

Training and Performance in Call Centers

Firms make substantial investments in training programs for their workers. In a recent study from Germany, Janssen and Leber (2015) report that 32% of all employees participate in training courses. Besides facilitating explicit training, firms also invest in on-the-job learning; newly hired workers usually start at low performance levels with a subsequent increase in performance in later weeks and months due to on-the-job learning (see e.g., Shaw and Lazear 2008). Thus, firms have to invest in the human capital of new workers, enabling them to reach full productivity.

Although both on-the-job learning and training courses are a ubiquitous part of the employer-employee relationship, and costs and benefits of these activities are important inputs for managerial decisions, it is not straightforward to quantify the net benefits to the company. First, it is necessary to have information on worker performance to be able to track the performance of a worker across time and compare the performance to that of coworkers. In other words, to identify the effects of on-the-job learning or training programs, it is important to have data on a relatively homogenous workforce with similar tasks, incentives, and performance measurements, providing a basis for making meaningful comparisons between workers and over time (Sauermann 2016). Second, one should address selection, i.e. understand whether a training course induces performance improvements, or whether certain workers of, say, high quality are 'selected into' the training program.

To study the effects of training and learning, I have conducted two studies using data from a call center of a multinational telecommunication company in the Netherlands. In this call center, agents handle calls from customers who have questions, complaints or problems. This setting is particularly useful for studying the effects of training or learning, as several dimensions of performance, including the quantity and quality of calls, are measured continuously through the in-house IT system. In this call center, the main Key Performance Indicator (KPI) is the agent's average handling time. Shorter calls are interpreted as better, since they impose lower costs for the firm. At the same time, quality is measured continuously through a separate set of KPIs and closely monitored by the agent's team leader.

In our paper (De Grip, Sauermann, and Sieben 2016), we use this setting to assess the role of on-the-job learning for new hires. We show that performance of newly hired call agents is steeply improving during the first months. After this initial period, the tenure-performance profile flattens; agents reach their mature level of performance. In fact, the numbers are quite substantial, and we find average performance improvements of 64% during the first year.

Knowledge of the typical tenure-performance profile allows us to assess the firm's investments in on-the-job learning simply by determining the difference between the performance of an experienced agent and a newcomer from the time of hire to the time the person reaches performance maturity. Again, the numbers are substantial: Over the first year, a new hire spends 127 hours more on calls than an experienced agent. Put differently, the 'lost productivity' due to inexperience is substantial, and this reflects the firm 'invests' into learning on the job when hiring a new agent.

While the above calculation of learning on the job is relatively straightforward, it is more difficult to estimate the benefits of training courses. For this, we need a different approach. The reason is that comparing worker performance before and after participation in a training

course might pick up other effects, such as aggregate time trends in performance (due to changes in customer demands, quality of inputs, new technology, etc.). Furthermore, a comparison of trained workers to untrained (or not yet trained) workers may have other effects, such as motivational effects arising because the worker has been selected (or not) to the training course.

Hence, a credible approach to estimating the causal performance effect of a training course is ‘field’ experiments. Applying the logic of medical trials to a firm setting, workers have to be *randomly* assigned to a treatment and a control group, respectively. While workers in the treatment group participate in the training course, workers in the control group follow their usual routines and do not participate in the training course. If implemented appropriately, differences in performance between treatment and control groups after completing the training can be ‘causally’ attributed to the training course. While this approach is relatively easy to implement in laboratory settings, it can be challenging in a firm setting for both practical, collegial, and managerial reasons. Workers who are assigned to the control group might feel left out, disadvantaged, and envy their peers in the treatment group.

One way to implement a random element in training participation without the issues arising in ‘field’ experiments is not to randomize workers but to randomize the *order* in which workers are trained. If there is sufficient time between the training of the first group (which we can denote the treatment group) and the second group (which now acts as the control group), the interim time can be used to compare the performance of the (already) trained workers with the not (yet) trained workers. We follow this approach in De Grip and Sauermann (2012) to show that call agents who participated in a one-week training course perform 10% better than their untrained peers. This effect, however, is relatively short-lived. Untrained workers catch up due to spillover effects from trained to untrained workers, but trained workers also partially revert to normal performance. Despite these short-term effects, the temporary strong improvements in performance pay off the training investments.

So what have learned? Firms make substantial investments in both training courses and on-the-job learning. Assessing both costs and benefits becomes important when making informed managerial decisions, be it investment in training and/or decisions on the scale and scope of the training program. In the context of the call center, my research has shown that on-the-job learning among new hires is extremely important and contributes significantly to worker performance. In addition, it has shown that training courses can affect worker performance to the extent that it pays off the investment in training.

Literature

- De Grip, A., J. Sauermann, and I. Sieben (2016), “The Role of Peers in Estimating Tenure Performance Profiles: Evidence from Personnel Data”, *Journal of Economic Behavior & Organization*, 126, pp. 39-54.
- De Grip, A., and J. Sauermann (2012), “The Effects of Training on Own and Co-Worker Productivity: Evidence from a Field Experiment”, *Economic Journal*, 122(560), pp. 376-399.
- Janssen, S. and U. Leber (2015), “Weiterbildung in Deutschland”, *IAB Kurzbericht*, 13/2015.
- Sauermann, J. (2016), “Performance Measures and Workers’ Productivity”, *IZA World of Labor*, 260 (May).

Shaw, K., and E. P. Lazear (2008), “Tenure and output”, *Labour Economics*, 15(4), 704-723.

About the Brief

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