
Large	59	3.24	0.79
Overall F-Ratio	0.36		
By Firm Type:			
Manufacturing	181	3.21	0.84
Non-Manufacturing	142	3.32	0.79
T-Value	-1.24		
By Firm Setting:			
Rural	62	3.14	0.88
Mid-Sized	81	3.36	0.79
Urban	134	3.19	0.82
Overall F-Ratio	1.47		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q25

How would you rate the scheduling convenience of vocational and technical training for employees seeking new skills training or retraining?

	Percent Responding:	
	1996	1989
(1) Very poor	5%	3%
(2) Needs improvement	13%	16%
(3) Adequate	33%	43%
(4) Good	49%	37%

1996 Mean: 3.258 Median 3.00 Std. Dev.: 0.872 N=360
 1989 Mean: 3.1 Median 3.0 Std. Dev.: 0.80 N=458

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q25

How would you rate the scheduling onvenience of vocational and technical training for employees seeking new skills training or retraining?

Scale: 1 = Very poor; 2 = Needs improvement; 3 = Adequate; 4 = Good

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	360	3.26	0.87
<i>By Firm Size:</i>			
Small	141	3.28	0.82
Medium	149	3.23	0.91
Large	70	3.27	0.90
<i>Overall F-Ratio</i>	<i>0.09</i>		
<i>By Firm Type:</i>			
Manufacturing	193	3.31	0.85
Non-Manufacturing	167	3.20	0.90
<i>T-Value</i>	<i>1.23</i>		
<i>By Firm Setting:</i>			
Rural	71	3.13	0.88
Mid-Sized	93	3.41	0.86
Urban	146	3.18	0.89
<i>Overall F-Ratio</i>	<i>2.65</i>		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q26

Over the next three years, how important will it be for your firm to have access to retraining programs for your employees through community colleges or area vocational technical schools?

	Percent Responding:	
	1996	1989
(1) Not important	20%	18%
(2) Of minor importance	33%	36%
(3) Important	27%	26%
(4) Very important	20%	20%
<i>1996 Mean: 2.47 Median: 2.0 Std. Dev.: 1.03 N= 574</i>		
<i>1989 Mean: 2.5 Median: 2.0 Std. Dev.: 1.00 N=613</i>		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q26

Over the next three years, how important will it be for your firm to have access to retraining programs for your employees through community colleges or area vocational technical schools?

Scale: 1 = Not important; 2 = Of minor importance; 3 = Important; 4 = Very important

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	574	2.47	1.03
<i>By Firm Size:**</i>			
Small	240	2.30	1.02
Medium	226	2.59	1.02
Large	108	2.59	0.99
<i>Overall F-Ratio</i>	<i>5.62</i>		
<i>By Firm Type:</i>			
Manufacturing	287	2.41	1.01
Non-Manufacturing	287	2.53	1.04
<i>T-Value</i>	<i>-1.34</i>		
<i>By Firm Setting:</i>			
Rural	111	2.42	1.07
Mid-Sized	134	2.57	1.04
Urban	249	2.44	0.99
<i>Overall F-Ratio</i>	<i>0.85</i>		

** p ≤ .01

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q27

When providing technical or vocational training for employees, how important is it for community colleges & area vocational technical schools to have the most technically advanced equipment?

	Percent Responding:	
	1996	1989
(1) Not important	10%	6%
(2) Of minor importance	10%	11%
(3) Important	24%	30%
(4) Very important	56%	53%
<i>1996 Mean: 3.27 Median: 4.0 Std. Dev.: 0.99 N=566</i>		
<i>1989 Mean: 3.3 Median: 4.0 Std. Dev.: 0.89 N=598</i>		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q27

When providing technical or vocational training for employees, how important is it for community colleges and area vocational technical schools to have the most technically advanced equipment?

Scale: 1 = Not important; 2 = Of minor importance; 3 = Important; 4 = Very important

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	566	3.27	0.99
<i>By Firm Size:</i>			
Small	238	3.20	1.01
Medium	227	3.26	1.00
Large	101	3.45	0.89
<i>Overall F-Ratio</i>	2.29		
<i>By Firm Type:*</i>			
Manufacturing	283	3.18	1.00
Non-Manufacturing	283	3.36	0.98
<i>T-Value</i>	-2.21		
<i>By Firm Setting:</i>			
Rural	110	3.20	1.04
Mid-Sized	130	3.43	0.91
Urban	247	3.21	0.99
<i>Overall F-Ratio</i>	2.48		

$p \leq .05$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q28a

How does your firm fund technical or vocational training for its employees?

	Percent Responding:		
	N	No	Yes
a1. Firm pays for all of it	600	24%	76%
a2. Public resources pay for all of it	143	94%	6%
a3. Firm pay for some, public resources pay for some	143	73%	27%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q28a

How does your firm fund technical or vocational training for its employees?

	Percent Responding:					
	Small		Medium		Large	
	No	Yes	No	Yes	No	Yes
By Firm Size:						
a1. Firm pays for all of it	21%	79%	27%	73%	22%	78%
a2. Public resources pay for all of it	98%	2%	91%	9%	92%	8%
a3. Firm pay for some, public resources pay for some	81%	19%	71%	29%	64%	36%
By Firm Type:						
	Manufacturing		Non- Manufacturing			
	No	Yes	No	Yes		
a1. Firm pays for all of it	25%	75%	22%	78%		
a2. Public resources pay for all of it	96%	4%	91%	9%		
a3. Firm pay for some, public resources pay for some	72%	28%	75%	25%		
By Firm Setting:						
	Rural		Mid-Size		Urban	
	No	Yes	No	Yes	No	Yes
a1. Firm pays for all of it**	34%	66%	22%	78%	20%	80%
a2. Public resources pay for all of it	97%	3%	87%	13%	94%	6%
a3. Firm pay for some, public resources pay for some	82%	18%	72%	28%	70%	30%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q28b

Which of the following public resources helped fund your firm's technical or vocational training for its employees?

	N	No	Yes
1. Kansas Industrial Training (KIT)/Retraining (KIR)	143	88%	12%
2. Job Training Partnership Act (JTPA) funds	143	91%	9%
3. Combination of firm and public funds	143	85%	15%
4. SKILLS program	143	98%	2%
5. Other	143	90%	10%

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q28b

Which of the following public resources helped fund your firm's technical or vocational training for its employees?

<i>By Firm Size</i>	Percent Responding:					
	Small		Medium		Large	
	No	Yes	No	Yes	No	Yes
1. KIT/KIR funds	96%	4%	85%	15%	80%	20%
2. JTPA funds	96%	4%	88%	12%	88%	12%
3. Firm and public funds**	96%	4%	80%	20%	72%	28%
4. SKILLS program	100%	0%	97%	3%	96%	4%
5. Other	96%	4%	86%	14%	88%	12%

<i>By Firm Type:</i>	Manufacturing		Non- Manufacturing	
	No	Yes	No	Yes
	1. KIT/KIR funds**	82%	18%	95%
2. JTPA funds	88%	12%	94%	6%
3. Firm and public funds	87%	13%	82%	18%
4. SKILLS program	99%	1%	97%	3%
5. Other	91%	9%	90%	10%

<i>By Firm Setting:</i>	Rural		Mid-Size		Urban	
	No	Yes	No	Yes	No	Yes
	1. KIT/KIR funds	90%	10%	81%	19%	92%
2. JTPA funds**	95%	5%	78%	22%	96%	4%
3. Firm and public funds	85%	15%	75%	25%	92%	8%
4. SKILLS program	100%	0%	97%	3%	100%	0%
5. Other	92%	8%	84%	16%	90%	10%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q29

Approximately what percentage of your total payroll is your expenditure on training?

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	539	5.33	9.97
<i>By Firm Size:</i>			
Small	232	4.51	9.47
Medium	214	5.88	10.72
Large	93	6.12	9.31
<i>Overall F-Ratio</i>	<i>1.40</i>		
<i>By Firm Type:</i>			
Manufacturing	272	4.61	10.51
Non-Manufacturing	267	6.07	9.34
<i>T-Value</i>	<i>-1.71</i>		
<i>By Firm Setting:</i>			
Rural	106	3.31	5.62
Mid-Sized	129	6.30	10.21
Urban	231	5.41	11.55
<i>Overall F-Ratio</i>	<i>2.67</i>		

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q30

How long have you been employed by this company (round to number of years)?

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	596	9.66	8.38
<i>By Firm Size:</i>			
Small	249	10.58	8.91
Medium	237	9.08	7.81
Large	110	8.83	8.17
<i>Overall F-Ratio</i>	2.63		
<i>By Firm Type:</i>			
Manufacturing	300	9.78	8.24
Non-Manufacturing	296	9.54	8.53
<i>T-Value</i>	0.34		
<i>By Firm Setting:</i>			
Rural	116	10.29	9.26
Mid-Sized	143	11.36	9.64
Urban	252	8.20	6.92
<i>Overall F-Ratio</i>	7.17**		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q31

How long have you worked in your current position (round to number of years)?

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	596	7.46	7.56
<i>By Firm Size:**</i>			
Small	250	9.13	8.27
Medium	237	6.41	5.83
Large	109	5.89	8.47
<i>Overall F-Ratio</i>	<i>11.04</i>		
<i>By Firm Type:</i>			
Manufacturing	300	7.56	7.02
Non-Manufacturing	296	7.35	8.09
<i>T-Value</i>	<i>0.35</i>		
<i>By Firm Setting:**</i>			
Rural	116	8.91	8.57
Mid-Sized	143	8.22	8.09
Urban	252	6.57	7.10
<i>Overall F-Ratio</i>	<i>4.34</i>		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q32

Is your local company part of a larger corporation, or is it a single company?

	N	Single Company	Part of a Corporation
<i>Sample:</i>			
Total	592	70%	30%
<i>By Firm Size:**</i>			
Small	248	83%	17%
Medium	236	66%	34%
Large	108	46%	54%
<i>By Firm Type:</i>			
Manufacturing	299	71%	29%
Non-Manufacturing	293	68%	32%
<i>By Firm Setting:</i>			
Rural	114	77%	23%
Mid-Sized	140	67%	33%
Urban	255	71%	29%

**Chi Square $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q33
How long has your company been in business?
(Number of years)

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	582	38.15	32.71
 <i>By Firm Size:**</i>			
Small	247	28.13	27.84
Medium	231	41.04	31.55
Large	104	55.51	37.40
<i>Overall F-Ratio</i>	<i>29.82</i>		
 <i>By Firm Type:**</i>			
Manufacturing	299	33.19	28.45
Non-Manufacturing	283	43.38	36.00
<i>T-Value</i>	<i>-3.80</i>		
 <i>By Firm Setting:</i>			
Rural	110	36.95	32.05
Mid-Sized	137	37.42	31.20
Urban	251	32.62	30.88
<i>Overall F-Ratio</i>	<i>1.36</i>		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.

Q34
How long has your company been in business in Kansas?
(Number of years)

<i>Sample:</i>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Total	577	34.59	34.77
 <i>By Firm Size:**</i>			
Small	247	25.76	26.70
Medium	228	35.75	29.43
Large	102	53.36	51.59
<i>Overall F-Ratio</i>	<i>24.85</i>		
 <i>By Firm Type:**</i>			
Manufacturing	297	28.71	26.41
Non-Manufacturing	280	40.82	40.99
<i>T-Value</i>	<i>-4.24</i>		
 <i>By Firm Setting:</i>			
Rural	110	35.03	31.52
Mid-Sized	136	34.41	30.39
Urban	250	28.75	36.78
<i>Overall F-Ratio</i>	<i>1.90</i>		

** $p \leq .01$

Source: IPPBR University of Kansas survey of 600 businesses, 1996.