

Call for Proposals

Increasing Trust in Latin America and the Caribbean

The Role of Trust in Teamwork and Leadership:
Evidence from a Field Experiment in Higher Education in Peru

August 2019

Oswaldo Molina
Universidad del Pacífico

Román Andrés Zárate
Institute on Behavior & Inequality (briq)

I. Motivation

Social skills are essential for the productivity of firms and other organizations (Woolley et al., 2010; Adhvaryu et al., 2018). However, these skills are hard to find. Employers usually list teamwork, collaboration, and communication skills as among the most valuable yet hard-to-find qualities of workers (Casner-Lotto & Barrington 2006; Jerald 2009). This evidence is not exclusive for the US, but it is also a phenomenon in Latin America. Novella et al. (2018) find that employers list teamwork, communication, and leadership among the scarcest skills in the Peruvian workforce.

The role of social skills on economic growth is becoming more critical in the era of automation. As social skills facilitate interactions between people, robots cannot easily substitute them in labor tasks (Autor, 2014). Recent empirical evidence shows that occupations requiring higher levels of social skills have increased as a share of the US labor force in the last four decades (Deming, 2017). The labor market also increasingly rewards social skills (Deming, 2017), and these are becoming more complementary to cognitive skills (Weinberger, 2014).

Intuitively, trust is embedded in productive activities that require social skills. Trusting coworkers, employees, and managers is an essential input for productivity in teams within organizations. For example, low levels of trust could explain the fact that interethnic rivalries lower the efficiency of teams in the private sector (Hjort, 2014; Marx, Pons & Suri, 2017). The role that trust can play in productive settings with social interactions activities is not limited to production in teams. Deming (2017) and Katz (2014) argue that one can view customer-oriented occupations as a joint production between worker and customer where trust is an essential input.

In this project, we propose to study the role of trust in team productivity. To do so, we plan to measure the trust of college students and perform a stratified allocation to teams. We would classify the teams into three types: (1) low-trust teams, (2) mixed-trust teams, and (3) high-trust teams. We would compare the average performance of the three types of groups in an escape game activity.¹ This set of results would contribute to understanding the role of trust in team productivity within firms—an essential component for economic development.

In the second part of the project, we would study whether a coaching intervention—designed to train low-income college students in teamwork and leadership—can improve trust and team performance. We have partnered with [CoSchool](#), an education start-up in Colombia, to design two

¹ An "escape game" is a live-action team-based game where players cooperatively discover clues, solve puzzles, and accomplish tasks in one or more rooms in order to accomplish a specific goal in a limited amount of time.

interventions to foster social skills (teamwork and leadership) of low-income college students in Peru. These interventions would be randomized as part of an ongoing field experiment funded by [J-WEL](#). First, we would study the direct impact of both interventions on the trust levels of participants in the workshops. Second, we would also estimate the spillover effects of the interventions on team productivity. We would compare the team performance of low-trust participants with teammates who have and haven't participated in the workshops.

Overall, our results would be able to assess whether low-cost education interventions can improve the trust of direct beneficiaries as well as the productivity of their teams within organizations. Furthermore, we would be able to quantify the spillover effects of these interventions by estimating the impact of being paired with a treated individual on the trust levels of their teammates. In general, we would expect that low-trust participants would change their personal experiences and their trust levels by interacting with treated individuals. We also plan to track the participants in the experiment to evaluate the effect of the workshop on academic performance and labor market outcomes in the future. This tracking would allow us to analyze whether the interventions shape social skills and whether firms value these changes in their hiring decisions.

II. Theory

Vast evidence in psychology shows a positive correlation between trust and team performance (De Jong, Dirks & Gillispie, 2016). Almlund et al. (2011) define trust as a social preference consisting of the willingness to make oneself vulnerable to other individuals. Therefore, a high level of trust between team members would allow sustaining interactions without uncertainty or fear, having more energy to allocate to pursuits that enhance team performance (Joshi, Lazarova & Liao, 2009; De Jong & Elfring, 2010). We aim to contribute to this literature by estimating the causal effects of high-trust members on team performance. Our design would allow us to compare teams composed of high-trust members, low-trust members, and mixed teams. This evidence would shed light on the economic consequences of low trust in firms productivity when labor tasks require coordination and communication between coworkers.

We also expect that the social skills interventions affect trust and team performance. There is causal evidence that personal experiences from social interactions determine individuals' inclination to trust others (Schwerter & Zimmerman, 2019). Therefore, by providing students with training in social skills, we could change these personal experiences affecting their levels of trust. The social skills training could also help participants to deal with low-trust teammates, increasing the productivity of the group. Furthermore, by having a positive interaction in their teams, treated individuals could also change the personal experiences of low-trust participants, increasing their levels of trust in the future. Hence, a positive spillover effect of the interventions on teammates levels of trust would help us to quantify the general equilibrium effects of policies that target only specific populations.

Furthermore, the social skills intervention could also complement the effect of policies aiming to increase the levels of trust. The literature shows that the positive correlation between trust and team performance is affected by leadership and teamwork. This correlation is higher when there are leaders that make decisions on behalf of others (Hollenbeck, Beersma & Schouten, 2012), and when the task requires a high degree of collaboration between team members (DeChurch & Mesmer-Magnus, 2010).

Taking into account the existing evidence, we have the following hypotheses:

1. A positive and causal impact of high-trust members on team performance.
2. Participants who receive the leadership and the teamwork interventions show higher levels of trust and are more trusted by their teammates.
3. The teamwork and leadership interventions mitigate the negative effects of low trust in team performance.
4. Having treated teammates changes the personal experiences of low-trust participants and, therefore, increases their levels of trust.

By studying the role of trust in team productivity, we would also contribute to the literature on social incentives and productivity in the workplace (Bandiera, Barankay & Rasul, 2005; Bandiera, Barankay & Rasul, 2009; Sangyoon, 2019). Overall, social incentives are a powerful tool that must be taken into account in the design of organizational policies (Ashraf & Bandiera, 2018). Our results would provide insights on the role that trust should play on that design.

III. Methodology

The participants in our project are going to be students at the Universidad Nacional de Ingeniería (UNI) in Lima. We would collect a baseline and an endline survey to measure social skills, social networks, and trust. We would also have administrative data that include demographic characteristics and academic performance measures.

First, we discuss the methodology to estimate the impact of trust on team performance. To measure trust, we would use the questionnaires of the Global Preferences Survey (GPS) (Falk et al., 2016; Falk et al., 2018). The GPS is a survey designed to collect data on risk, time, and social preferences using qualitative data through self-reported questionnaires. The items in the GPS questionnaire were the ones with the highest predictive power on real decisions in a laboratory setting. To measure trust in the laboratory, Falk et al. (2016) used first-mover behavior in two investment games. As a qualitative measure, the authors used a single-item question: *“How well does the following statement describe you as a person on a scale from 1 to 10? As long as I am not convinced otherwise, I assume that people have only the best intentions.”*

To measure trust in our experiment, we would use this item in the baseline survey. Using the median of this measure, we would classify students on two levels of trust: low-trust and high-trust participants. Then, we would perform a stratified random allocation of students to teams of three members. This allocation would be similar to the design in Zárte (2019) to study peer effects.

We would play an escape room activity with all the teams. To conduct this activity, we would hire the company [Trap Lima](#), one of the world’s largest escape game franchises. To facilitate the measurement, the game that participants would play is [Isla Tohua](#), a mobile version of an escape room. We would run the activity with 1,080 students. These students would be grouped into 360 teams of 3 students.

To estimate the impact of trust on team performance, we would use one third (120) of all the teams. Overall, we would have three types of teams:

1. Low-trust teams: all of the members have low levels of trust.
2. High-trust teams: all of the members have high levels of trust.
3. Mixed-trust teams: members have mixed levels of trust.

Panel A of Table 1 presents the design and the number of teams in each category. Overall, we would have 40 teams to compare team performance across the types of teams.

In the second part of the project, we would conduct a field experiment to study whether workshops designed to improve specific social skills affect trust and team performance. We have partnered with CoSchool, an education start-up in Colombia dedicated to developing programs to enhance the non-cognitive skills of children and youth. CoSchool would create two workshops or coaching programs. One of these programs would focus on teamwork and the other one on leadership. A J-WEL research grant already covers the costs of this field experiment. We are requesting money from the IADB to measure outcomes using team-task games.

The participation in the programs would be randomized at the individual level stratifying at the cohort-gender level. Interested students would apply to participate in the workshops, and we would randomize over them. The beneficiaries of the intervention could be randomly assigned to a control group or the two potential treatments: (1) teamwork or (2) leadership. The sample in each treatment arm would be 1,000 students. With this sample size, we have statistical power to identify an effect of 0.12 s.d. on variables standardized within the sample.

The CoSchool team is in charge of implementing the activity in Lima. Each workshop will last eight hours, with 100 students.² A CoSchool member and two locally-hired assistants would be in charge of leading the activities. The CoSchool team will stay for 12 days in Lima, working with a total of 300 students per day (three workshops per day). Therefore, in approximately ten days, the whole sample of 3,000 subjects would have participated in the activity. We will reinforce the key messages of the interventions with SMS and emails throughout the year.

First, we would estimate the impact of the workshops on the levels of trust of the participants. Specifically, we would answer what the effect of the teamwork and leadership workshops on the level of trust of the college students is. We would also collect other measures of social skills such as altruism and social perceptiveness to test the effectiveness of the workshops on these outcomes.

Second, we would also study the effects of the intervention on the performance of a team with low-trust members. For each treatment, we would compare the outcomes of two types of teams: (1) teams with low-trust individuals and students in the control group, (2) teams with low-trust individuals and students in the treatment. By comparing the performance of these types of teams, we would be able to estimate the spillover effects of the treatments on team productivity. These estimates would help us to assess whether interventions designed to enhance social skills can mitigate the adverse impacts of low-trust on productivity within organizations.

Panels B and C of Table 1 present the design —types of teams and their composition— to estimate the effects of each intervention on team productivity. For the teamwork intervention, we plan to assess the impact of having both one or two teammates that receive the training (Panel B). Overall we would have 160 teams for this analysis, with 40 teams of each type. For the leadership intervention, we are interested in identifying the effect of having a third member with the leadership treatment versus a third member from the control group. We would also have 40 teams of each type for this analysis.

² The workshops cost approximately \$2,170 and include the salary of the CoSchool staff and the assistants. Participants' food and the rental of physical spaces for the workshops, among others, are also included.

Finally, as we would randomize the low-trust participants on the types of teams, we would also estimate the impact of having treated teammates on their trust levels. This design will shed some light on the effects of personal experiences on the trust of people with whom we interact. Overall, these spillover effects would magnify the impact of any intervention that aims to increase the trust of a specific sector of the population.

In the last tab of the excel file with the budget, we present a detailed schedule of the whole project. A report with all the set of results that concern the call of the IADB would be available in August of 2020.

IV. Potential Relevance

This project is relevant for both the private sector as well as for the design of public policies. First, our results will contribute to the literature on the economic consequences of trust by estimating the causal impact of low trust on team performance. Second, by testing the effects of a coaching program designed to enhance social skills, we will assess both the direct effect of this type of interventions on trust levels, as well as the indirect effects on coworkers through team productivity and personal experiences.

First, the private sector could benefit from being informed of these results. Our conclusions would be relevant for hiring decisions as firms could understand the consequences of recruiting job candidates with a high level of trust in team performance. The fact that our measure of trust is a single-item question implies that it is easy to collect. Despite its simplicity, this measure is highly predictive of real behavior in a laboratory setting. Overall, given its simplicity, our results could inform firms to make better decisions in their job selection.

Second, private firms and the Government could use our conclusions on social skills training programs to improve the levels of trust and team performance. On the one hand, firms usually invest in coaching programs of employees. Our results would inform of the cost-effectiveness on a similar intervention by testing how it affects the levels of trust of participants, coworkers, and team productivity.

On the other hand, the results of our field experiment can be used by the Government to design programs in schools and universities to improve trust through the formation of social skills. We are working closely with the Ministry of Education and the Ministry of Labor to scale-up similar interventions and to have better measures of non-cognitive skills in the school population. For example, in case we find our training programs are effective, we would design an online version of these programs. There has been some previous evidence on the effectiveness of online courses on grit (Yeager et al., 2019). We would also design an experiment with the Ministry to test the effectiveness of the online version of the social skills training on both trust and team performance. In general, our results could be informative for the design of general public policies at schools to increase the level of trust in Peru.

Finally, our results could also be insightful for the measurement of social skills. The Ministry of Education in Peru is interested in measuring socio-emotional skills on a large scale by using self-reported instruments. By collecting these instruments in the surveys, we could learn which of them have the most predictive power on real measures of team productivity. Therefore, our strategy to measure social skills using games could help the Government to decide which instruments to include in the future.

Tables

Table 1. Allocation to Teams for Identification

Type of team	Type of Participant					Number of Teams
	Low-trust	High-trust	Control	Teamwork Treatment	Leadership Treatment	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Design to Estimate the Effect of Trust</i>						
Low-trust team	120	-	-	-	-	40
High-trust team	-	120	-	-	-	40
Mixed team type 1	40	20	-	-	-	20
Mixed team type 2	20	40	-	-	-	20
Total	180	180				120
<i>Panel B: Design to Estimate the Effect of Teamwork</i>						
Control team 1	40	-	80	-	-	40
Treated team 1	40	-	-	80	-	40
Control team 2	80	-	40	-	-	40
Treated team 2	80	-	-	40	-	40
Total	240		120	120		160
<i>Panel C: Design to Estimate the Effect of Leadership</i>						
Control team	80	-	40	-	-	40
Treated team	80	-	-	-	40	40
Total	160		40		40	80

References

- Adhvaryu, A. & Kala, N. & Nyshadham, A. (2018). “The Skills to Pay the Bills: Returns to On-the-Job Soft Skills Training”. R&R en *Journal of Political Economy*.
- Almlund, M., Duckworth, A. L., Heckman, J., and Kautz, T. (2011). Chapter 1 - *Personality Psychology and Economics*. In Hanushek, E. A., Machin, S., and Woessmann, L., editors, *Handbook of The Economics of Education*, volume 4 of *Handbook of the Economics of Education*, pages 1 – 181. Elsevier.
- Ashraf, Nava and Bandiera, Oriana (August 2018). “Social Incentives in Organizations”. *Annual Review of Economics*, Vol. 10, pp. 439-463.
- Autor, D. (2014). Polanyi’s Paradox and the Shape of Employment Growth. Working Paper 20485, National Bureau of Economic Research
- Bandiera, O., Barankay, I., Rasul, I. (2005). “Social Preferences and the Response to Incentives: Evidence from Personnel Data”. *Quarterly Journal of Economics*. (2005), 120(3), 917-962.
- Bandiera, O., Barankay, I., and Rasul, I. (2009), “Social Connections and Incentives in the Workplace: Evidence From Personnel Data”. *Econometrica*, 77: 1047-1094.
- Casner-Lotto, Jill, and Linda Barrington, (2006). Are They Really Ready to Work? Employers’ Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century US Workforce. The Conference Board, New York, NY.
- DeChurch, L. A. & Mesmer-Magnus, J. R. (2010). “The Cognitive Underpinnings of Effective Teamwork: A Meta-Analysis”. *Journal of Applied Psychology*. 95, 32-53.
- Deming, David, (2017). “The Growing Importance of Social Skills in the Labor Market”. *Quarterly Journal of Economics*, noviembre 2017, 132(4), 1593-1640.
- De Jong, B., Elfring, T. (2010). “How Does Trust Affect the Performance of Ongoing Teams? The Mediating Role of Reflexivity, Monitoring and Effort”. *Academy of Management Journal*. 53, 535-549.
- De Jong, B., Dirks, K., Gillespie, N. (2016). “Trust and Team Performance: A Meta-Analysis of Main Effects, Moderators, and Covariates”. *Journal of Applied Psychology*. 101(8), 1134-1150.
- Falk, A., Becker, A., Dohmen, T., Huffman, D., & Sunde, U. (2016). The Preference Survey Module: A Validated Instrument for Measuring Risk, Time, and Social Preferences. IZA Discussion Paper No. 9674.
- Falk, A., Becker, A., Dohmen, T., Enke, B., Huffman, D., & Sunde, U. (2018). “Global Evidence on Economic Preferences”. *Quarterly Journal of Economics* 133 (4), 1645–1692.
- Jonas Hjort (November 2014). “Ethnic Divisions and Production in Firms”. *The Quarterly Journal of Economics*, Volume 129, Issue 4, Pages 1899–1946.

Hollenbeck, J. R., Beersma, B. & Schouten, M. E. (2012). "Beyond Team Types and Taxonomies: A Dimensional Scaling Conceptualization for Team Description". *The Academy of Management Review*. 37, 82-106.

Jerald, Craig D. (2009). *Defining a 21st Century Education*. Center for Public Education.

Joshi, A., Lazarova, M.B., Liao, H. (2009). "Getting everyone on board: The Role of Inspirational Leadership in Geographically Dispersed Teams". *Organization Science*. 20, 240-252.

Katz, Lawrence F. (2014). *Get a Liberal Arts B.A., Not a Business B.A., for the Coming Artisan Economy*, PBS Newshour Making SenSe [Internet].

Kuhn, P. & Weinberger, C. (2005). "Leadership Skills and Wages". *Journal of Labor Economics*, Vol. 23 (3), pp. 395-436

Marx, Benjamin, Vincent Pons, and Tavneet Suri (March 2015). *Diversity and Team Performance in a Kenyan Organization*. Working Paper.

Nicholson, S. (2015). *Peeking Behind the Locked Door: A Survey of Escape Room Facilities*.

Novella, Rafael, Alfredo Alvarado, David Rosas y Carolina González (2019). *Encuesta de Habilidades al Trabajo (ENHAT) 2017-2018: Causas y Consecuencias de la Brecha de Habilidades en Perú*. División de Mercados Laborales y Seguridad Social, Banco Interamericano de Desarrollo (BID).

Park, Sangyoon (2019). "Socializing at Work: Evidence from a Field Experiment with Manufacturing Workers". *American Economic Journal: Applied Economics*, 11 (3): 424-55.

Schwerter, Frederik & Zimmermann, Florian (2019). *Determinants of Trust: The Role of Personal Experiences*. CESifo Working Paper Series 7545, CESifo Group Munich.

Woolley, A. W., Chabris, C. F., Pentland, A., Hashmi, N., and Malone, T. W. (2010). "Evidence for a Collective Intelligence Factor in the Performance of Human Groups". *Science*, 330(6004):686–688.

Weinberger, C. J. (2014). "The Increasing Complementarity Between Cognitive and Social Skills". *The Review of Economics and Statistics*, 96(5):849–861.

Zárate, Román Andrés (2019). *Social and Academic Peer Effects: Experimental Evidence from Selective High Schools in Peru*. MIT Mimeo.