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 learning on-the-job: newly hired workers usually start at low performance levels, followed by increasing performance in later weeks and months due to learning on the job (see, e.g., Shaw and Lazear 2008). Thus, before new hires reach full productivity firms have to invest in their new hires' human capital.

Although both learning on-the-job and training courses are an ubiquitous part of the employer-employee relationship, and costs and benefits of such activities are important inputs into managerial decisions, it is not straightforward to quantify the net benefits to the company. First, it is necessary to have information on worker performance, so that the performance of the same worker can be traced across time and that the performance of a given worker can be compared to the performance of coworkers. Put differently, to identify the effects of learning on-the-job or training programs it is important to have data on a relatively homogenous workforce with similar tasks, incentives and performance measurements so that meaningful comparisons can be made both between workers and over time (Sauermann 2016). Second, one needs to address selection, i.e. to understand whether performance improvements are the result of participation in a training course, or because 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 of customers who have questions, complaints, or problems. This setting is especially useful to study the effects of training or learning, as several dimensions of performance, including quantity and quality of calls, are continuously measured through the in-house IT system. In this particular 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 on the firm. At the same time, quality is continuously measured through a separate set of KPIs and they are 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 learning on-the-job 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 allow us to assess the firm's investments in learning on-the-job 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 this calculation of learning on-the-job is relatively straightforward, it is more difficult to estimate the benefits of training courses. To do this we need a different approach. The

reason is, that comparison of worker performance before and after participation in the 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.). Further, a comparison of trained workers to untrained (or not yet trained) workers, one might pick up yet other effects, such as motivational effects that arise because the worker was selected (or not) to the training course.

Hence, a credible approach to estimate 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. 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, any performance differences in performance between treatment and control groups after the training has been completed 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 might envy their peers in the treatment group.

One way to implement a random element in training participation without the issues arising in randomized "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 a control group), the interim time can be used to compare the performance of the (already) trained workers to 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 spill-over effects from trained to untrained workers, but also trained workers partly 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 learning on-the-job. Assessing both costs and benefits becomes important to make informed managerial decisions when it comes to whether or not a company should invest in training and when it has to made decision on the training program's scale and scope. My research has shown – in the context of a call center – that on-the-job learning among new hires is extremely important and contributes significantly to worker performance and it has shown that training courses can impact 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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