

Leveraging Diversity

Baseball, Probability, and Hiring a Better Workforce

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So you're a brand new Program Manager (PM) and one of your first orders of business is to staff the office. You obviously want your program to be successful and, therefore, you want to hire only the best and brightest employees available. What can you do to help ensure that you actually hire the best and brightest? Think *diversity*.

EEO and the Law

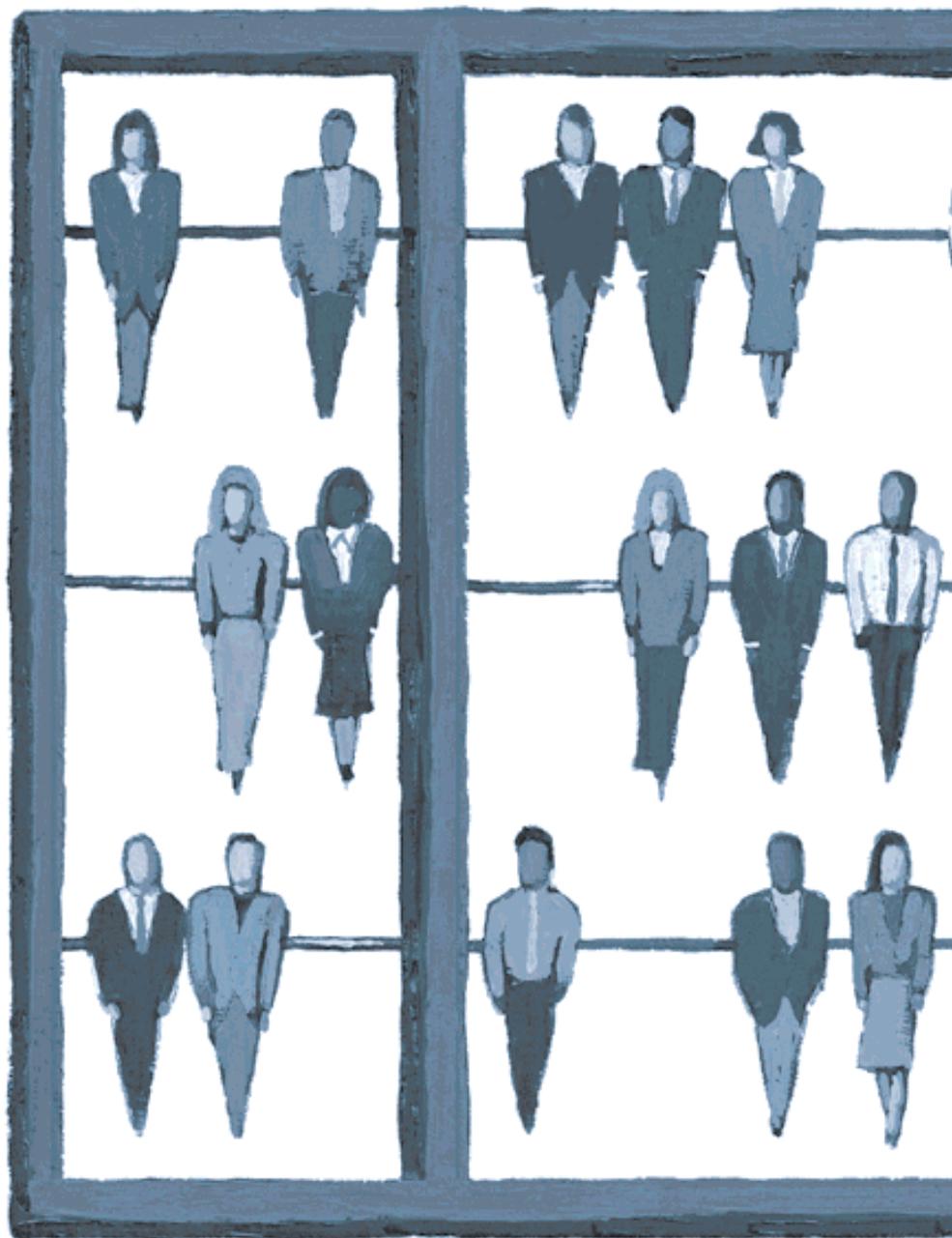
Federal laws and policies concerning Equal Employment Opportunity (EEO) prohibit job discrimination based on race, color, religion, sex, national origin, age, disabilities, and even protected genetic information. Other forms of discrimination, or what might be referred to as *employment exclusion*, that fall outside of law or policy are, therefore, generally permitted. Viewed conversely, federal laws concerning EEO, like many laws, establish minimally acceptable behavior for those responsible for employment actions such as hiring and firing.

To date, many laws establish minimally acceptable behaviors for practically all functions of a program office such as EEO, contract management, and fiscal management. Taking fiscal management as an example, significant benefits are to be derived from sound fiscal management. Therefore, in order to take advantage of those benefits, program offices will operate at a point well above the minimally acceptable behavior established by law.

What about EEO or diversity programs? Are there significant benefits to diversity programs? And if there are significant benefits, are program offices in the habit of taking advantage of those benefits by operating at points

well above the minimally acceptable behavior established by policy or law?

In fact, significant benefits are to be gained from workforce diversity that should cause the PM to think well be-



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yond minimally acceptable behaviors.¹ Unlike the benefits of sound fiscal management, however, the benefits of workforce diversity to the program office often are not easily recognized.

A Mathematical Demonstration

John Allen Paulos, the author of *Innumeracy* and other books, has made a small fortune telling Americans just how little they really know about mathematics and the negative effect this has on just about everything Americans do.² He has also suggested that the level of readership of any work is inversely proportional to the number of mathematical equations contained in the work. (In light of that view,

mal probability curve accurately describes the natural variation of things encountered on a daily basis such as the diameter of machine screws, the time at which the newspaper arrives in the morning, or the quality of job applicants seeking employment. Just like the distribution of grades on a high school algebra test, the quality of a number of job applicants will have a certain *mean* and *standard deviation* and can be readily depicted using a normal probability curve.

So, let's say that we advertise for 10 positions in our new program office and 100 DoD candidates submit applications. Obviously, we only want to select employees possessing the objective attribute *Best and Brightest*. If these 100 candidates

Now let's say we decide quite arbitrarily that we will only consider those DoD candidates who are also Navy employees (say, 50 of the original 100 applicants). And let's further assume that the 50 remaining candidates are also evenly distributed along the *Best and Brightest* continuum (Figure 2).

What effect does this have on the quality of the 10 candidates we hire? Again, using standard statistical methods, it can be shown that the 10 best candidates ultimately hired (now the top 20 percent of the population, falling to the far right of the curve) have an average *Best and Brightest* measure of only 1.35, or 1.35 standard deviations above the mean – a reduction of 23 percent!

Clearly, what this 23 percent reduction translates to in terms of workforce performance depends upon what was meant originally by *Best and Brightest*. Perhaps thinking will be less innovative. Perhaps acquisition strategies will be less sound. Perhaps relations with the contractor will be less harmonious. Regardless of what *Best and Brightest* really meant, the result is that the more capable workforce was not selected.

What's true for arbitrarily excluding non-Navy candidates from consideration for reasons other than ability is also true for arbitrarily excluding *any* group from consideration: *the resulting workforce is necessarily of lower quality*.

Stated statistically, the odds of hiring superstars increase as the size of the population under consideration increases.

Lessons from Major League Baseball

As cautioned by logicians, arguments by analogy should generally be avoided.⁴ Nevertheless, a striking lesson is to be learned by the integration of major

Not a single reader of this article can claim unequivocally that discrimination based on race, sex, religion, age, and so on, never takes place. When it does take place, not only is the law being broken, but the resulting quality of the workforce and potential success of the organization are being undermined in a very significant way.

the mathematics here is kept to a minimum.)

The benefits of diversity can be demonstrated mathematically using the normal probability curve, commonly referred to as the *bell curve*. The nor-

are normally distributed along a continuum known as *Best and Brightest*, they can be depicted using a normal probability curve (Figure 1).

Using standard statistical methods, it can be shown that the 10 best candidates ultimately hired (the top 10 percent of the population, falling to the far right of the curve) have an average *Best and Brightest* measure of 1.75, or 1.75 standard deviations above the mean.³



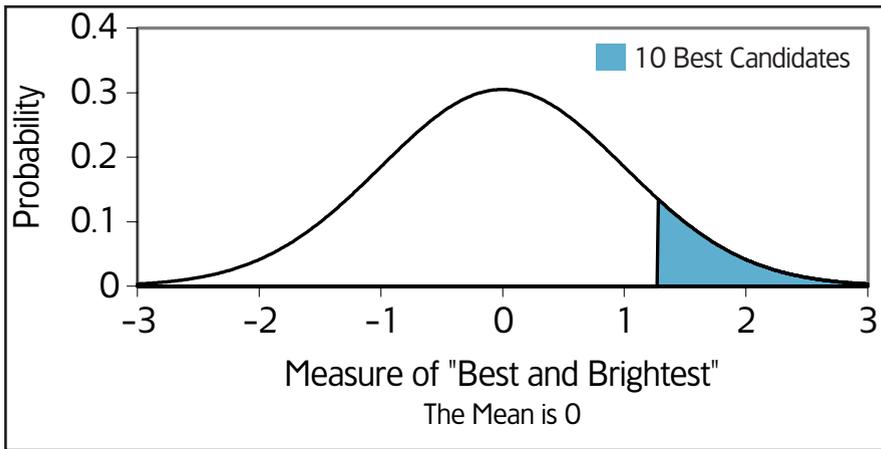


FIGURE 1. **Distribution of 100 Candidates**

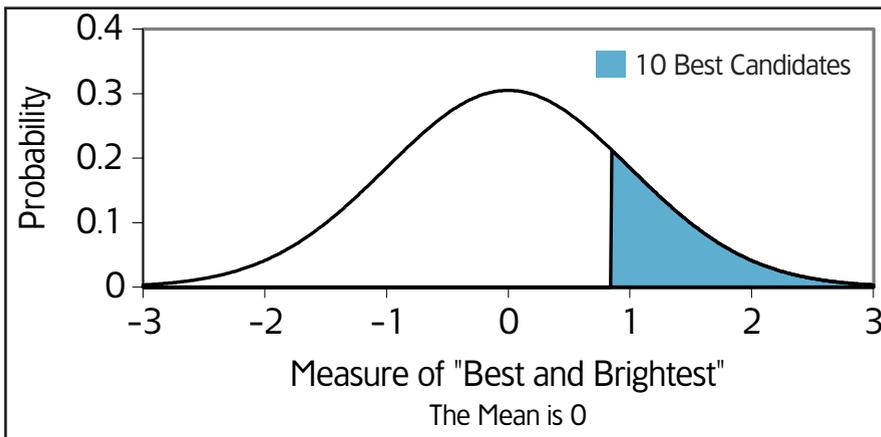


FIGURE 2. **Distribution of 50 Candidates**

league baseball that demonstrates the mathematical principle quite well.

Why look at major league baseball or sports in general? Sports such as baseball deal habitually with highly objective performance measures such as player statistics and the number of wins and losses by a team. Sports such as baseball pit large numbers of players against large numbers of players and are, therefore, open to valid statistical analysis. So, sports are somewhat unique in that they can shed an objective light on the positive effects of workforce diversity.

Up until the 1940s, 20th century major league baseball was not integrated. However, beginning in the 1940s that barrier began to fall very slowly and very unevenly. One result of the slow pace of integration is a wealth of data concerning the benefits of diversity to the level of play. The data clearly show that those

teams that integrated earlier gained a definite offensive and defensive advantage and generally outperformed those teams that integrated later. The lesson from baseball is quite clear: diversity improved the overall quality of the workforce.⁵

The exact same effect was witnessed when, after years of segregation, major league football was reintegrated between the late 1940s and the early 1960s. As with baseball, the reintegration of major league football was slow and uneven. The teams that failed to integrate in a timely manner found themselves to be at a great disadvantage.⁶ With little effort, similar examples can be drawn from numerous other sports as well.

The lesson from major league baseball and its applicability outside of the ballpark is quite clear and provides a real-life demonstration of the mathematical principle of normal probability. Why we

needed (and still need) laws to enforce behavior that has such obvious merit can only be explained by the likes of John Allen Paulos.

Current Forms of Employment Exclusion

For whatever reason, DoD exhibits a propensity toward excluding large portions of the workforce from consideration when hiring. For example, the areas of consideration on job announcements are often limited to *DoD Only* or *Navy Only* (as in the earlier mathematical demonstration). Job series can be overly specific; moreover, to cut down on the cost of Permanent Change of Station (PCS) moves, geographic restrictions are commonly applied.

Additionally, many agencies and personnel specialists rely heavily upon standard *Knowledge, Skills, and Abilities (KSA)*, such as *Ability to Communicate Orally and in Writing*. Although many times KSAs are an absolute necessity, we should keep in mind that oftentimes they contribute to the exclusion of otherwise outstanding candidates for whom communication poses a challenge or English is a second language.

In addition, KSAs often require prior experience with specific systems. Again, KSAs can be legitimate. However, they can also be unnecessary and, therefore, exclusionary in nature. The question to be asked here is whether the specifications contained within a job announcement are truly relevant.

Some methods of exclusion are even officially sanctioned and unavoidable. For example, with some exceptions, the merit promotion system requires employees to sit *in grade* for one year before becoming eligible for promotion. Although it may be a good rule of thumb for employees to spend a certain amount of time *in grade* to mature before advancing, such restrictions occasionally impede superstars from working at their full potential and to the benefit of the organization.

Finally, it's probably safe to say that not a single reader of this article can claim

unequivocally that discrimination based on race, sex, religion, age, and so on never takes place. When it does take place, not only is the law being broken, but the resulting quality of the workforce and potential success of the organization are being undermined in a very significant way.

In the mathematical example cited earlier, the significant effect on the quality of the workforce by arbitrarily excluding 50 percent of a population from consideration was demonstrated. Taking all of the above exclusions together, however, it is easy to see that well over 50 percent of potential applicants are routinely excluded from consideration. The effect this has on the potential quality of the workforce can be dramatic.

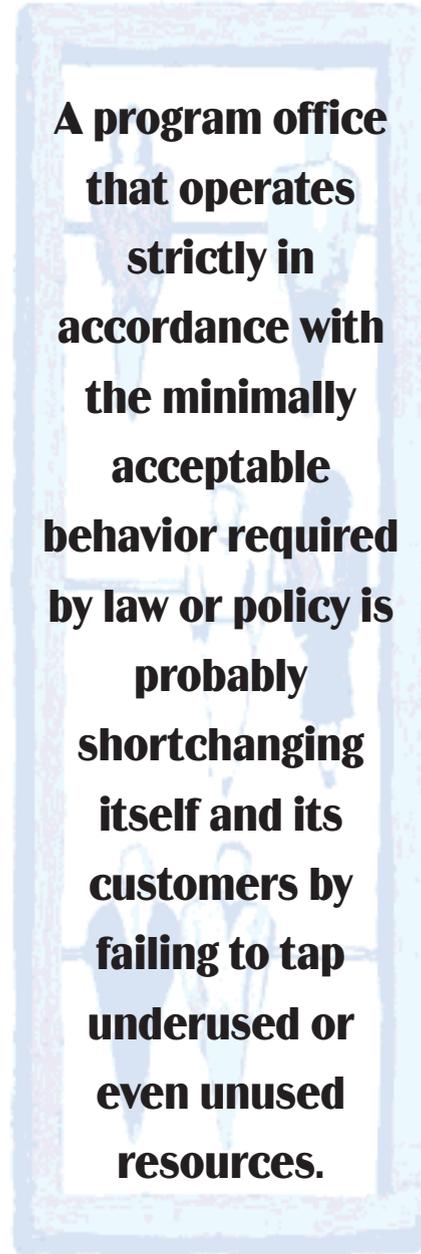
The bottom line is that all types of arbitrary exclusion contribute to lowering the overall quality of the workforce. Therefore, any barrier that might prevent the inclusion of any person or group should be vigorously challenged.

Going for the Win

The success of the PM arguably depends heavily upon the overall quality of the workforce. As demonstrated mathematically, the overall quality of the workforce is lowered any time a group is arbitrarily excluded from consideration. Stated conversely, the overall quality of the workforce is increased by the inclusion of more groups.

The positive effect of this inclusion on overall quality can be quite dramatic. So, a program office that operates strictly in accordance with the minimally acceptable behavior required by law or policy is probably shortchanging itself and its customers by failing to tap underused or even unused resources.

What can the PM do? The PM can set the course that takes the program office to where it is operating at a point well above the minimally acceptable behavior required by law and policy. The PM can truly embrace diversity by challenging overly restrictive requirements in the hiring process such as those re-



lated to area of consideration, series, and KSAs. Furthermore, the PM can work toward creating a work environment that is more attractive to more groups of potential employees.

The point to keep in mind, however, is that diversity programs are not something with which PMs should merely comply. Rather, in order to acquire the most capable workforce, diversity programs should be leveraged to the fullest extent possible.

Editor's Note: The author welcomes questions or comments on this article.

Contact him at BreslinDA@navsea.navy.mil.

E N D N O T E S

1. Fernandez, John P., *Managing a Diverse Workforce: Regaining the Competitive Edge*, Lexington Books, 1991. Fernandez claims correctly that organizations willing to leverage diversity will reap the rewards that others will not.

2. Paulos, John Allen, *Innumeracy: Mathematical Illiteracy and Its Consequences*, Vintage Books, 1990. For those of us who are or are not mathematically challenged, Paulos does an outstanding job of illustrating how mathematical illiteracy affects our perceptions, judgments, and critical-thinking skills.

3. Hines, William W., and Douglas C. Montgomery, *Probability and Statistics in Engineering and Management Science*, second edition, John Wiley & Sons, 1980. In order to simplify the mathematics, the case of two groups with identical distributions was chosen. When using two groups with different distributions, the mathematics are more difficult but the underlying principle still holds true.

4. Keynes, John Maynard, *A Treatise on Probability*, Macmillan and Co, Limited, 1929. In descending order, Keynes ranks the efficacy of logical arguments as syllogism, induction, and, finally, analogy. Analogies are seductive in casual conversation because of their ease of use. However, they are prone to error.

5. Tygiel, Jules, *Baseball's Great Experiment: Jackie Robinson and His Legacy*, Oxford University Press, 1997. Tygiel's book is a scholarly history of the integration of baseball and clearly demonstrates the benefits witnessed by those teams that integrated early.

6. Ross, Charles K., *Outside the Lines*, New York University Press, 1999. Ross documents how damaging group exclusion can be and as evidence points to the poor performance of specific teams that resisted integration through the early 1960s.