Benjamin Lira Luttges

Duckworth Lab
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Interests

Computational Methods and Machine Learning
Non-Cognitive Human Capital
Self-Regulation
Motivation

Education

2021 – 2026 University of Pennsylvania
PhD in Psychology
Advisor: Dr. Angela Duckworth

2015 – 2017 Universidad de Lima, Peru
Professional Licensure in Psychology
Thesis Topic: Parental predictors of children's effortful control
Thesis Advisor: Carolina Camino, M.A.

2009 – 2015 Universidad de Lima, Peru
B.A., Psychology. GPA 4.0 (18.6/20)
Class Rank: 1st out of 40 psychology graduates

2013 Katholieke Universiteit Leuven, Belgium
Exchange student in master level courses
Relevant courses: Education, Society and Culture, Cognitive Science, Artificial Intelligence
6 courses (29 credits)

Grants and Awards

2018 Annual research competition winner, Pontificia Universidad Católica del Perú
Awarded to the Motivation and Emotion Research Group (PUCP).
Basic Psychological Needs in the Context of Poverty
Grant Award: 135 000 and 45 000 PEN (53,576 USD)

2010 – 2015 Full honors scholarship, Universidad de Lima
Est. Value: 146 523 PEN (43,612 USD)

Academic Positions

2020 **Predoctoral Visiting Scholar,** University of Pennsylvania
Duckworth Lab, PI: Angela Duckworth
PSYC 005-401: Grit Lab (TA)

2017 – 2019 **Instructor,** Pontificia Universidad Católica del Perú
PSB229: Motivation and Emotion
2019 – 2: Enrollment 27.
2019 – 1: Enrollment 51.
2018 – 1: Enrollment 26.
2017 – 2: Enrollment: 16.

PSG207: Psychological Test Construction
2018 – 1: Enrollment 49.
2017 – 2: Enrollment 51.

PSG204: Psychological Research
2017 – 2: Enrollment 28.

Guest Lecturer

2018 Universidad Cayetano Heredia. Cognitive Behavioral Intervention Methods
2021 University of Pennsylvania. Self-concordant Goals.

Publications

Google Scholar

Published

Duckworth, A.L., Kautz, T., Defnet, A., Satlof-Bedrick, E., Talamas, S., **Lira, B**., & Steinberg, L. (2021). Students Attending School Remotely Suffer Socially, Emotionally, and Academically. Educational Researcher X(X), X-X. https://doi.org/10.3102/0013189X211031551 [link]

Caffarena, C., **Lira, B**., Campos, A.L., Rojas-Barahona, C. (2021). Psychometric properties of the Child Behavior Questionnaire (CBQ) in Chile. *Current Psychology X(X) X-X.* https://doi.org/10.1007/s12144-021-01871-9 [link]

Herrera, D., Matos, L., Gargurevich, R., **Lira, B.**, Valenzuela, R. (2021). Context matters: Teaching styles and basic psychological needs predicting flourishing and perfectionism in university music students. *Frontiers in Psychology 12.* 1-9. https://doi.org/10.3389/fpsyg.2021.623312 [link]

Lira, B. (2017). The predictive role of parental and maternal emotion regulation, empathy, and alexithymia in toddler's effortful control. Universidad de Lima Undergraduate Thesis. [link]

Gleichgerrcht, E., **Lira, B.**, Salvarezza, F., & Campos, A.L. (2015). Educational neuromyths among teachers in Latin America. *Mind, Brain, and Education 9*(3). 170–78. https://doi.org/doi:10.1111/mbe.12086. [link]

Gleichgerrcht, E. & **Lira, B.** (2014). Attention: fostering educational neuroscience 5. Lima: Cerebrum Ediciones.

Submitted

Lira, B., Gardner, M., Duckworth, A.L., Quirk, A., , Stone, C., Rao, A., Hutt, S., D'Mello, S. (2022). Using machine learning to identify motivational themes in college applications. Manuscript submitted for publication.

Lira, B., O'Brien, J., Peña, P.A., Galla, B.M., D'Mello, S., Yeager, D.,S., Defnet, A., Kautz, T., Munkacsy, K., Duckworth, A.L., (2022). Large Studies Reveal How Reference Bias Limits Policy Applications of Self-Report Measures. Manuscript submitted for publication.

Matos, L., Herrera, D., Lira, B., Gargurevich, R., Benita, M. (2021) Perceived Teaching Styles, Basic Psychological Needs, Motivation, Engagement, Academic Achievement and Student Well-Being in a Peruvian in a low socioeconomic students' sample. Manuscript submitted for publication.

Putnam, S., …, **Lira, B.**, et al. (2020). Global temperament project. Manuscript in preparation.

In Prep

Lira, B., (2022). Boundary conditions for reference bias. Manuscript in preparation.

Lira, B., Flynn, K.R., & Duckworth, A.L. (2022). Lesson previews vs. reviews: How the timing of additional instruction affects achievement. Manuscript in preparation.

Lira, B., & Duckworth, A.L. (2022). Grit is about internal motivation. Manuscript in preparation.

Lira, B., Matos, L. (2022). To engage or to disengage. Exploring the unique and interactive role of achievement goals and underlying reasons among Peruvian university students. Manuscript in preparation.

Lira, B., Marquina, V., Campos, A.L. (2022). The effectiveness of an intervention to promote executive function and self-regulation in children. Manuscript in preparation.

Lira, B. & Lopez, F. E. (2022). Conspiracy beliefs, cognitive reflection and belief in science and pseudoscience. Manuscript in preparation.

Press coverage

Duckworth et al., (2021) Students Attending School Remotely Suffer Socially, Emotionally, and Academically [HealthDay][U.S. News][The 74][District Administration][Yahoo][Phys Org]

Presentations

Chalén, J., **Lira B.**, & Herrera, D. (2021, July). Future Orientation, wellbeing, life purpose & academic performance in university students from Lima [Symposia]. 5th international conference on time perspective. Vilnius, Lithuania (Virtual). [link][link2]

Lira, B. (2018, May). The predictive role of parental emotion regulation, empathy, and alexithymia on preschooler's effortful control [Poster presentation]. 22nd Occasional Temperament Conference (OTC). Murcia, Spain.

Lira, B. (2016, November). *Self-regulation and its impact in and out of the classroom* [Presentation]. Self-Regulation Seminar: Cerebrum. Puerto Varas, Chile. [link]

Lira, B. (2016, September). *Educational neuromyths in Latin America* [Conference Session]. Fifth Peruvian Society for Educational Research Conference (SIEP) Seminar. Ayacucho, Peru. [link]

Lira, B. (2016, September). *The importance of cognitive regulation in the classroom* [Presentation]. Self-regulation Seminar: Cerebrum. Medellin, Colombia. [link]

Lira, B. (2015, March). *Neurodiversity and Inclusion in Education* [Panel participant]. International Seminar on Neurodiversity: Cerebrum. Lima, Peru. [link]

Selected Abstracts from ongoing work

Using Machine Learning to Identify Personal Qualities in College Applications
Can machine learning identify personal qualities from college application essays? We used three different approaches to extract features from students' descriptions of their extracurricular activities. We used supervised machine learning to detect seven personal qualities in a sample of 3,131 essays coded by human raters. We used topic modeling to score each essay on 60 topics derived from the contents of what students wrote. We used a dictionary approach (LIWC) to extract features about the style that students used in their essays. We found that these metrics were mostly unrelated to demographics and traditional admissions criteria. And yet, were weakly predictive of college graduation six years later, even after accounting for a rich suite of controls.Finally, we used simulations to show that using features coded from these essays in admissions decisions can result in higher admission rates of underrepresented groups, with mild costs on expected graduation rates. These findings highlight both the future potential and current limitations of artificial intelligence in college admissions.

Large Studies Reveal How Reference Bias Limits Policy Applications of Self-Report Measures
There is growing policy interest in identifying contexts that cultivate self-regulation. Doing so often entails comparing groups of individuals (e.g., from different schools). We show that selfreport questionnaires—the most prevalent modality for assessing self-regulation—are prone to reference bias, defined as systematic error arising from differences in the implicit standards by which individuals evaluate behavior. In three studies, adolescents (N = 229,685) whose peers performed better academically rated themselves lower in self-regulation and held higher standards for self-regulation. This effect was not observed for task measures of self-regulation and led to paradoxical predictions of college persistence six years later. These findings suggest that standards for self-regulation vary by social group, limiting the policy applications of self-report questionnaires.

Boundary Conditions for Reference Bias
Policymakers are increasingly interested in measuring, monitoring, and comparing groups in non-cognitive skills. This work has mostly relied on self-report measures. Reference bias refers to a systematic error that arises when individuals use different implicit standards to evaluate behavior. To this date, very little is known about the boundary conditions and the mechanisms by which reference bias works. Here, we expand tests of reference bias to include measures of character beyond self-regulation. We use rich, longitudinal, social network dataset (N = 4,400 observations) to test what kinds of peers drive the reference bias effect. Our results replicate prior research, and extend it, by showing that reference bias distorts only academic character traits. Moreover, we show that students are influenced by other students that embody the character trait, rather than by friends with whom they spend time. Our findings suggest that not all self-reports are affected by reference bias equally, and that, counterintuitively, the effect is driven by exemplar peers rather than friends.

Technical Skills
Programming: Qualtrics, R, SPSS, Factor, MPlus, MLWin, Psychopy
Statistical Methods: Exploratory and confirmatory factor analysis, multilevel modelling, structural equation modelling, cluster analysis, polynomial regression with response surface analysis (RSA), nonparametric regression methods including logistic, poisson, and negative binomial regression, and machine learning methods including tress, random forests, penalized regression, boosting, support vector machines, deep learning, neural networks, autoencoders, generalized mixture models, k-means, reinforcement learning, text modelling (transformers, LDA, naïve bayes).

Work Experience

2020 – **Visiting scholar,** Duckworth Lab, University of Pennsylvania
Duckworth Lab, PI: Angela Duckworth
- Participated in all aspects of the research process: conceptualization, data collection, data analysis, writing, submission and revision.
- Mentored an undergraduate researcher and a group of high-school interns.
- Designed activities for an undergraduate course on motivation.
- Designed and taught a series of lessons on statistical analysis using R.

2016 – 2020 **Research assistant,** Pontificia Universidad Católica del Perú
Motivation and Emotion Research Group. Projects:
- Basic psychological needs and poverty
- Maternal autonomy support
- Basic psychological need support and thwarting and engagement in school and university
- Autonomy support intervention program
- Need support and thwarting in competitive sports

2015 – 2017 **Lead research analyst,** Cerebrum
- Was responsible for research and intervention programs.
- Taught and supervised graduate students' theses.
- Wrote articles for the education community.
- Participated in conferences.
- Developed content for graduate courses in educational neuroscience.

2016 **Statistical consultant,** EVACP Consulting
- Carried out psychometric and statistical analysis for a social program impact evaluation for the Peace Corps in Peru.

2015 – **Thesis advisor**
- Coached and supported +30 undergraduate and graduate students from Universidad de Lima, Pontificia Universidad Católica del Perú, Universidad Peruana de Ciencias Aplicadas in multiple stages of their thesis projects.

2014 – 2015 **Research and educational psychology intern,** Cerebrum
- Created an intervention program for the development of self-regulation and executive function and designed a tool to evaluate its impact.
- Developed content for graduate courses in educational neuroscience.

2013 **Assistant to Ricardo Braun Ph.D.,** Universidad de Lima
- Edited and reviewed a book manuscript about the philosophy of the mind.

2012 **Assistant to Sandra Inurritegui Ph.D.,** Universidad de Lima
- Designed the methodology, developed experiments, and coordinated school logistics.

Languages

Spanish: Native English: Advanced German: Basic

Additional Education

Foundations of Data Analysis – Part I. University of Texas at Austin. MOOC.
The Analytics Edge. MITx. MOOC.
Quantitative Biology Workshop. MITx. MOOC

Additional Projects

- #Investigatips. Video library explaining research methods and statistics. +55K video views. (In Spanish)
- Statistics for Psychologists with R. A series of self-guided tutorials and practice sets exploring common data manipulation, visualization, and analysis tasks in R. Collaboration with Chayce Baldwin
- R Package. Custom functions for ordinal alpha, Mahalanobis outlier detection, discriminant validity analysis, and data simulation.
- R Programming. Web application to predict grape harvest dates and volumes based on weather and agricultural data.

Community Service

- Volunteer for the program Un Techo Para Mi País, building houses after the Chincha 2007 earthquake. Constructed 5 houses for the benefit of 5 families.
- Volunteer for CPDI, a malnutrition prevention center in Pamplona. Worked with the community to generate appropriate strategies to promote healthy eating habits.
- One hundred and fifty hours of service in the IB-CAS program: building homes, tutoring children, among other service labors.
- Volunteer for the Peruvian Ministry of Education. Conducted interviews with teachers and principals regarding the effectiveness of feedback received by schools after the Census Student Evaluation.

Organizational Involvement

Member of Colegio de Psicólogos del Perú (National Association of Psychologists of Peru). CPsP. 31816

Test Scores

Graduate Records Examination (GRE) – Nov 14, 2019.
Verbal: 169 (99th Pc.), Quantitative: 166 (89th Pc.), Analytical Writing: 5.5 (98th Pc.)
Test of English as a Second Language (TOEFL): 119/120 – Sept 28, 2019.
Writing: 30, Speaking: 29, Reading: 30, Listening: 30.

References

Angela Duckworth	Ph.D. in Psychology	aduckworth@characterlab.org
Lennia Matos	Ph.D. in Psychology	lmatosf@pucp.edu.pe
Sandra Inurritegui.	Ph.D. in Psychology	sinurrit@ulima.edu.pe
Dora Herrera	Ph.D. in Psychology	diherrer@pucp.edu.pe