

# USING PRE-EMPLOYMENT TESTING TO IMPROVE PROFITS

*by Warren Bobrow, Ph.D.*

***Pre-employment testing is an important and cost-effective way to maximize plant productivity.***

Managing employees and human resource dollars is one of the most difficult tasks facing a company. After all, it is **the people** who make your company productive and profitable. Although there are as many answers as there are questions about ways to maximize the productivity of the people in your organization, the most cost-effective answer is pre-employment testing.

I am sure that the thought of using tests to select or promote employees sends a legal chill up and down some spines. However, if done properly, there is nothing to fear from the use of pre-employment tests. On many occasions, the Supreme Court has ruled that if a company uses tests within the Equal Employment Opportunity Commission's and American Psychological Association's guidelines, the company has the right to test. I will go into the legal aspects of testing later in this article.

In the next few pages, I will describe how a testing program can be developed *within legal and professional guidelines*, and how your company would benefit from using a testing program.

The premise of using pre-employment tests is simple: Out of any given group of applicants for a job, some will be outstanding performers, others will be average performers, while others will be poor performers. The difference in productivity between these groups is tremendous.

In a study of West Coast garment contractors, the best sewing machine operator has been shown to gross twice as much as the average operator! Such a large disparity in productivity does not occur by accident.

The best performers in any job category have certain skills, abilities and personality traits that the average and poor performers do not possess. When a group of tests is found which assess these differences between people, a selection system which uses these tests increases your chances of hiring people who will help increase your bottom line by being more successful and productive. These large performance differences occur throughout your company. Every position, from floor sweeper to operator, to mechanic, to supervisor, to executive, has people who perform at different levels.

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## **BENEFITS**

There are many benefits associated with investing in the development of a valid selection program, including:

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• **Hiring more productive people.** In a study conducted in four sewing plants by The Professional Resource Group, operators who passed a group of written and hands-on tests were found to sew \$30 a week more in direct labor (coupon) dollars than those who did not pass the tests.

• **Hiring people with higher aptitude.** The people your company hires will have a higher aptitude for the job. Therefore, they require less training (and less training cost) and can work on complex tasks more quickly. Jack Thurman, of Levi Strauss and Co., says that one of the biggest assets of the testing program Levi's uses for sewing machine mechanics (a project I worked on with John Lounsbury of Resource Associates) is that it has allowed them to upgrade to more technical sewing machines because their mechanics have the capability to learn and the aptitude to work on the more complex machines.

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***"If you retain the person because you go by the "warm body is better than nobody" theory of keeping your machines busy, then the person will continue to cost you money. "***

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• **Reducing turnover.** People with the ability to do a task usually are more satisfied doing the job than those who don't have the talent. This saves money because satisfied workers are less likely to leave.

• **Focusing management on more productive tasks.** Because the people your company hires will learn faster and need less attention and instruction from superiors, front line supervisors and other management staff are free to work on more productive tasks.

• **Lowering hiring costs,** by not hiring non-productive people.

For the managers who select people by being able to "tell" after a few days whether a person is going to work out on the job, consider this scenario for hiring operators (although a similar scenario could be imagined for almost any job). If you hire a sewing machine operator, and you keep that operator for three days before deciding

he/she will not work out, that operator has cost you:

1. Three days of wages at a minimum of \$3.50/hr. (already \$4.25/hr. in California);
2. Several hours either in your training program, supervisor's time, or worse, some of your best operator's time, for training;
3. Poor quality, unless you have them sew scraps, in which case they aren't producing anything;
4. Administrative time processing the person both when you hire them, let them go, and at tax time; and
5. You may go through the same process again to replace that person, with no guarantee that the next person is going to be any better.

At this point, you have already invested at least \$200 in each individual. In a 200 operator plant with 50% turnover, it has probably cost your company over \$20,000 per year just to get to the point where you decide whether or not to keep someone.

If you retain the person because you go by the "warm body is better than nobody" theory of keeping your machines busy, then the person will continue to cost you money due to:

1. Low production by constantly being in make-up;
2. Poor quality work; and
3. Being a constant drain on the quality control people and on supervisor time.

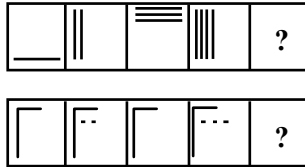
Recently, The Professional Resource Group conducted a validation project involving four sewing contractors in Southern California. Production data was gathered on a total of 344 sewing machine operators. A two-part test battery was created in order to predict operator performance. The first part of the battery measured the operator's dexterity. The second part of the battery measured the operator's reasoning ability. An operator would have to pass both the dexterity and paper-and-pencil portions of the tests in order to be hired

## Sample Problems from the Reasoning Portion of the Sewing Machine Operator's Test

### Questions

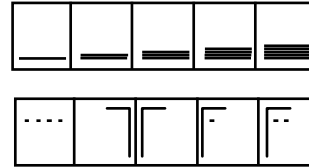
You are to select, from among the ANSWERS, the one figure that belongs next in the QUESTIONS series.

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### Answers

A B C D E



The current operators in the four plants were given both parts of the test battery. The operators who passed both parts of the test battery were found to produce 30 direct labor dollars a week more than those who did not pass the test battery. This represents a 16% increase in production (see Chart 1).

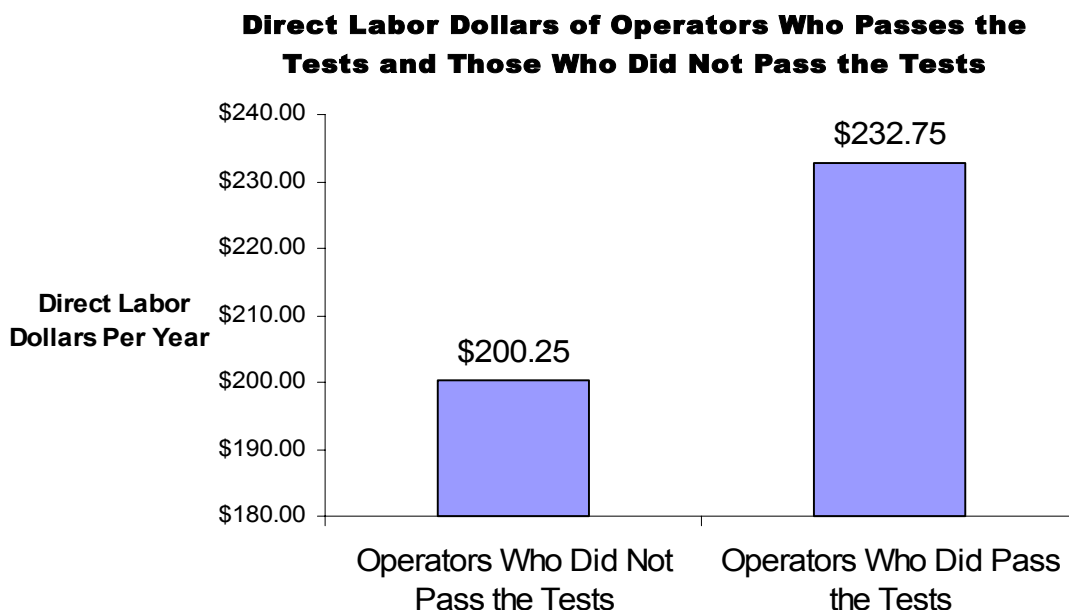
If you were to screen the applicants using the test procedure outlined above, as opposed to using the "warm body is better than nobody" approach, you would see over \$34,000 increase in production per year for every 25 operators you hire. The increase in production is based upon the test's ability to predict performance, the variance in operator performance and a 50% cutoff on each portion of the test (see Chart 2).

The end result is that poor performers cost you money when they enter your factory, whether

you keep them or not. Using pre-employment selection programs can reduce this cost by helping your company hire only the potentially most productive people.

Another popular misconception is that it doesn't matter who gets hired because they are going to be put in a training program anyway. The fact is that testing and training go together like a hand in a glove. Using pre-employment testing helps you identify who has not only the ability to perform well on a particular job, but also the aptitude to do a job well. Pre-employment testing can identify the people who will benefit the most from the training you give them; hence your training dollars go further. Pre-employment tests will also identify an individual's strong and weak points so that training can be tailored to meet individual needs.

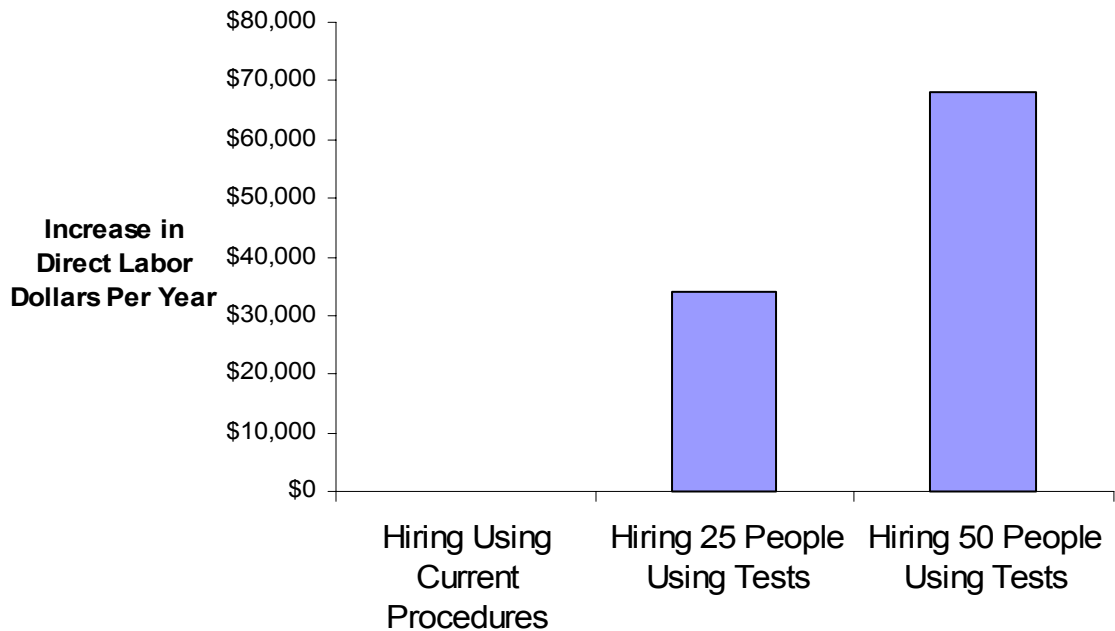
**Chart 1.**



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**Chart 2**

**Predicted Annual Increase in Direct Labor Dollars  
Using Validated Pre-Employment Test to Select Operators**



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**DEVELOPING A TEST BATTERY**

The process of developing a test battery which effectively differentiates between potentially good and potentially bad performers is a complex task. This process is called *validation*.

- *Step 1:* The first step of a validation project entails breaking down a job to its essential attributes. This is called the job analysis. As we will see later, *the job analysis is the cornerstone* of the validation project.

- *Step 2:* Once the job analysis has been performed, *tests must be developed* which measure these essential attributes. There are two different types of employment tests, *written tests and work sample tests*.

*Written tests* are used to measure attributes that we cannot easily see in a person, such as aptitude and personality. Aptitude tests can be developed to be as specific as the job attributes require. Examples of written tests include math tests, personality inventories, verbal reasoning tests, pattern recognition tests, tests for endurance, concentration, sociability and imaginativeness.

*Work sample* tests are hands-on tests used to measure abilities. A classic example of a work sample test is the peg board test used to measure dexterity for sewing machine operators. Just as a side note, in our work with sewing machine operators, we have found that the traditional peg board test is not a good predictor of operator performance.

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***"Although work samples are difficult to develop, they are generally good predictors of job performance"***

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The major advantage of a work sample test is that work samples measure very complex physical and mental abilities that cannot be easily measured using a written test. For example, Levi Strauss & Co. uses work samples to test for mechanical ability and marker maker skills. Although work samples are difficult to develop, they are generally good predictors of job performance and should be used in most testing situations. Also, job applicants feel less apprehension toward work sample tests because the tests "look" like they are measuring something impor-

tant to job performance and are not as mysterious as some written tests.

Another example of a work sample test is called an assessment center. An assessment center is a series of managerial work samples used to identify and promote managerial talent. A person in an assessment center would go through exercises such as leaderless group discussions and role plays specifically designed to test the person's managerial skills in a realistic situation. Assessment centers can evaluate such managerial abilities as delegation, decisiveness and leadership.

- *Step 3:* After the tests have been developed, the next step in a validation is the *performance appraisal*. Coming up with accurate ways to measure a person's performance on the job is a somewhat difficult task, particularly for managerial and supervisory jobs where a person does not directly produce a product. However, by closely examining the important attributes of a job that were discovered in the job analysis and the outcomes of those attributes, job performance can be accurately measured.

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***"In the spirit of equal opportunity, if a test has adverse impact, adjustments should be made in the pass/fail scores in order to maximize validity and minimize adverse impact."***

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- *Step 4:* After performance and test data have been gathered, they undergo statistical and logical analysis to see if there is a significant relationship between the tests and on-the-job performance. The most important information gathered in this test is which tests predict job performance and will be good pre-employment screens. If a test is shown to predict performance, it is a valid test.

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#### LEGAL ISSUES

After it is established that a test is valid, the final issue to be dealt with is whether the test has *adverse impact*. Adverse impact occurs when a

test selects a smaller percentage of people from one group than would be expected based upon the percentage of people in that group represented in the work force. The Supreme Court has ruled that a pre-employment screen may be legal if it has adverse impact. However, in the spirit of equal opportunity, if a test has adverse impact, adjustments should be made in the pass/fail

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scores in order to maximize validity and minimize adverse impact to meet a company's equal employment goals.

Perhaps the biggest concern about pre-employment testing is whether the process is legal. To address this concern, it is helpful to review some of the most important Supreme Court cases involving pre-employment testing.

The first landmark case involving pre-employment testing was *Griggs v. Duke Power Co.* Griggs filed a class action suit because his group felt that Duke Power's hiring practices unfairly discriminated against blacks. Discrimination was demonstrated in court because the hiring practices of Duke Power had adverse impact against blacks. The court ruled against Duke Power because Duke Power did not demonstrate that the tests and other screens it used were job related (based on a job analysis). This case is important for three reasons.

- One is that it established that *validations and tests must be professionally developed*. Since the *Griggs* decision, if the employer does not present a professionally developed job analysis to the court to demonstrate the job relatedness of a test, the employer will have a very difficult time winning the suit.

- The second reason this case is important is that it established that *any pre-employment screen must be job related and based on a job analysis*.

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• The third reason is that *the court set a precedent where the plaintiff must demonstrate he/she has been discriminated against*, and then the burden of proof shifts to the defendant to demonstrate the validity or job necessity of the pre-employment screen.

Another milestone court decision was *Washington v. Davis*. In this case, the Supreme Court agreed with the plaintiff, finding that the test battery used to select police officers had adverse impact. However, the police department demonstrated that the validation and the test battery were professionally developed and the test battery had a statistically significant relationship with job performance. The court sided with the police department and said the tests were acceptable. The importance of this case is that it upheld an employer's right to use a valid pre-employment test, even if the test has adverse impact.

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***"In general, the court's rulings indicate a balance between the rights of the applicant and the rights of the company."***

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In a more recent case (*Price Waterhouse v. Hopkins*), the Supreme Court ruled that if an employee who is passed over for a promotion claims that he/she has been discriminated against, it is up to the employer to show that the promotions were given based upon *valid*, non-discriminatory screens. This case is important because it showed that although the Supreme Court has held a non-discriminatory stance toward hiring for some time, the same anti-discrimination laws which apply to hiring also apply to promotions. For employers, this case as well as Court rulings on the statistical validity of performance ratings used for promotion (*Webster v. Ft. Worth*) calls for the development of valid, non-discriminatory selection procedures for promoting individuals to supervisory and management positions.

The latest, and perhaps most important, Supreme Court ruling on discrimination was in the *Wards Cove Packing v. Antonio* case. In *Wards Cove*, the Supreme Court ruled that employees must show that employers intended to treat employees differently because of their race, sex or ethnic origin to shift the burden of non-discrimination to the employer. Before this case, an employee could present statistical data to show that a neutral policy, such as testing, was actually discriminatory. This case makes it very difficult for plaintiffs to win a suit against a company's testing policy.

In general, the court's rulings indicate a balance between the rights of the applicant and the rights of the company. The job applicant has the right not to be discriminated against based on sex, race and religion. This right is offset by the employer's right to hire only people who they have reason to believe will be successful on the job.

What the court decisions mean to garment and textile manufacturers is that if your company is using valid, professionally developed tests to hire and promote people, you are within your rights.

## CONCLUSION

The use of a validated employee selection system is an efficient way to maximize your human resources.

It provides a legal way to hire the best people for any position in your company.

Valid selection systems will also increase your company's productivity, reduce turnover and allow your personnel to be utilized to the fullest.

By investing in a valid selection system, your company will save money for many years. It is worth your effort.

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**Author's Note:** For a copy of the Equal Employment Opportunity Commission and American Psychological Association guidelines, send a self-addressed, stamped envelope to Dr. Warren Bobrow, The Context Group, 5812 W. 76<sup>th</sup> St., Los Angeles, CA 90045