



Ensuring That You Have the Most Qualified Workforce: Pay For Knowledge

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It is the responsibility of maintenance managers to ensure that their plants are staffed by highly qualified, highly skilled individuals. But how can this be accomplished? In an ideal world highly qualified individuals could be hired “off the street.” If that doesn’t work, applicants who display aptitude to learn the skills needed for the job can be hired and trained. Another option is to promote employees from other jobs or departments.

Often many employees would like to move into higher paid maintenance jobs, but how do you determine whom to promote? Maybe you need an A level Mechanic and want to move a B level Mechanic into that position. One way is to promote based on seniority, but in many instances it is a better practice to award promotions and pay increases based upon objective criteria rather than time on the job. These objective criteria may be:

- ❖ Completion of a project or performance of a set of tasks
- ❖ Attainment of accreditation, licensure or certification
- ❖ Scoring a qualifying score on a test
- ❖ Receiving a degree, diploma or certificate from an accredited school, college, or university

The purpose of this paper is to describe the steps you would follow to start a pay-for-knowledge program and more specifically, what type of assessment can be used to determine which candidates to promote.

Where Do I Start?

If the employees at your facility are represented by a union, it is a good idea to negotiate appropriate contract language for a pay-for-knowledge program as the first step. Talk to the employees to gather input and communicate intent. In most instances the mere fact that you are involving your staff in the process will result in a morale boost. That, and the fact that you are providing increased opportunities for your existing staff, can be exciting for your organization.

What knowledge and skills do the qualified staff have?

Your first task will be to determine the required job activities for the maintenance position.

Management should conduct meetings with operating and maintenance management to define the maintenance activities performed on the job. It is important to clearly define the capabilities and skills required. One way to do this might be to use a checklist like the ones outlined below:

- A. Mechanical Skills
 - ✓ Millwright
 - ✓ Fabrication
 - ✓ Ironworker
 - ✓ Welding
 - ✓ Machining
 - ✓ Pipefitting
 - ✓ HVAC
 - ✓ Refrigeration
- B. Electrical Skills
 - ✓ Motors
 - ✓ Wiring
 - ✓ Construction and Installation
 - ✓ Electronics
 - ✓ PLCs
 - ✓ Power Distribution
- C. Instrumentation
 - ✓ Controls
 - ✓ Combustion
 - ✓ Process Control

Once you have identified the skills that a qualified person would have, the next step is to determine who on your staff has these skills.

What procedure can be used to establish the qualifications of the candidates?

Next you will need to develop procedures to determine the qualifications of candidates for the maintenance position.

A defined procedure is imperative in a pay-for-knowledge program. Typically this procedure would follow steps similar to the ones shown below:

- Notice
- Posting of Job Vacancy
- Application
- Application Review
- Testing (paper-and-pencil or electronic)
- Performance Testing
- Decision
- Notification

I have a group of people who want to be considered for promotion. What selection procedures do I employ?

Tests can be used to determine the qualification of candidates.

First, evaluate the applications. Those candidates who are not at least minimally qualified would not proceed to the next step. These minimum qualifications should be defined at the very beginning of the process and agreed on by the union representatives (if the employees are represented by a union) and the maintenance management.

A realistic job preview is often helpful. This enables persons who are attracted by false impressions of what maintenance persons do or those attracted by the shift schedule to reconsider their decision to apply.

The use of a test increases the likelihood that poorly skilled candidates will be identified.

The next step is to administer a test that has been determined to be job related. This test may be a custom-designed test or an off-the-shelf test purchased from a publisher who specializes in maintenance testing.

Custom-Designed Test

The advantage of a custom-designed test is that you would know that each question on the test has been selected or written specifically for your company. Consultants who are psychologists specializing in test development can be hired to perform a content validation study. The components of this study would include job analysis, test item selection and determination of a passing score.

Job Analysis

Job summary, work performed and consequences of error would be defined. The top ten job tasks would then be listed and ranked in importance by company job experts under the direction of the consultant.

Test Item Selection

Test questions would be selected from questions provided by the consultant or new questions may be written. These questions would be related to the job tasks specified in the job analysis. The proportion of questions to the total number on the test would be directly related to the ranked importance of the task.

Determine a Passing Score

The selected test items are composed into a test and once again reviewed by company job experts on an item-by-item basis. A determination of a “cut score” is made based on this review. The “cut score” indicates a score that a qualified candidate should be able to achieve.

Advantages and Disadvantages of a Custom-Designed Test

The benefits of a custom designed test are many, the most obvious is by employing a professional to custom-design a test you can feel comfortable that the test is job related. When tests are job related, they have more credibility with the persons taking them, giving the test takers more confidence in their results and providing less likelihood of complaint or litigation.

Custom designed tests have advantages over off-the-shelf tests, but are not always necessary.

The *Uniform Guidelines on Employee Selection Procedures* (1978) require that any selection procedures that have an adverse impact on protected groups must be shown to be job related (or valid). Therefore, developers of tests usually try to meet those guidelines in the event that the tests do have an adverse impact. A validated test is usually the product of research by a psychologist. The resulting validation report is the documented evidence by a professional researcher of the validity of the selection procedure. In the event of complaint or litigation, the report would usually be entered into evidence. In addition, the author should be willing to provide testimony that the report reflects generally-accepted professional practice and is in conformance with the requirements of the *Uniform Guidelines on Employee Selection Procedures*.

The cost of a validation procedure reflects the consultant's time and resources. Also, done correctly, a custom designed test is likely to take at least a month to six weeks to complete. There is no question that a custom designed test is BEST and often recommended for medium to large companies and those with unions, but there are other options.

Off-the-Shelf Tests

There are test publishers who specialize in maintenance testing. One way to find these publishers is to search the internet. Use a search term that best describes what you are looking for, for example "Maintenance Tests." Check with the publisher to find out if you can purchase a sample of the test(s) for review by the maintenance managers at your plant. One cautionary note is that a test purchased off-the-shelf will not define a passing score.

Off-the-shelf testing provides an easy method for assessing a candidate's abilities.

Are off-the-shelf tests validated?

Most test publishers sell tests that have been previously validated for another company. If you are looking for a test for a welder and you find a published test for that job title it may have relevance for your company and specific job. However, just because a test has been validated does not mean it has been validated for your use. You may very well have a multi-craft mechanic position available but find that sample tests that you review include knowledge of HVAC which is not required for your industry. You will need to look further to find a test that better matches the available position at your plant.

It is possible to do a validation study of a pre-existing test. This would entail job analysis activities by a qualified consultant and professional review with job experts to ensure that each item on the off-the-shelf test is job related. This procedure is less expensive than developing a custom test, and provides the security of a validation study. Also, one of the results is that a defined cut score is developed in the process of the study.

I have chosen a test, now how do I administer the test?

Traditionally tests have been administered as paper-and-pencil tests. Tests are then scored by trained personnel. Like almost every industry, testing has taken a giant leap into the 21st century and the trend is toward online administration of tests. The advantages of online testing are many, but perhaps the most dramatic is that the scoring is performed automatically and results are presented immediately. Decisions on the method of test administration remain at the discretion of test purchasers.

I now know which employees have the knowledge to be promoted to a more highly paid position. Am I finished?

Decisions related to promotion requirements should be determined at the beginning of the process. It may be that each individual who receives a certain qualifying score would receive a pay-for-knowledge salary increase. At another company a qualifying score may allow a candidate to move onto the next step which is often performance testing. This is usually a “hands on” assessment. Like the knowledge test, a “hands on” assessment can be professionally validated by a licensed consultant. The process of validation would be similar to that of validating a paper-and-pencil test. Job experts would determine what “hands on” activities a qualified candidate would be able to perform. This “hands on” test is likely to be the last step in a pay-for-knowledge program.

Following the performance testing, candidates can be selected for existing higher paying jobs based on scores on both knowledge and “hands-on” testing.

Real World Application

With more and more process control equipment reflecting PLCs, and other sophisticated equipment, the Maintenance Department at a mid-west paper plant realized that the skills of the maintenance employees had to be enhanced. They used the steps of defining the necessary skills and knowledge and negotiating a workable plan with their unions. In addition, they obtained a credible training provider for their Electrical Technicians and Instrument Technicians who were eligible to compete for the new positions and hired Ramsay Corporation to develop competency tests for technician assessment and selection.

Now that you have assessed your candidates' abilities, you are capable of making an informed decision on which employee(s) to promote.

The technical college that was selected to develop refresher courses had proximity to the plant and the capability to provide the services to the company. The college devised a 20-hour curriculum to precede Test I and a 40-hour curriculum to precede Test II. Test I was taken by 13 Electrical Technicians and 14 Instrument Technicians. Eleven of 13 Electrical Technician candidates passed Test I and 9 of 14 Instrument Technicians passed Test I.

On Test II, 9 of 11 Electrical Technician candidates passed, and 7 of 9 Instrument Technician candidates passed.

Using custom assessments along with a cutting score determined in the course of a validation study, the company was able to test internal applicants and filled all but one opening from within their organization.

Get Started Today to Get a More Qualified Maintenance Staff by Starting a Pay For Knowledge Program

Ramsay Corporation has been in the maintenance testing business for more than 30 years. Our tests can be administered at computers with internet access or in paper and pencil format. To see if there are any existing tests that are right for you, go online at www.ramsaycorp.com. Call today to ask about customized test development. Let us know how we can help you!

Additional Options:

We now can randomize presentation of test questions for test takers. Person A gets questions 5 as question 1. Person B gets question 8 as question 1. This prevents memorization of question by location in the test.

Custom Tests

We can make your test tailored to your needs, processes, or equipment.

Validation

We can perform a content-related validation of your tests to satisfy OFCCP or EEOC requirements.