

Punishing by Rewards: When the Performance Bell-curve Stops Working For You

Chintan Vaishnav

chintanv@mit.edu

Engineering Systems Division
Massachusetts Institute of Technology

Ali Khakifirooz

khaki@mit.edu

Department of Electrical Engineering and Computer Science
Massachusetts Institute of Technology

Martine Devos

mmdevos@acm.org

ObjectMentor Consulting
Bedarra Research

Abstract

Many organizations today use a bell-curve for performance evaluation process. They reward a small percentage of top performers, encourage a large majority in the middle to improve, and lay-off the bottom performers. Companies believe that such pay-for-performance system encourages employees to perform better. The question we explore in this paper is: *does the system increase the overall performance of the company over time?*

We observe that pressure, if maintained below a certain level, can lead to higher performance. However, with lay-offs, constant pressure demoralizes employees, leading to drop in performance. As the company shrinks, the rigid distribution of bell-curve forces managers to label a high performer as a mediocre. A high performer, unmotivated by such artificial demotion, behaves like a mediocre. Further, managers begin to reward visible performance over the actual. Finally, the erosion of social capital could cripple the company.

We recommend the use of a semi-bell-curve where someone who performs like a top performer is rewarded as one. Further, we recommend balancing pressure and morale. We recognize that such a balance is very difficult to strike, and can be successfully achieved only by decoupling the issue of lay-offs from the performance evaluation process, to some extent.

Alpha's pride – their performance evaluation process

Alpha is a design and development company. It designs highly reliable network equipments. Their core competency is research and development of products. Manufacturing is largely outsourced, while sales and marketing are done through direct or indirect channels.

Four years ago, Alpha adopted a new performance evaluation process that uses a bell-curve. Every evaluation period – 6 months in the case of Alpha – employees are categorized into three buckets: top 10% as high performers, middle 80% as normal or middle performers and bottom 10% as low performers. Alpha calls this a pay-for-performance system where the high performers get a big reward (bonus or salary raise), the middle performers get some reward, but the low performers are often laid off or given a clear signal that their job may be affected. Over the entire period of using this performance process, Alpha has been shrinking 10% every year on an average. Many such companies that use the bell-curve for performance evaluation today (Gary 2001; Grote and Grote c2005) can be represented by an aging chain shown in Figure 1.

Many at Alpha believe that such a system keeps employees under pressure and motivates them to be more productive. The question really, from the human resource management perspective, is: *does the system increase the overall performance of the company over time?*¹

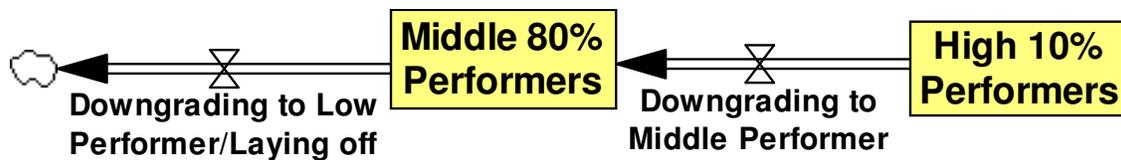


Figure 1 Aging chain of employees in a bell-curve

The bell-curve and the shrinking company

Before discussing the dynamics of how the organization reacts to such a performance system, let us first understand some basic properties of the bell-curve. Figure 2 below shows that before the company starts using the bell-curve, the company employees represent the world. Their performance is normally distributed with a certain average performance and standard deviation very close to that of the labor market. After the first performance evaluation, as the low performers are identified and let go of, the company shrinks. The average company performance shifts upward – a desired outcome from the manager's point of view. The standard deviation in performance is smaller – the company is

¹ This work was carried as a consulting engagement. The duration of the project was four months. We worked with a research division of Alpha that had been interviewing employees internally, at various levels, for more than a year. The model was developed through personal interviews and weekly meetings. The hypotheses in this model are supported by the interview notes collected by Alpha's research division. We followed the standard method developed by Jim Hines for model development and analysis.

slightly more homogeneous now. This process repeats every time the company goes through performance evaluation and lay-off without hiring new employees.

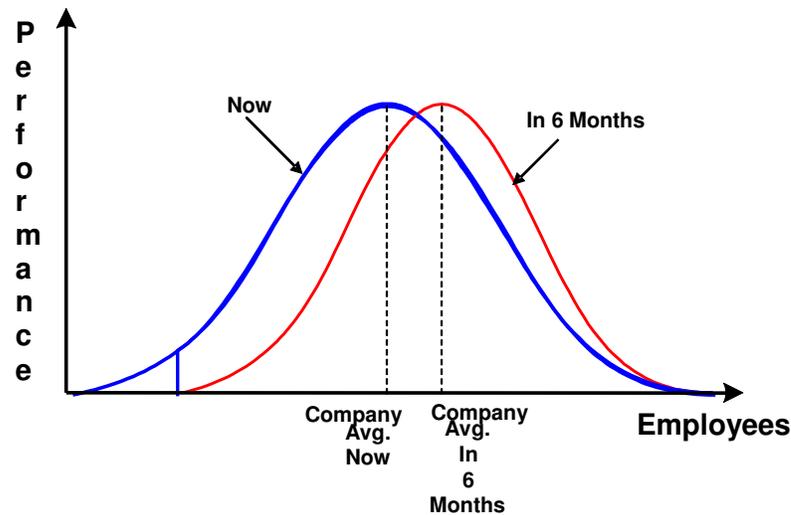


Figure 2 Bell-curve and the average company performance

Manager’s expectation – pressure motivates employees to perform

Let us now turn to the dynamics. Figure 3 shows that when an individual receives a low performance rating (evaluated performance), they feel the pressure to perform better to maintain higher performance rating. The causal hypotheses in Figure 3 models what a manager expects every time the employee performance falls. A corollary to this expectation (not shown in Figure 3) is that other forces such as reward or reputation to keep up the performance of a high-performer once they receive a good evaluation.

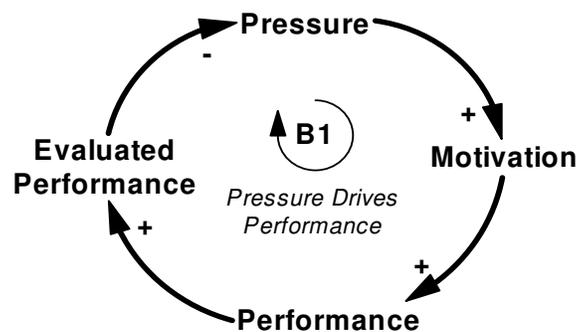


Figure 3 Pressure motivates employees to perform

So what is the effect of pressure on performance? Figure 4 shows the relationship we derived from our interviews. When there is no pressure to perform, an employee may slack. As the pressure mounts, the performance improves. However, there is a limit to performance. If the pressure becomes unbearable, the performance fall below the best

possible level, as people are stressed and being to cut corners². This is the tipping point beyond which the company should try not to operate.

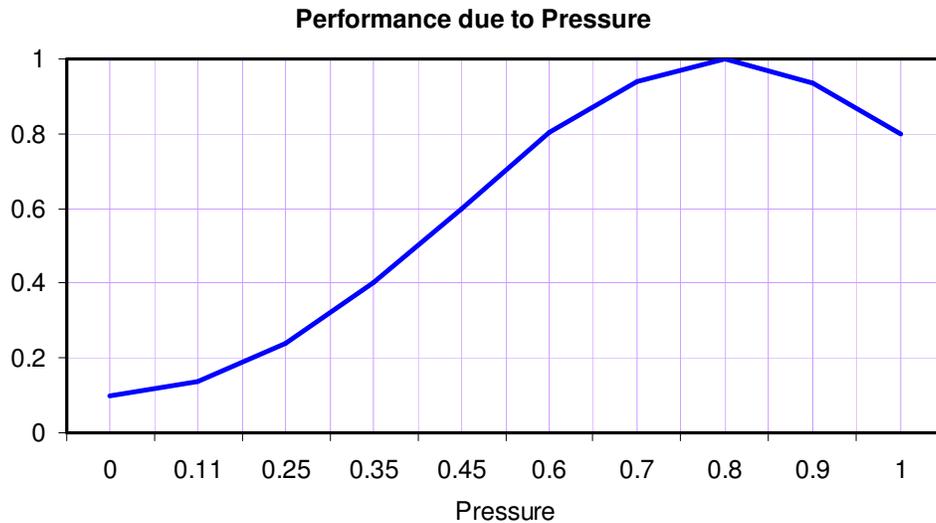


Figure 4 Effect of pressure on performance

But constant pressure demoralizes the workforce

With periodic performance evaluations and the shrinking company, employees are under constant pressure to perform. Such an environment begins to demoralize employees – many due to not receiving the desired reward despite working under pressure for long periods, others from the fear of lay-off and yet others from having lost their colleagues to lay-offs. Figure 5 shows these dynamics.

² Related to the point we made earlier, a process point here is that behavior shown in **Figure 4** applies to the large majority of employees in the middle bucket, but not to a small number of top performers who may continue to perform well for a long period under very high pressure. In our final model, we modeled the dynamics of the large majority versus the few very high performers separately. The phase plot in **Figure 4** was implemented using a table function.

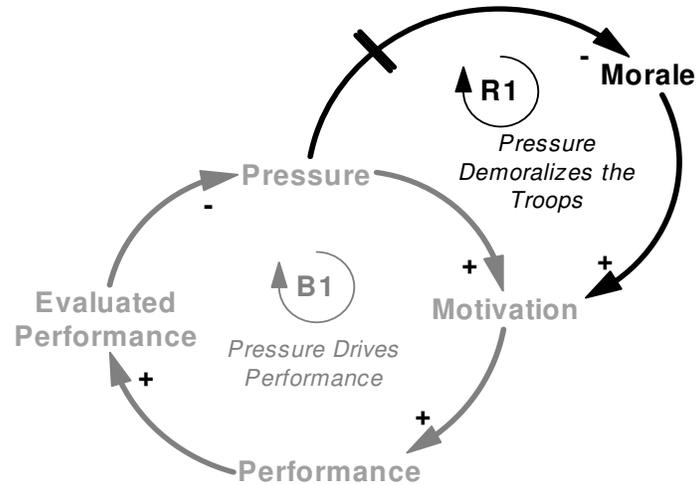


Figure 5 Constant pressure demoralizes employees

So what is the effect of morale on performance? Figure 6 shows the reference mode we derived from our interviews. Even when an employee is very demoralized, she can be expected to deliver some performance. As her morale goes higher, the performance gets better with it. The smoothening of performance at the top is from reaching the limits to performance.

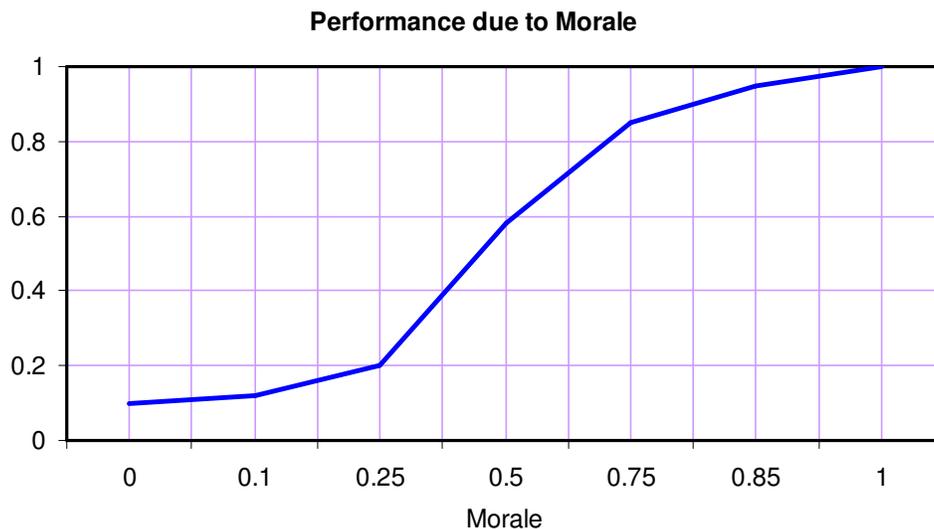


Figure 6 Effect of Morale on Performance

With layoffs, manager rewards visible performance over the actual, employee responds

Figure 7 shows what happens as the lay-offs occur and the company shrinks. As the company shrinks, the average company performance goes up. The standard deviation in performance reduces and individuals are increasingly difficult to differentiate from each other. As a result, manager begins to value visible performance more than the actual

performance³. Highly visible acts such as resolving customer emergencies are rewarded more than those that prevent such emergencies in the first place (Repenning and Stermann). Employees soon respond by performing what gives them visibility, while spending less time on doing what might actually help the company.

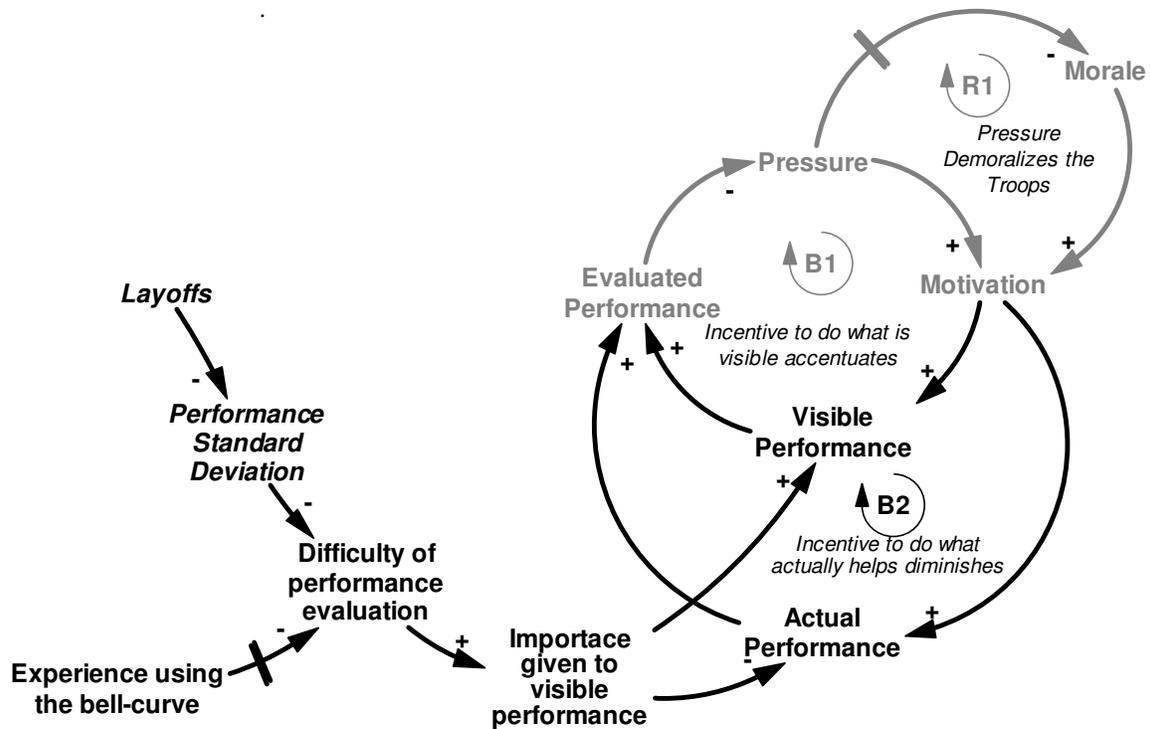


Figure 7 Manager rewards visible performance, employee responds

Erosion of social capital debilitates employees

Finally, our interviews made us aware of what happens to the social capital in a company with such an environment. We conceptualized social capital to be a combination of skills (the ability to help), teamwork (the ability to work together) and the zeal to help. With lay-offs, people with skills, however little, leave the company. This is the most visible of the impacts to the social capital. Most managers think about this. But on the not so visible side, such a climate of constant pressure makes individuals more self-concerned. As a result, they are less inclined to help and the teamwork suffers. All of this leads to erosion of social capital. Now, those that sincerely want to be productive are crippled, as they find that the social capital necessary to work effectively has left the company. Such erosion of social capital can be a huge problem, especially in development organizations like Alpha that expects to innovate rapidly.

³ Notice the splitting of the variable “Performance” into “Visible Performance” and “Actual Performance.”

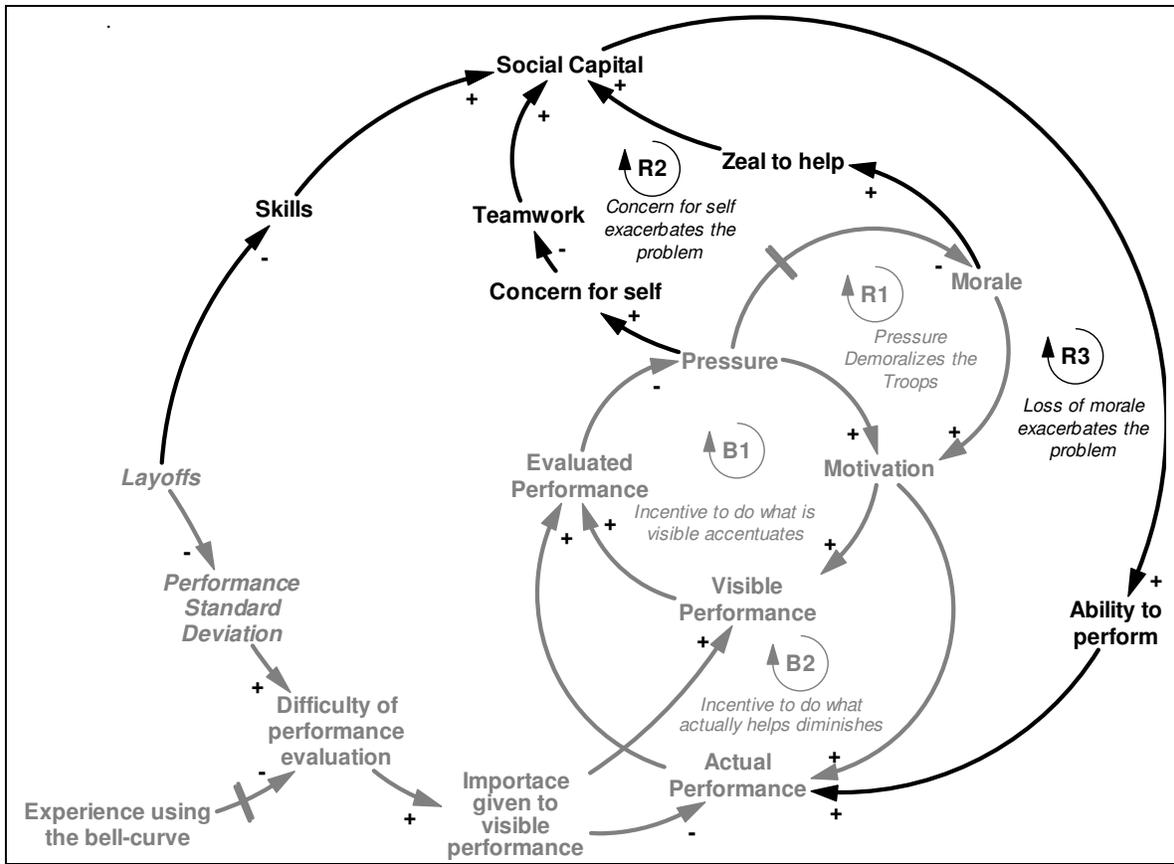


Figure 8 Loss of social capital exacerbates the problem

Call a top performer a top performer

The rigid distribution of the bell-curve plays an important role in the dynamics we observed. It leads to a situation where managers are forced to call a genuine top performer (when compared to the rest of the labor market) a mediocre. Such a top performer will face the same fears an average performer does. So, although the managers expect that by getting rid of all low performers and pushing the average performers to do better the company will eventually consist only of the top performers, this is not the case as shown in Figure 9 (*top performers relabeled* curve). Those top performers forced by the ranking system to the middle class, will no longer work as they used to. They start emulating a performance of a mediocre. Hence, the net performance would be lower than expected.

One remedy to the above situation is to assure top performers that they will be always ranked high as long as their performance remains high. This idea might be challenged by the question of how to maintain the pressure to achieve the highest possible performance. Alternative strategies to keep top performers motivated by other means rather than pressure maybe to rely on their self-motivation, challenging assignments, and other rewards.

A possible alternative strategy to control pressure, while not forcing the top performers into the middle category, is to avoid using a full bell-curve in the evaluation process. As the company shrinks and those ranked in the bottom percentiles are laid off, the *actual* distribution of the performance in the company is no longer a bell-curve. Consequently,

using a bell-curve to assign the ranking is not correct any more. A *semi-bell-curve* (one with its lower tail cut), somewhere between the actual distribution of the performance and the original bell-curve could be good candidate to maintain the pressure, yet not to force the rigid ranking. The idea is to resize the buckets to bring them closer to the true distribution. For example, instead of imposing a rigid limit of 10% on the top bucket, if the company has 30% of the employees that are high performers when compared to the rest of the labor market, the size of the top bucket could be 30%. The effect of such a policy is shown by the *top performers unaffected* curve in Figure 9.

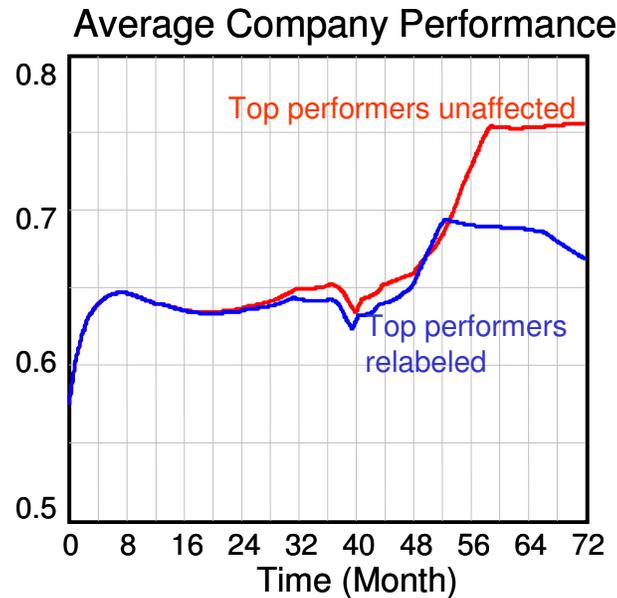


Figure 9 Average company performance depends upon how top performers are treated

Balance pressure and morale

As discussed in Figure 3, Figure 4 and Figure 5, one of the most important factors in determining the employee's performance is the balance between pressure and morale. Ideally, one wants to keep the pressure high enough to motivate the employees to work hard (as long as the pressure is not too high to pass the tipping point shown in Figure 4), but not too high to cause demoralizations. In Alpha's organization, pressure is maintained by the evaluation process and the associated fear of the lay-off. As the company continues to shrink, the pressure increases to higher and higher levels. As demonstrated in Figure 10, initially the pressure is relatively low, average performers are relieved, and the morale is high. If there are lay-offs, it does not instill fear yet as everyone believes that the company is getting rid of the low performers. However, as the company shrinks further, the average employee starts to feel the fear, the pressure builds up and the morale goes down. The average performance stays relatively constant for a while, as the drop in the morale is being compensated by the increase in the pressure. However, after the pressure reaches a certain point, it will not improve the performance anymore; there might even be some loss of performance. The morale is too low, adding up to a net performance that is very small.

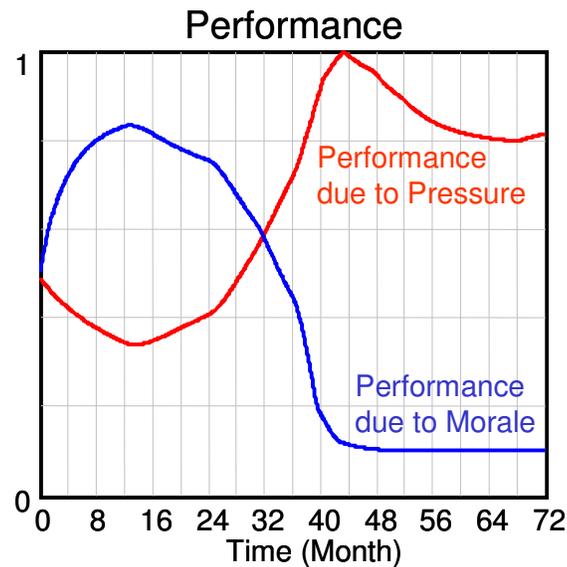


Figure 10 Behavior of average performance over time due to pressure and morale

When analyzing the balance of the pressure and morale dynamically, it is necessary to consider the possible delays in the causal loop of Figure 6. In fact in Alpha it takes six months from the day a manager gives her employees the first informal indication of their evaluated performance to the time they receive the final formal indication that they may be affected by layoff (the delay between *evaluated performance* and *pressure*). While some employees might react promptly to their manager's review, feel the pressure, and have more motivation to work harder, many will not feel the pressure until it is too late. As shown in Figure 11, how fast the employees react to the feedback has a considerable impact on their performance. With slow reaction, the performance does not improve until it is actually the time for the next review, and then with a performance that is even lower than the last round, the employee receives a worse evaluation. With fast reaction, on the other hand, the employee's performance is improved by the time she is preparing for the next review; a good review is received and the morale is kept high. This in fact might be one of the differences between a top performer and an average employee.

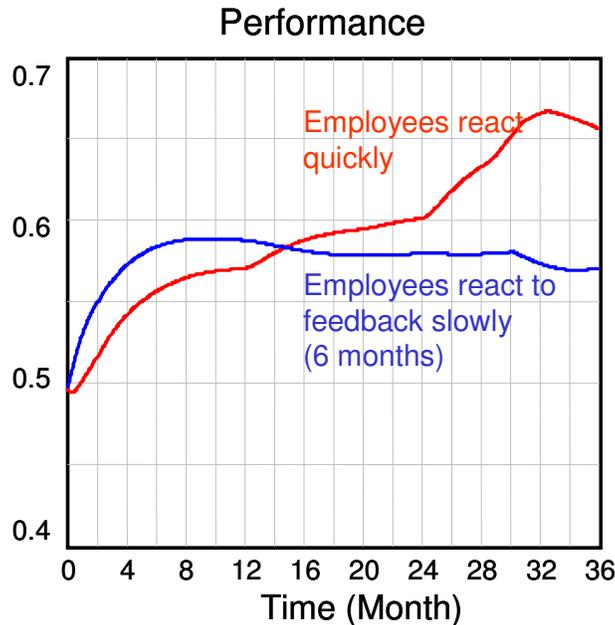


Figure 11 Behavior of average performance with how quickly employees act on the feedback

We recognize that in the current system, balancing pressure and morale is almost impossible. With lay-offs, the pressure inevitably builds up while the morale constantly drops. The only way we see of keeping the pressure at the optimum level and the morale high is to decouple to some extent the performance evaluation process from the issue of lay-offs. The semi-bell-curve can still be used to provide feedback on an employee's performance, but *not* a definite implication of impending lay-off. When lay-offs become necessary, managers can still use the semi-bell-curve results as one, but not the only, criteria for deciding who to let go.

Reward actual performance

A not-so-visible consequence of using the bell-curve in the evaluation process is the issue of rewarding the right behavior. As indicated earlier, as the downsizing of the company continues, the distribution of the employee performance becomes more homogenous. In other words, it becomes increasingly difficult to distinguish between the different employees' performance. The employee ranking process practiced today does not encourage discerning the actual performance from the visible performance. It is, in fact, a fighting match, where managers are forced to tout the most visible emergencies their employees responded to. Employees soon discover how to respond to an evaluation process that rewards visible performance rather than actual performance. In such a situation, even if the *evaluated* performance of employees improves over time, the company will not benefit much, as most of it is visible and not actual performance.

The idea of not forcing the performance distribution to fit into a bell-curve but instead using a semi-bell-curve, discussed above, can be used by the mid-level managers to highlight the problem of having to deal with a narrow performance distribution when practicing the evaluation process to the top managers. Although such a tight distribution is inevitable when

downsizing the company, using a semi-bell-curve relaxes the comparison made in the evaluation process. The difficulty of distinguishing between different employees is deferred to the layoff step. So, it is less likely that the evaluation process would credit the visible activities.

Summary of Lessons

In this paper we have analyzed the question of what happens to the overall performance of a company that uses the bell-curve for their performance evaluation process. We have studied the case of Alpha, a development organization that has used such a process for the last four years. Over the entire period of using this performance process, Alpha has been shrinking 10% every year on an average.

We observe that pressure, if maintained below a certain level, can lead to higher performance. However, as the lay-offs take place, constant pressure demoralizes employees, leading to drop in performance. As the bottom performers depart, the rigid distribution of the bell-curve forces managers to categorize a high performer (when compared to the rest of the labor market) as a mediocre. A high performer, unmotivated by such artificial demotion, behaves like a mediocre. Further, in a shrinking company, managers find it difficult to differentiate employees. As a result, they begin to reward visible performance over the actual. Beyond a certain point, the erosion of social capital has the potential to cripple the company.

We recommend the use of a semi-bell-curve that does not follow the rigid percentage distribution, and where someone who performs like a top performer is rewarded as one. Further, we recommend balancing pressure and morale. We recognize that this balance is very difficult to strike, especially in a company that is constantly shrinking. . The only way we see of keeping the pressure at the optimum level and the morale high in such an organization is to decouple to some extent the performance evaluation process from the issue of lay-offs.

References

- Gary, L. (2001). For Whom the Bell Curve Tolls. Harvard Management Review. November.
- Grote, R. C. and D. Grote (c2005). Forced ranking: making performance management work. Boston, Massachusetts.
- Repenning, N. P. and J. D. Sterman "Nobody ever gets the credit for fixing problems that never happened: Creating and sustaining process improvement." California Management Review 43(4): 64.