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ABSTRACT

This document presents the findings of a Western Iowa Tech Community College (WITCC) survey that asked employers to assess the skills of specific graduates employed and to provide detailed information about the jobs held by those graduates. The results were utilized to inform curricula decisions and satisfy a state program review mandate. Surveys were mailed to the employers of 362 1999-2000 school year graduates; 315 valid surveys were returned (overall response rate of 65.4%). The survey instrument collected information on two major areas: the skills possessed by the graduate/employees; and the nature and tasks associated with the employee's job/position. Major findings include: (1) employers of over 90% of the graduates agreed that the graduates demonstrated 15 of the 16 skills identified in the survey (greatest consensus was on graduates' ability to follow instructions and the least agreement was about the graduates' knowledge of their specific industries); (2) employers of 31% of the workers predicted that major skills changes would be required in the next 3 years to perform the jobs they currently occupied; and (3) 84% of the employers reported that the graduates' jobs "offered opportunities for career advancement." Three appendixes contain the following: (1) survey instrument, cover letters, and reminder mailer; (2) Distribution of Responses Frequency Distribution and Mean Scores (Table 1) and Evaluation Variable Regressed on Soft and Hard Skills (Table 6); and (3) 1999 and 2000 Mean Scores by Program - Spreadsheet Charts Distributed to Program Chairs [not available for public distribution]. (RC)

2000 SURVEY OF EMPLOYERS Executive Summary April 2001

Mary Ellen Wacker
Joe Nitzke

Major Findings:

Employers of over 90 percent of our 1999-2000 graduates Agree or Strongly Agree that the graduates demonstrate fifteen of sixteen skills we asked them about. Greatest consensus was on graduates' ability to follow instructions. Least agreement was about graduates' knowledge of their industries.

Employers of ninety-two percent of graduates report that their employees have the skills for which they were trained, and 95 percent Agree or Strongly Agree that our graduates do quality work. These figures are consistent with the previous year's results.

Sixty percent of respondents rated our graduates' overall work performances as "more than adequate" or "outstanding." Ninety-five percent rate graduates as "adequate" or above.

Employers appreciate a mix of "hard" skills, such as analytical skills, and "soft" skills, such as team work.

Employers of 31 percent of workers predict that major skills changes will be required in the next three years to perform the jobs our graduates occupy. Significantly fewer employers in 2000 than in 1999 make this prediction.

Employers of 84 percent of graduates report that their jobs "offer opportunities for career advancement."

Those who employ ninety-five percent of our graduates' rated WITCC's preparation of workers as Adequate, More than Adequate, or Outstanding. This is an increase of four percent over the previous survey year.

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2000 SURVEY OF EMPLOYERS Executive Report

For the second consecutive year, Western Iowa Tech Community College (WITCC) asked employers to assess the skills of specific WITCC graduates whom they employ and to provide specific information about the jobs held by those graduates. The results of the research provide a measure of the College's success in training students, and they may also inform curricula decisions. The survey also satisfies program review mandates by the State of Iowa.

This report of the 2000 survey of employers follows the standard format. First, we describe our research method and the instrument, which solicits employers' perceptions in two areas, graduates and jobs held by graduates. An overview of our analysis of these two areas is presented in the body of the report with our findings. Comparisons are frequently drawn to results of the 1999 survey. Finally, conclusions are drawn. Appendices include supporting data.

Method

Employment data on 368 of our 576 1999-2000 graduates were obtained from the 2000 Placement Report (Brinkerhoff 2000 in Appendix IV). At the end of November 2000, surveys were mailed to employers of 362 of those graduates (Appendix I). Cover letters identified the graduate/employee and his/her position, but no identifying information appeared on the returned surveys unless the employers referenced the employees and/or the establishments. Two weeks later, reminder postcards were sent to non-respondents, and two weeks after that, cover letters and surveys were mailed to those employers who still had not responded. Using as a base the 315 surveys with valid addresses/information, the overall response rate was 65.4 percent. Four programs had response rates of 100 percent, while four programs received no responses. Table 1 in Appendix II displays response information.

The survey instrument solicited information in two major areas: the graduate/employee, and the job/position. Sixteen closed-ended items asked employers to rate graduates' skills, and four response categories ranged from Strongly Agree (coded 4) to Strongly Disagree (coded 1). These are referred to in this report as "skills variables." Two items new to this year's survey asked employers to evaluate graduates' overall job performances and identify the specific skills which most influenced those evaluations; these are "evaluation variables." Eleven open- and closed-ended items questioned employers about the jobs themselves, rather than the occupants of the jobs, held by our graduates. These are henceforth referred to as "job variables." Finally, employers were asked to rate the College's overall performance in preparing students for work.

Analysis and Results

Frequencies were computed on all variables and are presented in Appendix II.

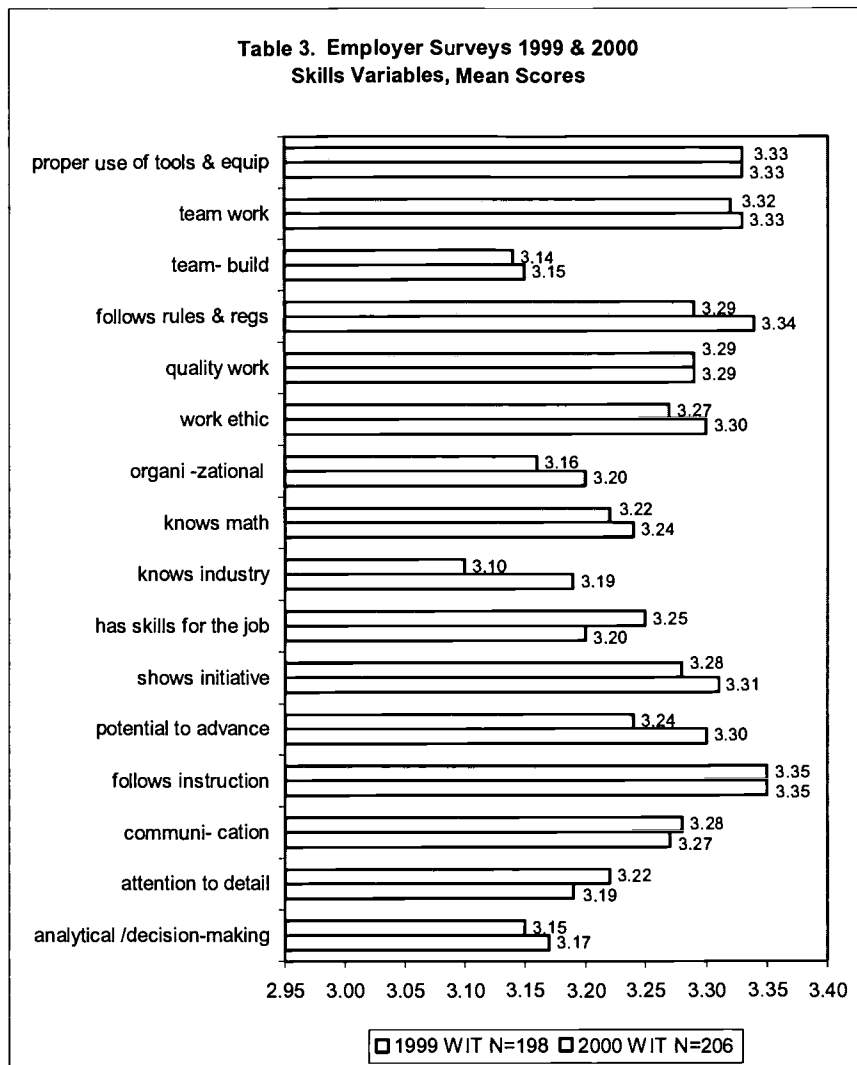
Skills Variables

Employers overwhelming “Agree” or “Strongly Agree” that our graduates demonstrate the skills about which we asked. The second column of Table 2 reveals that greatest agreement among employers (98.5 percent) in 2000 was in our graduates' ability to "follow instructions," while employers of 89.3 percent report that graduates "have knowledge of the industry." The fourth column of the table presents comparable cumulative percents from the 1999 survey. The greatest difference between 1999 and 2000 responses is the six percent decline in employers' rating of graduates' "knowledge of the industry."

Table 2. Percentage of Employers who "Agree" and "Strongly Agree" that Graduates Demonstrate Skills: 2000 & 1999

| | 2000 | | 1999 | |
|---------------------------------------|------|------|------|------|
| | % | rank | % | rank |
| follows instructions | 98.5 | 1 | 95.4 | 4 |
| uses tools & equipment properly | 98.0 | 2 | 98.4 | 1 |
| math skills | 96.8 | 3 | 97.2 | 2 |
| communication skills | 95.5 | 4 | 94.4 | 7 |
| produces quality work | 94.6 | 5 | 95.3 | 6 |
| works effectively with others | 94.0 | 6 | 93.8 | 9 |
| observes rules & regulations | 92.1 | 7 | 96.4 | 3 |
| has skills to do the job | 92.0 | 8 | 92.2 | 13 |
| shows initiative | 92.0 | 9 | 92.8 | 10 |
| professional work ethic | 91.6 | 10 | 93.9 | 8 |
| team building | 91.5 | 11 | 90.1 | 14 |
| analyzes situations & makes decisions | 91.5 | 12 | 88.4 | 16 |
| organizational skills | 91.0 | 13 | 92.3 | 12 |
| potential to advance | 91.0 | 14 | 92.7 | 11 |
| pays attention to detail | 91.0 | 15 | 89.2 | 15 |
| has knowledge of industry | 89.3 | 16 | 95.3 | 5 |

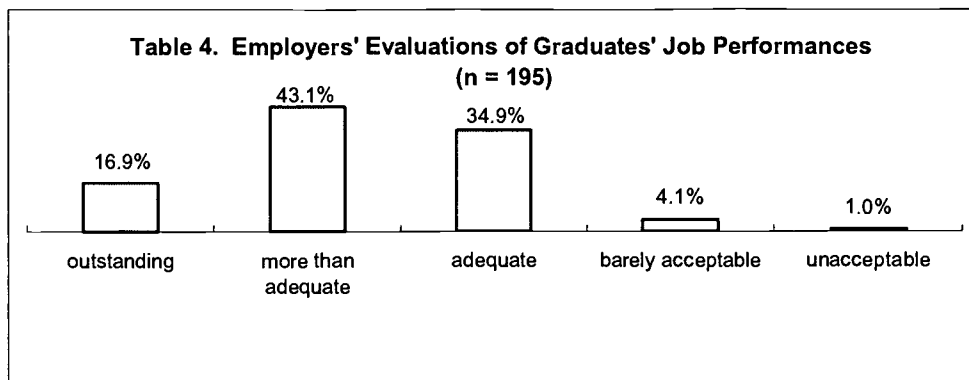
Mean scores on each skills variable (where “4” is “Strongly Agree” and “1” is “Strongly Disagree”) were calculated and are reported (in no particular order) in Table 3, along with mean scores from 1999. (See also Appendix II for mean scores in descending order.) The scores are strikingly close for each item across the two study years; there are no statistically significant differences. As in the previous year, our graduates' strength is in taking direction, and their limitation lies in leadership-related attributes. Yet, employers of 91 percent of our graduates report that the subjects demonstrate abilities to advance. Such distinctions between attributes is somewhat meaningless, however, given the tight cluster of scores, which range from a high of 3.35 to a low of 3.10.



Additively scaling all skills variables yields a grand mean of 3.27, on the four-point scale, for 2000, compared to 3.26 that was calculated for the previous year. Employers slightly more than “Agree” that our graduates demonstrate the various skills that they were asked to assess.

Evaluation Variables

Employers were asked to “rate this employee’s overall job performance.” This was a new item, and the results are displayed below in Table 4. Sixty percent rated our graduates as “more than adequate” or “outstanding.”



We asked employers to identify the particular skill that “most influenced” their evaluation of graduates’ work performances. We also asked them which skill was of second, third, fourth, and fifth in importance to their evaluation. Clear patterns emerged from their responses. The top five responses in each category are presented in Table 5 (see also the table appearing in Appendix II).

Table 5. Skills “Most” through “Fifth Most” Important in Influencing Employers’ Evaluations

| Skill | Category of Importance | | | | |
|--------------------------|------------------------|-----------------|-----------------|-----------------|-----------------|
| | 1 st | 2 nd | 3 rd | 4 th | 5 th |
| professional work ethic | √ | √ | √ | √ | |
| produces quality work | √ | √ | √ | | |
| has skills to do the job | √ | √ | | | |
| communication skills | √ | | | | √ |
| analytical skills | √ | √ | | | |
| team work | | √ | √ | √ | √ |
| attention to detail | | | √ | √ | √ |
| follows instruction | | | | | √ |
| shows initiative | | | √ | √ | √ |
| organizational skills | | | | √ | |

As Table 5 indicates, professional work ethic is consistently and highly valued by the majority of our graduates’ employers. Team work is also clearly important but slightly less so than professional ethic. Attention to detail and demonstrations of initiative are two other specific skills that importantly influence employers’ evaluations. Finally, analytical and communication skills play significant roles in how employers assess our graduates.

These findings are supported by additional analysis intended to ascertain the relative value of skills to employers. As in 1999, we applied the popular “hard” and “soft” skills model to our data and estimated a series of OLS regression equations (results

displayed in Appendix II, Table 6) to verify the net effect of each specific skill on employers' evaluation of our graduates' job performances.¹ Of the "soft" skills², showing initiative is the most influential, followed by communication skills and team work. Of the "hard" skills³, "analytical skills" and "attention to detail" have the strongest net effects. When both soft and hard skills are analyzed together, the picture changes somewhat. This year's results indicate that only four skills significantly affect employers' evaluations:

Shows initiative plays the strongest role, net the effect of the other skills. This "soft" skill was not significant in the 1999 results. Employers of 92 percent of 1999-2000 graduates agree that our subjects demonstrate this skill. "Shows initiative" ranks seventh among mean scores of skills displayed by our graduates (Table 5), and it was among the top five responses when employers were asked to identify the third, fourth, and fifth most important skills influencing their evaluations of graduates.

Attention to detail, a hard skill, is the second highest predictor of employers' evaluations of our graduates. This skill was significant in the 1999 survey, but its relative role was not as strong then as in the present year. Ninety-one percent of this year's surveyed employers agree that our graduates demonstrate "attention to detail;" its mean score is twelfth among the sixteen skills assessed. As with "shows initiative," this skill was among the top five responses when employers were asked to identify the third, fourth, and fifth most important skills influencing their evaluations of graduates.

Analytical skills is the third strongest influence on employers' evaluations. This hard skill played a more significant role in 1999 employers' assessments where its strength was about one-third greater. About four percent more employers in 2000 than in 1999 agreed that our graduates display this skill (92 percent, compared to 88 percent). Its mean score ranks fourteenth out of the sixteen skills assessed. It was among employers' top five responses to questions about the first and second most important skills affecting their evaluations of our graduates.

Working effectively with others (e.g., team work) significantly affected evaluations in the present but not the previous year's study. The net effect of this soft skill is about half that of *showing initiative*. "Working effectively with others" was among employers top five responses to questions about the second, third, fourth, and fifth most important skills influencing their assessments of

¹ Only very specific skills were specified in the regression equations. "Global" skills items, e.g., "has the skills to do the job" and "produces quality work" were not included, nor were "follows rules and regulations," "potential to advance," or "knows the industry."

² "Soft" skills are "team build," "team work," "communication skills," "showing initiative," "following instructions," and "professional work ethic."

³ "Hard" skills include "attention to detail," "math skills," "analytical skills," "organizational skills," "and "uses tools and equipment properly."

graduates' work performances. Ninety-four percent report that our graduates display this skill; its mean score ranks third.

Summary. This year's results are more complex than the previous year's in that they indicate employers' appreciation of a mix of "hard" and "soft" skills. This year's more precise measures and more detailed analysis improve the validity of our current findings over the previous year's which indicated that employers prefer "hard" over "soft" skills. The most reliable result is that of the significant value to employers of workers' analytical skills. Although among demonstrated skills it ranks in the lowest quartile, an overwhelming percent of employers affirm that our graduates display this skill.

Jobs Variables

The second part of the survey focuses on the jobs, rather than the job-holders, that our graduates occupy. Since the same employer may have responded to surveys about more than one graduate, summary data may be misleading in this portion of the analysis.

Employers of 62 percent (compared to 70 percent in 1999) of graduates reported that it is Very Important that jobs are occupied by workers with broad social skills. Slightly more employers (70 percent) in 2000 than in 1999 (62 percent) reported that technical skills needs have increased over the previous three years. Significantly fewer employers in 2000 than in 1999 predicted this trend to continue over the next three years: In 1999, 43 percent predicted major skills changes would be required to perform the particular job, but in 2000, only 31 percent predicted this. The proportion of employers unable to make predictions remained constant, around 15 percent, but the percent of those who predicted no major skills changes increased from 41 percent in 1999 to 55 percent in 2000.

According to employers of 43 percent of graduates, the jobs assumed by our subjects require between one-half year to one year for proficiency. Employers of 81 percent of graduates reported that their companies train new-hires on-the-job (78 percent in 1999). When formal classroom training is provided (as it always or sometimes is in 63 percent of the responses [56 percent in 1999]), its duration may be one day or less (11 percent), up to one week (51 percent), two weeks (16 percent), a month (9 percent), or between one and six months (13 percent) (mean = 80.8 hours).

The number of employees hired in 1999 for the positions occupied by our graduates ranged from 1-300. The number of new-hires most commonly reported was one; employers of 32 percent of graduates reported thus. Employers of 25 percent of subjects reportedly hired 40 workers into the position our graduates held. Removing the outlying response of 300 yielded an average number of 3.57 (s.d. = 3.83). Employers of graduates of electronics-related and medical programs reported hiring the greatest number of workers in 1999.

Quality of Jobs

Annual salaries for the jobs occupied by our graduates, reported by their employers, appear in Table 7.

Table 7. Employers' Reports of Distribution of Annual Salaries for Jobs Held by 1999 Graduates

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| 1 less than \$15,000 | 17 | 8.25 | 9.14 | 9.14 |
| 2 \$15,000-\$19,999 | 49 | 23.79 | 26.34 | 35.48 |
| 3 \$20,000-\$24,999 | 66 | 32.04 | 35.48 | 70.97 |
| 4 \$25,000-\$29,999 | 30 | 14.56 | 16.13 | 87.10 |
| 5 \$30,000-\$34,999 | 17 | 8.25 | 9.14 | 96.24 |
| 6 \$35,000-\$39,999 | 5 | 2.43 | 2.69 | 98.92 |
| 7 \$40,000-\$44,999 | 1 | 0.49 | 0.54 | 99.46 |
| 8 \$45,000 or more | 1 | 0.49 | 0.54 | 100.00 |
| Total | 186 | 90.29 | 100.00 | |
| Missing | 20 | 9.71 | | |
| Total | 206 | 100.00 | | |

Table 7 indicates that the most common salary is within the range of \$20,000-24,999. Jobs occupied by graduates of the Advanced Nursing Degree program are the largest group in this salary range. This is also the case of jobs paying \$25,000-\$29,999, followed by jobs occupied by graduates of the Mechanical Engineering Technology program. Jobs held by nursing graduates are the most numerous (41.2 percent) among all jobs paying \$30,000-34,999, followed by graduates of our electronics programs (30 percent).

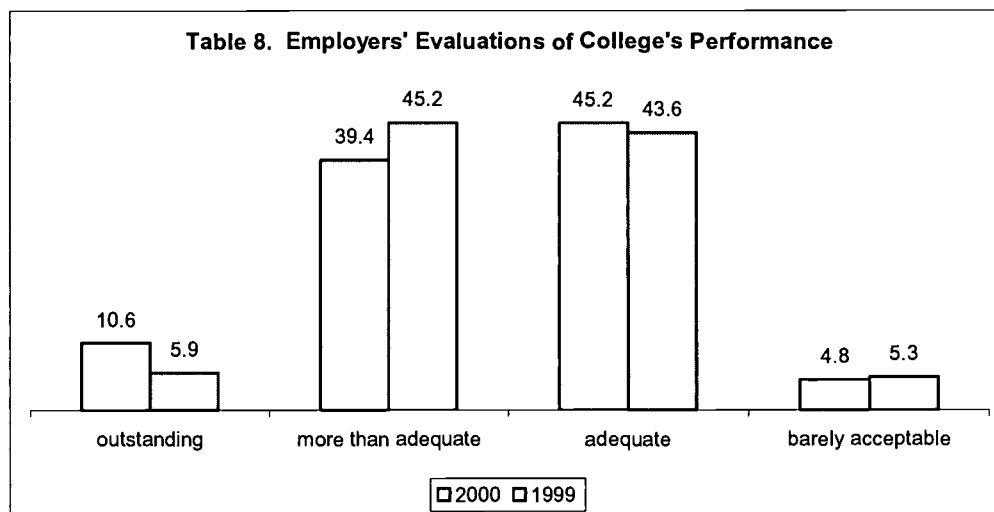
We were interested in comparing salary information provided by employers to that provided by our graduates when they respond to the Annual Placement Survey (Brinkerhoff 2000). Graduates report their hourly wage, so we used that information to calculate an annual wage and made the comparison to annual salary data reported by employers. In 64 cases (34.4 percent of the 186 responding employers), matched graduates and employers reported comparable salary information. In 36 cases (19 percent), employers reported that the annual salary for the position was higher than the graduate holding the position reported receiving. In 86 cases (46 percent), graduates reported receiving a higher wage than what employers reported.

Of the graduates whose employers responded to our survey, 172 (84 percent) occupy positions that are "directly" or "closely" related to the programs from which they graduated (response data from Brinkerhoff 2000). Employers of 84 percent of subjects report that their jobs "offer opportunities for career advancement." Of these, employers of ADN graduates are the highest proportion (20.3 percent), followed by Mechanical Engineering Tech (5.2 percent).

WITCC's Preparation of Workers

For the second time, employers were asked to rate the College's ability to prepare students to work for them. Table 8 presents results from the 1999 and 2000 surveys.

"Based on your experience with hiring, how would you rate Western Iowa Tech's overall performance in preparing students for work in your establishment?"



In all, employers of 95 percent of our graduates rated WITCC's preparation of workers Adequate, More than Adequate, or Outstanding, an increase of four percent over the previous survey year. The five percent increase in the Outstanding category is significant and expected, given such written comments as "Keep up the good work; your students have done a great job so far;" "Very pleased with knowledge and skill level;" "The last two students we have hired from WIT have been very productive and have been a benefit to our department;" and "KEEP UP THE EXCELLENT TRAINING! THANK YOU."

Some employers wrote suggestions for improvement, and one theme from the previous year, that our students must experience hands-on training, was repeated in the current survey year: "More practical situations & hands on learning;" "More actual situations and hands on experience." At the same time, one respondent wrote, "Very impressed with the 'real world' graphics software used in your program! Kudos!" (See Appendix V for written comments.)

Conclusion

This is the second year that WITCC has administered to employers of our most recent graduates a survey instrument that solicits information about the graduates in their employ and about the jobs held by those graduates. This year two new evaluation items were added that improve the validity of our findings.

We found that on virtually all measures, employers of 1999-2000 graduates gave comparable or higher ratings than were given by those of 1998-1999 graduates. The very high scores on sixteen skills measures express overwhelmingly that our former students

demonstrate important behaviors on the job. Employers of ninety-five percent of graduates rate their performance as Adequate, More than Adequate, or Outstanding. But not all of these skills are of equal importance to employers in their evaluations. Our two methods of determining which skills are of greatest value to employers revealed that *showing initiative, being attentive to detail, demonstrating analytical abilities, and working effectively with others* are the most powerful predictors of employers' assessments of our graduates. In fact, only these skills have statistically significant effects on performance evaluations, holding constant all other skills.

This is an interesting mix of "hard" and "soft" skills that contrasts our results in the previous year, when "hard" skills were emphasized. They present College faculty with the challenge of inculcating in our students abilities that are more amorphous than, for example, math skills or communication skills.

APPENDICES

APPENDIX I

**Survey Instrument
Cover Letters
Reminder Mailer**

EMPLOYER SURVEY

The purpose of this survey is to learn what employers think about Western Iowa Tech Community College (WITCC) programs and the students who graduate from them. Below are a series of statements about a WITCC graduate who is now in your employ. Please indicate the strength of your agreement or disagreement with each statement by marking in the appropriate box: Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD), or if the statement does not apply (NA).

The employee...

SA A D SD
NA

- demonstrates abilities as they apply to the job
- demonstrates knowledge of mathematical skills.....
- demonstrates organizational skills.....
- demonstrates team-building.....
- demonstrates professional work ethic.....
- demonstrates ability to analyze situations and make appropriate decisions.....
- produces quality work
- observes rules and regulations related to the job
- works effectively with others in the workplace
- has the skills to do the job for which he or she was prepared.....
- demonstrates knowledge of the industry
- has potential for advancement and/or increased responsibility
- shows initiative on the job.....
- follows instructions on the job.....
- uses tools and equipment properly
- pays close attention to the job details

How do you rate this employee’s overall job performance?..... Unacceptable
Barely acceptable
Adequate
More than adequate
Outstanding

Please rank the three most important abilities listed above that influenced your rating of this employee’s overall job performance, with ‘1’ being ‘most important’.

The following questions have to do with the particular job that the graduate filled. Please mark the appropriate box which follows each question, or write your answers in the blanks provided.

The job...

How important is it that persons hired into this position have broad social skills?..... Very important
Somewhat important
Not very important
Not at all important

During the last three years, has the proportion of fully proficient persons hired into this position..... increased?
decreased?
remained the same?

Approximately how many months does it take a typical, newly-hired person in this position to become fully proficient?..... 0-6 months
 7-12 months
 13-24 months
 25-36 months
 More than 3 years

In the last three years, have the technical skills required to perform this job at an acceptable level increased?
 decreased?
 remained the same?

Do you foresee a major change in the skills required for this position during the next three years?..... Yes
 No
 Don't know

If you answered "yes" to the above question, please briefly describe the required skill changes that you foresee.

Does this company provide on-the-job training for graduates newly-hired into this position?..... Yes
 No
 Sometimes/depends

Do newly-hired persons in this position receive formal (e.g. classroom) training from this company?..... Yes
 No
 Sometimes/depends

What is the average number of formal training hours each person in this position receives?

How many employees did you hire for this position in 1998?.....

Based on your experience with hiring our graduates, how would you rate Western Iowa Tech's overall performance in preparing students for work in your establishment? Unacceptable
 Barely acceptable
 Adequate
 More than adequate
 Outstanding

Your suggestions for improving our graduates' preparation are...

Thank you for participating in our study. The results of this survey will be used to ensure that Western Iowa Tech Community College provides the best possible programs for students.

November 28, 2000

«Company»
«Address»
«City», «ST» «ZipCode»

Dear Sir or Madam:

Each year Western Iowa Tech Community College conducts research in order to evaluate the effectiveness of our programs. We believe that one of the most important evaluations comes from employers who hire our graduates.

Please take about ten minutes to complete the enclosed survey, which questions you about «FirstName» «LastName», a graduate of Western Iowa Tech and currently your employee. The survey asks for your assessment of that person's educational preparation for work in your company, and it also is designed to help us understand certain aspects of the position, «Position», that this individual fills.

Please use the enclosed postage-paid envelope to return the survey to us. Your answers are confidential and will be used only in combination with answers from other respondents. A code number is printed on the last page of the questionnaire. This number will only be used to send out follow-up letters, if necessary. You will not be personally identified in any way in this study.

We value your thoughts and opinions; they will help as we continue to build a stronger college. We look forward to receiving your response by **December 6, 2000**.

Sincerely,

«Department_Chair»

Enclosure

December 20, 2000

Dear Sir or Madam:

Each year Western Iowa Tech Community College conducts research in order to evaluate the effectiveness of our programs. We believe that one of the most important evaluations comes from employers who hire our graduates.

Recently a survey was mailed to you which questions you about (graduate's name in **bold**), a graduate of Western Iowa Tech and currently your employee. If you have returned the survey, thank you for your response. If you have not replied, another questionnaire is enclosed. Because your participation in this study is very important, we would appreciate your completing the questionnaire and returning it in the postage-paid envelope provided.

We value the information you are able to provide regarding our students' educational preparation for work in your organization. We look forward to receiving your response by **December 29, 2000**.

Sincerely,

Department Head

Enclosures (2)

APPENDIX II

**Table 1. Distribution of Responses
Frequency Distributions and Mean Scores**

Table 6. Evaluation Variable Regressed on Soft and Hard Skills

| | | |
|--------------------------------|----------|------------------------|
| Graduate unknown | 9 | |
| No longer employed there | 16 | |
| Refused to release information | 8 | |
| Undeliverable address | 14 | |
| | Subtotal | 47 13.0% of 362 |
| No response | 109 | 34.6% of 315 |
| Completed & returned | 206 | 65.4% of 315 |
| | Total | 362 |

Table 6. Evaluation Variable Regressed on Soft and Hard Skills

| | Soft Skills | Hard Skills | All Skills |
|---------------------|-------------------------------------|---------------------------|--------------------------------------|
| team build | .009 ¹ .068 (.089) | | .126 .093 (.091) |
| team work | .272** .214 (.094) | | .188* ² .140 (.095) |
| communication | .294*** .201 (.087) | | .124 .086 (.092) |
| initiative | .358*** .281 (.086) | | .326*** .253 (.088) |
| follows instruction | .007 .050 (.100) | | -.008 -.006 (.127) |
| professional ethic | .189 .157 (.088) | | .140 .115 (.084) |
| attention to detail | | .403*** .311 (.092) | .216** .165 (.088) |
| math skills | | .194* .118 (.115) | .180 .109 (.112) |
| analytical skills | | .473*** .336 (.092) | .241** .172 (.089) |
| org skills | | .103 .078 (.089) | -.007 -.054 (.086) |
| uses tools properly | | .182 .115 (.116) | -.002 -.013 (.129) |
| Constant | -.450 (.260) | -.639 (.300) | -.946 (.283) |
| Adj. R ² | .631*** | .594*** | .682*** |

¹ B; standardized B; standard error

² *** p ≤ .001; ** p ≤ .01; * p ≤ .05

APPENDIX III

1999 and 2000 Mean Scores by Program - Spreadsheet Charts Distributed to Program Chairs

not available for public distribution



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