Will Gemini Make Us Stupid?

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Generative AI (GenAI) applications—especially those based on large language models like Gemini-are now ubiquitous, and their adoption rate is increasing. They are potentially the most powerful piece of technology ever developed, matching or surpassing human performance in many complex tasks. As Al becomes embedded in our email clients, word processors, and smartphones, it becomes crucial to understand its effects on how we think. I plan to delineate how GenAl influences our cognitive processing, specifically by encouraging System 1 thinking, which is fast, associative, and automatic, vs. System 2 thinking, which is slower, resource-intensive, and deliberative. I propose a series of experiments in which participants are randomly assigned to engage with a GenAl-chatbot or traditional web search in a judgment task. I then evaluate the effect of using GenAl on the quality of users' thinking and responses. This research will (1) examine whether interacting with GenAl prompts System 1 thinking, or if, alternatively, these interactions free up cognitive resources, allowing for increased System 2 processing; (2) identify the key mediators and moderators of this effect; and (3) develop interventions (i.e., changes to the GenAl user interface) that encourage more vs. less System 2 thinking when engaging with AI. This research will help elucidate how AI interactions shape our thinking, which will enable better alignment between AI systems and users.

Fifteen years ago, The Atlantic published an essay that went viral. It was titled "Is Google making us stupid?", and it argued that the convenience of internet search was reducing people's capacity for deep, critical thinking. With the benefit of hindsight, it is clear that search engines did not spell the end of complex human thought, but rather made information more easily accessible. The rise of generative artificial intelligence raises the question: "Is GenAI making us stupid?"

Without doubt, interacting with digital technologies can shape how we think. For instance, students randomly assigned to take notes on laptops perform worse on conceptual questions than students who take notes longhand ¹. Similarly, the use of search engines has been shown to influence memory processes. Even when directed to remember facts, we are more likely to forget them if we know they will be accessible in a computer; and may better remember where to access information rather than the information itself ². With long term use, technological tools can shape our brains. For example, drivers who use GPS more often have worse hypocampal dependent spatial memory during self-guided navigation, both cross-sectionally and longitudinally ^{3,4}.

Generative AI refers to programs capable of generating seemingly new, meaningful content such as text, images, or audio. ⁵. For instance, you can ask Gemini to make a recommendation about U.S. budget allocations to foreign aid and, within seconds, receive a complete answer—not just a specific percentage of the budget but an eloquent, internally consistent essay justifying that proposal. Google Search, in contrast, generates a rank-ordered list of websites which you must visit individually, and process and integrate yourself to come to a conclusion.

Researchers are beginning to analyze the effects of GenAI tools in the workplace, ^{6–8} and results are mixed. Studies have sampled different kinds of work tasks, including writing, ⁶ customer support, ⁷ idea generation, and product innovation ⁸. In studies where tasks are simpler (e.g., customer support calls ⁷), using generative AI improves performance—especially for users at the bottom of the performance distribution. In more complex tasks, however, GenAI

use leads to higher error rates⁸. Similarly, an analysis of 150 million lines of code, shows that since the inception of AI coding assistants, written code is more likely to be repeated, violating principles of code maintainability⁹.

Understanding the psychological mechanisms driving these effects may help explain this heterogeneity in results. For instance, tasks of greater complexity might demand skills not represented on the model's training data, and thus beyond its capabilities. Users may then fail to recognize they could have done better on their own. What are the thinking skills that differentiate the tasks that are enhanced by GenAI from those that are hindered by it?

Dual-process theories ^{10–12} provide a useful framework for analyzing the effects of generative AI on human judgment and decision making. These models posit that the mind has two ways of coming to judgments. System 1, characterized by associative pattern matching, is fast, effortless, and intuitive, underpinning our unconscious, automatic processes. In contrast, System 2 is deliberative, embodying our conscious, slow, and effortful cognitive activities that are more critical and reflective in nature. While there is debate regarding the details and the validity of this approach, ^{13–16} it is undeniable that when encountering problems, we sometimes think deeply, and sometimes do not.

What determines whether System 2 will become engaged? One account ¹⁷ posits that when encountering a problem, System 1 produces intuitions and estimates the certainty of those intuitions. Certainty is lower when there are conflicting intuitions or when no intuition is strongly activated. If certainty exceeds a critical threshold, then a purely System 1 intuitive response will be produced. If, however, certainty drops below that threshold, System 2 is activated. In that case, the results of System 2 processing feed back into System 1, resulting in the revision of the activation strengths of the intuitions, and their accompanying certainty.

Often, System 1 yields correct answers more efficiently than System 2. Take for instance chess masters, who are able to intuit the right move, even though they have no better general working memory and search for plays no more extensively than novices. ¹⁸ More generally, experts given repeated opportunities to learn from feedback develop intuitions that are more accurate than amateurs who deliberate on the same problems. ¹⁹

On the other hand, relying on System 1 intuitions can also lead us a stray. ¹⁰ System 2 deliberation is generally preferred when: a judgment is consequential, there is time available for deliberation, we are not an expert in the domain, and we cannot easily delegate the judgment to an expert ²⁰. Take for instance a team tasked with crafting a memo to persuade the executive board to launch a particular product. Blindly accepting GenAI's suggestions in this case may lead to suboptimal results. Engaging in more careful thoughtful consideration may be the factor that decides whether the initiative comes to fruition or gets scrapped.

How might interactions with GenAI influence the way we think? One possibility is that interactions with GenAI may encourage more System 2 thinking. Specifically, quick and complete answers to our questions may free up working memory, a rate-limiting necessity for System 2 deliberation ^{10,21,22}. In one study, taxing working memory by asking participants to remember a dot pattern

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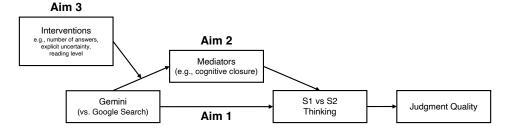


Fig. 1. Specific aims. Aim 1 established the main effect of GenAl interaction and System 2 thinking. Aim 2 explores the mediators of the effect. Aim 3 develops interventions to foster more System 2 thinking when engaging with GenAl.

worsens performance on the Cognitive Reflection Task, a measure of System 2 (vs. System 1) thinking 23 .

Alternatively, GenAI may encourage more System 1 thinking. Specifically, by producing answers that are complete and easy to process, GenAI may increase the user's estimate of the certainty of the GenAI response, a cue that *discourages* System 2 deliberation. This possibility is consistent with prior research showing that we are more likely to unquestioningly accept something as true when it is more easily processed—a phenomenon known as fluency bias ^{24,25}.

As shown in Figure 1, This proposal has three main objectives. I propose a series of experiments comparing how using generative AI, relative to traditional web search, influences System 1 vs. System 2 thinking (Aim 1). I plan to explore the mechanisms by which generative AI changes the way we think, and the downstream consequences of these shifts on users' judgement quality and persuasiveness (Aim 2). I will then design interventions to help users engage with GenAI in ways that lead to faster System 1 thinking, or more careful System 2 thinking when appropriate (Aim 3). This research will uncover the cognitive consequences of our evolving AI landscape, and inform efforts at alignment of AI technologies with users most valued goals.

Aim 1: How does GenAl change System 1 vs. System 2 thinking? (Main effect)

To establish whether interacting with GenAI prompts automatic (System 1) or deliberative (System 2) thinking, I will conduct a series of experiments where adult workers and university students will be assigned to traditional web search (e.g., Google), or a GenAI chatbot in the context of common judgment tasks. Following previous research ²⁶, System 2 thinking is operationalized as taking more time and effort than System 1 thinking.

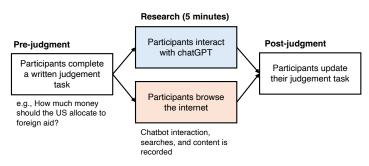


Fig. 2. Experimental task

The basic procedure is shown in **Figure 2.** Participants will be asked to write a paragraph on a topic for which they might have strong priors (e.g., how much money should the U.S. allocate for foreign aid) but could benefit from learning additional information. They will then be randomized to learn more about the topic, either

by using Google, or by interacting with an AI-chatbot. I will fully record their interactions with Google and the AI-chatbot. After participants complete the research phase, they will be asked to revise their views on the topic.

I will assess the extent of System 1 thinking by analyzing participants' perceived effort and confidence in their response, as well as the time spent researching and writing, and the amount of work they produced. I will also use natural language processing and human raters to evaluate the quality, complexity, independence from the source material, and persuasiveness of the writing. Additionally, I will assess the degree of effortful cognitive processing via pupillometry at the Wharton Behavioral Lab. I intend to use stimulus sampling ²⁷ to make sure that results are not unique to a particular judgment task and GenAI model. See **Table 1** for a potential list of tasks, spanning judgment, decision, and forecasts.

Task Type	Example Tasks
Judgment	How much money do you think the US should allocate for aid?
Forecast	How likely is it that the Russia-Ukraine conflict ends within the next year?
Decision	If you were buying a car, would you buy a Toyota Corolla or a Ford Focus?

Table 1. Proposed judgement, forecasting, and decision tasks

To adequately power studies, I am working under the assumption that differences would be in the range of .10 < d < .20, which implies a sample size of between 395 and 1570 participants in each condition to achieve power of 0.80.

Aim 2: Does a user's subjective sense of certainty account for this influence? (Mediator)

A second set of experiments will examine whether a user's subjective ratings of certainty explains the effect observed in Aim 1.

I predict that processing AI responses will be less cognitively demanding than integrating information obtained through google search. This will trigger feelings of fluency and certainty, ²⁸ which will then explain the observed changes in cognitive style.

I will extend the methodology outlined in Aim 1, to measure these mediators by analyzing the content users engaged with in two ways.

- User Perceptions. Users will report how they perceived their interaction with the AI and the search websites.
- 2. **Natural Language Processing.** I will use natural language processing to identify the stylistic features of AI responses that explain reduced deliberation.

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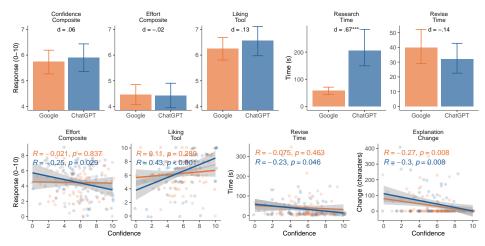


Fig. 3. Differences in user perceptions and engagement time of Google Search vs. Chatbot users in a judgment task. Correlations between closure and liking and effort metrics.

The findings from this aim will provide crucial insights into how AI can be designed and used in a manner that promotes more deliberate cognitive processing. This understanding will be instrumental in developing interventions (as outlined in Aim 3) to promote System 2 thinking when engaging with AI.

Aim 3: What interventions can promote System 2 deliberation? (Interventions)

Finally, I will test whether reducing a user's subjective sense of certainty (e.g., by prompting GenAI to offer multiple and conflicting perspectives) encourages longer and more effortful thinking.

These interventions will target interface design, as well as user interaction.

- 1. **Interface design.** I plan to modifying the AI-chatbot interfaces to foster more reflective and analytical engagement. By manipulating prompts and features of the user interface, I plan to reduce feelings of fluency and confidence.
- User interaction. I plan to provide users with strategies to encourage more System 2 thinking while interacting with AI. These interventions will put users in a more deliberative mindset that will counteract automatic thinking.

A 2×2 factorial design will allow me to compare the effectiveness of strategies aimed at users as well as the interface design. I predict that interventions aimed at the interface will be more effective, and will be perceived as less intrusive by users. This line of work will be useful for designers building AI applications for situations where more deliberation is effective.

Pilot Data

As shown in **Figure 3**, preliminary pilot data (N=178 adults) support the hypothesis that interacting with AI prompts participants for System 1 thinking.

Participants proposed an optimal allocation of the U.S. budget to foreign aid, were then randomly assigned to conduct research for as long as they wanted to using Google Search or a Gen-AI chabot based on GPT-4*. Participants then returned and were able to revise their original allocations, and their reasoning behind them.

Compared to participants who used Google search, participants assigned to the GenAI-chatbot spent 24% less time fewer seconds writing their revised response (d=0.14), and reported exerting

about the same effort (d=0.02), despite having had done research for about four times as long $(d=0.71^{***})$. Participants liked using the chatbot for research more than they did Google Search (d=0.13), and they liked chatGPT more when they felt it produced more certainty $(r=.43^{***})$. In ChatGPT users, certainty, in turn, predicted less self-reported effort $(r=-.25^*)$, less revision time $(r=-.23^*)$, and smaller changes to their answers $(r=-.30^{**})$.

Conclusion

The proposed research will illuminate how the rapidly changing capabilities of generative artificial intelligence will shape human cognition. From a **theoretical perspective**, it will elucidate some mechanisms that—with or without GenAI— prompt more automatic vs. more deliberative thinking. Additionally, it will inform the cognitive mechanisms behind the mixed effects of AI-augmentation on workplace performance ^{6–8}. In more **practical terms**, my findings will enable managers, individuals, and policymakers to harness GenAI's potential to enhance, rather than diminish, our cognitive capacities.

If this proposal is successful, it will open new avenues for research. Specifically:

Short-term spillover effects. First, do cognitive changes persist on an unrelated task immediately after the GenAI interaction is over?

Long-term effects on cognitive style. Second, does repeated interaction with GenAI produce enduring changes in cognitive style and learning motivation—and is the influence of GenAI greater for developing minds who grow up with GenAI tools vs. adults who did not?

Generalizability. Third, how does GenAI compare to other ways in which people get information, such as social media or face-to-face human interaction? Would the results generalize to engaging with GenAI through other interfaces such as smart email clients and word processors?

Will Gemini make us stupid? is one way to think about how generative artificial intelligence will influence human cognition. However, it is just the beginning. The real questions are: when do these tools encourage us to be more deliberative and when do they do the opposite? What determines the direction of this effect? And how can we proactively craft tools that align our long-term interests with the short-term incentives of interacting with them? In other words, How Can Gemini Make Us Smart?

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2. Will Gemini Make Us Stupid? - 1000 Character Abstract

Generative AI (GenAI) applications based on large language models like Gemini are now ubiquitous. As AI becomes embedded in our email clients, word processors, and smartphones, it becomes crucial to understand how it influences how we think. I propose a series of experiments where participants are assigned to do research with an AI-Chatbot or traditional web search to explore how AI influences System 1 thinking, which is fast, associative, and automatic, vs. System 2 thinking, which is slower, resource-intensive, and deliberative. I plan to (1) establish whether the ease with which AI responses are processed prompts System 1 thinking, or whether the reduced cognitive load allows for increased System 2 processing; (2) identify the key mediators that drive this effect; and (3) develop interventions—targeting user interaction and interface design—that encourage more System 2 thinking. This research is pivotal for optimizing AI design to enhance user cognition and decision-making.

3. Describe the desired impact your research will make on the field and society, and why this is important to you. Include any personal, educational and/or professional experiences that have motivated your research interests.

I was already a grownup when smartphones and social media came along. I remember how exciting it felt to be in touch with friends and family members who lived many miles away. Today, this early excitement has given way to concern. I am constantly distracted by my phone. Social media drives political polarization around the world. Young people, especially girls, face mental health issues. A lively conversation after dinner is often replaced with sitting side-by-side staring into our phones and ignoring each other.

As we integrate ever more powerful generative AI (GenAI) into our daily lives, the lessons learned from past innovations weigh heavily on my mind. I often find myself chatting with GenAI models for leisure and work. Many of these interactions are fulfilling. Often, Gen AI helps me solve pressing problems in an instant, and sometimes I am surprised at how much I learn in the process. Other times, however, I find myself interacting with GenAI passively—lazily letting it tell me what to think or write, and thoughtlessly accepting its first suggestion.

More than we consciously realize, the way we think and behave is heavily dependent on the structure of our environments (Barker, CITE). This means that the way in which we design and engage with AI will determine whether it elevates our capacities for thought and engagement or the opposite.

Ultimately, I hope my research will help guide GenAI designers and users towards enriching human capabilities rather than inadvertently diminishing them. By understanding the mechanisms of how AI systems shape the way we think, we will be able to design interventions that help GenAI surface the best of us. My hope is that this knowledge will help steer our developing AI landscape closer to one where we can do more with our brains rather than less.

4. Describe an example of your leadership experience in which you have positively influenced others, helped resolve disputes or contributed to group efforts over time. (A leadership role can mean more than just a title. It can mean being a mentor to others, acting as the person in charge of a specific task, or taking the lead role in organizing an event or project. Think about what you accomplished and what you learned from the experience. What were your responsibilities? Did you lead a team? How did your experience change your perspective on leading others? Did you help to resolve an important dispute at your school, church, in your community or an organization? And your leadership role doesn't necessarily have to be limited to school activities. For example, do you help out or take care of your family?).

Without a fair bit of luck, I would not be where I am today. Very few graduates of Peruvian universities are admitted to PhD programs at world-class institutions. Language and culture aside, Peruvian scholars who dream of becoming scientists at the cutting edge don't have access to meaningful research experiences, and local universities lack the Ivy League pedigree.

I now have mentorship, resources, and opportunities beyond the wildest dreams of the boy I was growing up. I feel especially beholden to help those who—in one way or another—look like an earlier version of myself. My hope is that they, too, will benefit from an environment where their talents can be expressed. I have taken opportunities to advance this goal with undergraduate researchers and students navigating the graduate admission process, both from Peru and the US.

I have been lucky to work closely with undergraduate students exploring what psychological research looks like. At first, I was tempted to intervene too much, too soon. I quickly realized that my role was to make suggestions, provide feedback, and some support.

Likewise, I've been enriched by learning from PhD applicants. Providing feedback on their research statements and conducting mock interviews with them has allowed them to expand my own views. My questioning and probing have allowed them to refine their research programs.

It's easy to think that leadership is only about propelling a project forward by telling people what needs to be done. These experiences have taught me that leadership is often much more about listening, empathy, and connecting meaningfully with others. I am only powerful to help others when I listen to them, ask questions rather than give answers, and help others untangle their thoughts on their own.

I certainly put in a lot of effort and perseverance in getting to where I am. I was also extremely lucky. I hope I can contribute a little so that others from backgrounds like mine, might rely a little less on luck and more on a supportive community that I strive to nurture.

5. Student CV and Supervisor CV (1 page)

See attached.

6. Transcripts

See attached.

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Interests

Artificial Intelligence Motivation

Self-Regulation Non-Cognitive Skills

Education

2021 - 2026 University of Pennsylvania

PhD in Psychology

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2015 – 2017 Universidad de Lima, Peru

Professional Licensure in Psychology

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2009 – 2015 Universidad de Lima, Peru

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2013 Katholieke Universiteit Leuven, Belgium

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Grants and Awards

2018 Annual research competition winner, Pontificia Universidad Católica del Perú

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2010 – 2015 Full honors scholarship, Universidad de Lima

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Academic Positions

2020 Predoctoral Visiting Scholar, University of Pennsylvania

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Guest Lecturer

2018 Universidad Cayetano Heredia. Cognitive Behavioral Intervention Methods

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Publications

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- Lira B., et al. (2021, September). Students Attending School Remotely Suffer Socially, Emotionally, and Academically. In B. Gill & E. Stuart (Chairs), *Mental and Physical Health Implications of School Operating*

- Approaches During the COVID-19 pandemic [Symposium]. Society for Research on Educational Effectiveness Conference 2021. [link]
- **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]

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 Inurritequi 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.
- Natural Language Processing Tools. Custom R and Python funcitons and tutorials for Natural Language Processing in the Social Sciences.
- R Programming. <u>Web application</u> 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 Professor Psychology aduckworth@characterlab.org
Lyle Ungar Ph.D. in Psychology Imatosf@pucp.edu.pe
Sandra Inurritegui. Ph.D. in Psychology sinurrit@ulima.edu.pe
Dora Herrera Ph.D. in Psychology diherrer@pucp.edu.pe

Angela L. Duckworth

Education

UNIVERSITY OF PENNSYLVANIA (2002–2006)
MA, PhD in Psychology
UNIVERSITY OF OXFORD (1994–1996)
MSc with Distinction in Neuroscience
HARVARD COLLEGE (1988–1992)
AB magna cum laude in Advanced Studies Neurobiology

Current Positions

Rosa Lee and Egbert Chang Professor, University of Pennsylvania (2020–current) Character Lab Co-Founder, Chief Scientist, and Board Member (2015–current)

Selected Publications

- Lira, B., Gardner, M., Quirk, A., Stone, C., Rao, A., Ungar, L., ... & Duckworth, A. L. (2023). Using artificial intelligence to assess personal qualities in college admissions. *Science Advances*, *9*(41), eadg9405.
- Buyalskaya, A., Ho, H., Milkman, K. L., Li, X., Duckworth, A. L., & Camerer, C. (2023). What can machine learning teach us about habit formation? Evidence from exercise and hygiene. *Proceedings of the National Academy of Sciences*, 120(17), e2216115120.
- Lira, B., O'Brien, J. M., 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. *Scientific Reports*, 12, 19189
- 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*.
- Milkman, K. L., Gromet, D., Ho, H., Kay, J. S., Lee, T. W., Pandiloski, P., Park, Y., Rai, A., Bazerman, M., Beshears, J., Bonacorsi, L., Camerer, C., Chang, E., Chapman, G., Cialdini, R., Dai, H., Eskreis-Winkler, L., Fishbach, A., Gross, J. J., . . . Duckworth, A. L. (2021). Megastudies improve the impact of applied behavioural science. *Nature*, 600, 478–483.
- Duckworth, A. L., & Gross, J. J. (2020). Behavior change. Organizational Behavior and Human Decision Processes, 161, 39-49.
- Duckworth, A. L. (2019). Using psychological science to help children thrive. Perspectives on Psychological Science, 14(1), 34-36.
- Duckworth, A. L., Milkman, K. L., & Laibson, D. (2019). Beyond willpower: Strategies for reducing failures of self-control. *Psychological Science in the Public Interest*, 19(3), 102-129.
- Duckworth, A. L., Quirk, A., Gallop, R., Hoyle, R. H., Kelly, D. R., & Matthews, M. D. (2019). Cognitive and noncognitive predictors of success. *Proceedings of the National Academy of Sciences*, 116(47), 23499-23504.
- Duckworth, A. L., Taxer, J., Eskreis-Winkler, L., Galla, B. M., & Gross, J. J. (2019). Self-control and academic achievement. *Annual Review of Psychology*, 70, 373-399.
- Eskreis-Winkler, L., Milkman, K. L., Gromet, D. M., & Duckworth, A. L. (2019). A large-scale field experiment shows giving advice improves academic outcomes for the advisor. *Proceedings of the National Academy of Sciences*, 116(30), 14808-14810.
- Duckworth, A. L., Gendler, T. S., & Gross, J. J. (2016). Situational strategies for self-control. *Perspectives on Psychological Science*, 11(1), 35–55.
- Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. *Educational Researcher*, 44(4), 237–251.
- Duckworth, A. L., Gendler, T. S., & Gross, J. J. (2014). Self-control in school-age children. *Educational Psychologist*, 49(3), 199–217.
- Eisenberg, N., Duckworth, A. L., Spinrad, T. L., & Valiente, C. (2014). Conscientiousness: Origins in childhood? *Developmental Psychology*, 50(5), 1331–1349.
- Duckworth, A. L., Kim, B., & Tsukayama, E. (2013). Life stress impairs self-control in early adolescence. *Frontiers in Psychology*, *3*(608), 1–12.
- Duckworth, A. L., Quinn, P. D., Lynam, D. R., Loeber, R., & Stouthamer-Loeber, M. (2011). Role of test motivation in intelligence testing. *Proceedings of the National Academy of Sciences*, 108(19), 7716–7720.
- Borghans, L., Duckworth, A. L., Heckman, J. J., & ter Weel, B. (2008). The economics and psychology of personality traits. *Journal of Human Resources*, 43(4), 972–1059.
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087–1101.
- Duckworth, A. L., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ predicting academic performance in adolescents. *Psychological Science*, *16*(12), 939–944.

Record of: Benjamin Lira Luttges U N O F F I C I A L Page: 1

Record of: Benjamin Lira Luttges Penn ID: 38161334 Date of Birth: 01-FEB Date Issued: 04-MAR-2024

The University of Pennsylvania

Level:Graduate/Research

Primary Program Program: Graduate School of Arts & Sciences Doctor	
of Philosophy	
Division : School of Arts & Sciences - Graduate	
Division	
Major : Psychology	SUBJ NO. COURSE TITLE CU GRD F
Secondary Program(s)	Institution Information continued:
Program : Master of Arts	PSYC 600 Proseminar in Psych: 0.50 A
Division : School of Arts & Sciences - Graduate	Neuroendocrinology
Division	PSYC 699 Indiv Res for 1st Yr Grd 1.50 A+
Major : Psychology	Ehrs: 3.00 GPA-Hrs: 3.00 QPts: 12.00 GPA: 4.00
Degree(s) Awarded Master of Arts 21-DEC-2023	Fall 2022
Program : Master of Arts	EDUC 7847 Social and Statistical 1.00 A+
Division : School of Arts & Sciences - Graduate	Network Analysis
Division	PSYC 6000 Social Psychology 0.50 A+ I
Major : Psychology	PSYC 6000 Judgment & Decisions 0.50 A+ I
	PSYC 9999 Individual Study and Research 1.00 A
	Ehrs: 3.00 GPA-Hrs: 3.00 QPts: 12.00 GPA: 4.00
SUBJ NO. COURSE TITLE CU GRD	R
	Spring 2023
	PSYC 9999 Individual Study and Research 4.00 A+ I
INSTITUTION CREDIT:	Ehrs: 4.00 GPA-Hrs: 4.00 QPts: 16.00 GPA: 4.00
Fall 2021	Fall 2023
CIS 520 Machine Learning 1.00 A	PSYC 9999 Individual Study and Research 3.00 A+ I
OIDD 937 Methods Stumblers 0.50 A	Ehrs: 3.00 GPA-Hrs: 3.00 OPts: 12.00 GPA: 4.00
PSYC 600 Proseminar in Psych: Social 0.50 A	
Emotional Develop	Spring 2024
PSYC 600 Proseminar in Psych: 0.50 A	PSYC 9999 Individual Study and Research 3.00 IN PROGRESS
Cognitive Neuroscience	In Progress Credits 3.00
PSYC 699 Indiv Res for 1st Yr Grd 1.50 A+	**************************************
Ehrs: 4.00 GPA-Hrs: 4.00 QPts: 16.00 GPA: 4.00	
Spring 2022	
OIDD 941 Dist System Sem: Topics in 0.50 A+	
Bandits, Rl & Transfer	
Learning	
PSYC 600 Proseminar in Psych: Language 0.50 A	
******************* CONTINUED ON NEXT COLUMN ************************************	**

Record of: Benjamin Lira Luttges Penn ID: 38161334 Date of Birth: 01-FEB Date Issued: 04-MAR-2024

The University of Pennsylvania

Level:Graduate/Research

Page:

*******	TRANSCI	RIPT TOTALS	******	*****
Earn	ed Hrs	GPA Hrs	Points	GPA
TOTAL INSTITUTION	17.00	17.00	68.00	4.00
TOTAL TRANSFER	0.00			
OVERALL ************	17.00 END OF	17.00 TRANSCRIPT	68.00 ******	4.00

Unofficial Academic Transcripts

I completed my bachelor's degree and professional licensure in Psychology at the University of Lima in Peru. I completed an academic exchange program during this time at Katholieke Universiteit Leuven (KU-Leuven), in Belgium.

Both the Peruvian and the Belgian grading system lies in a scale from 0 - 20, with 11 being the minimum passing grade.

Converted to US standards, I graduated with a 4.0/4.0 cumulative GPA, ranking first in my cohort. In the native grading system this was 18.6/20.

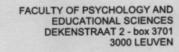
I've attached originals in Spanish alongside certified translations after this readable summary.

Class Name	Credits	Course Grade
2019—1		
Foundations of Mathematics	4	
Introduction to University Research	1	NA
Spanish Language I	4	
Contemporary World History	3	17
Introduction to Research	3	18
Foundations of Political Science	2	18
Psychology	3	16
General Economics	3	19
Spanish Language II	3	18
Introduction to the Social Sciences	3	19
2009-2		
Contemporary History of Peru	3	17
Literature	4	18
Philosophy	4	17
Academic Writing	3	19
Major Peruvian Issues	3	19
Social Behavior	3	16
2010—1		
Value Theory	3	17
Psychology of Human Communication	3	16
Psychology of Learning	4	19
Community Psychology	2	18
Psychology of Motivation	4	19
Human Psychobiology I (The cellular level of psychic activity)	3	18
2010—2		
Development of Social Skills	3	19
Developmental Psychology I	3	19
Experimental Psychology	4	20
Philosophy of Science	3	17
Cognitive Psychology I	3	19
Human Psychobiology II (The metabolic and functional levels of psychic activity)	3	19
2011—1		
Statistics I	3	20
Developmental Psychology II	3	18
Psychological Systems I	3	19
Personality Psychology	4	19
Cognitive Psychology II	4	19
Human Psychobiology III (The unconscious level of psychic activity)	3	20

7. Appendices

In the pages that follow I have attached original and certified translated academic transcripts from Non-US Institutions.

Lira March 7, 2024 | 15





Mr. Benjamin Lira Luttges Surco Lima Las Cantutas 301 Ap 601 L33 LIMA PERU

KU LEUVEN

TRANSCRIPT

Programme: Programme for Exchange Students Faculty Psychology and Educational Sciences (Leuven)

Course Units	MARINE THE THE PERSON	Credits	Gra	ade	
Current academi	c year 2013-2014				
1S-H02A0C	Fundamentals of Artificial Intelligence	5	C	18	13-14/jan
1S-H02B2A	Cognitive Science	4	C	17	13-14/jan
1S-P0P24B	Philosophy of Education	5	C	18	13-14/jan
1S-P0P25C	Education in Relation to Society and Culture	5	C	18	13-14/jan
1S-P0P33A	Educational Policy	5	C	18	13-14/jan
1S-P0P34A	Educational Effectiveness	5	C	17	13-14/jan

Overall result : Establish results

Date of issue of results : 13.02.2014

secretary,

chair,

Prof. dr. Walter Schaeken

Prof. dr. Jan Elen



International Students Office Faculty of Psychology and Educational Sciences Katholieke Universiteit Leuven Dekenstraat 2 box 3702 3000 LEUVEN (Belgium)

Exam results are graded on a scale of 20. However in some cases the student may receive a code G to indicate that he/she has passed a part of the course for which there is no numerical grading. A code C indicates that a student has passed that course. A code T indicates that whereas a student has not passed that course he/she has still passed the year or programmae as a whole. A code V indicates that the student is exempted from that course. A code NA indicates that either the student did not sit the exam or did not complete the course. A code FR indicates that the student has been found to have cheated. A code NVT indicates that the course is no longer relevant for this student. A code GR indicates that there is no result yet for this course, but that a result is expected later on.

This report on your marks is provided purely as an extra service. In no way does it replace the study progress dossier that can be found on KU Loket, the only official source through which results and procedures of appeal are communicated.

ECTS - European Credit Transfer System

KU LEUVEN Grading System

Duration of course unit:

AY = full academic year

1S = 1 semester during 1st semester

2S = 1 semester during 2nd semester

Description of the institutional grading system:

Individual grades are reported to the students on a scale ranging from 0 to 20.

ECTS credits for a given course are awarded (C) if a student gets a grade of 10 out of 20 (or higher). NA = Not Attended.

For students who pass the examinations, the grades have the following meaning:

10 or 11: sufficient;

12 or 13: satisfactory;

14 or 15: good;

16 or 17: very good;

· and 18 or more: excellent

ECTS grading scale:

ECTS grade	% of successful students normally achieving the grade	Definition
A	10	EXCELLENT - outstanding performance with only minor errors
В	25	VERY GOOD - above the average standard but with some errors
С	30	GOOD - generally sound work with a number of notable errors
D	25	SATISFACTORY - fair but with significant shortcomings
E	10	SUFFICIENT - performance meets the minimum criteria
FX	-	FAIL - some more required before the credit can be awarded
F	-	FAIL - considerable further work is required

http://www.kuleuven.be/education/ects/positioning/faculties/ppw.html



icpna.edu.pe informes@icpna.edu.po (511) 706 7000

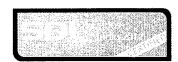
Officina Central Av. Angamos Ceste 120 Mirchores Apartado 0784 - Usine 15 - Porú

The undersigned Certified Translator, Member of the Peruvian Association of Professional Licensed Translators (CTP) with No. 0243, is currently working in the ICPNA's Translation and Interpretation Center, and is authorized by the CTP to sign certified translations.

Lima, November 18, 2019



State & Miranda Ramón CTP Nº 0243







Colegio de Traductiores del Pertí Ciendopor Ley Nº 26684

GRACIELA M. MIRANDA RAMÓN

Certified Translator CTP No. 0243 Spanish – English – German Calle Maurizio Cassati 115, Dpto. 101 San Borja Cellphone: 998 948628 E-mail: gramiranda@hotmail.com

CERTIFIED TRANSLATION

CT No. 0653-2019

CERTIFICATE BENJAMIN LIRA LUTTGES UNIVERSIDAD DE LIMA



Gradela Miranda Ramón CTP Nº 0243

Valor 3.50 Soles



GRÁCIELA M. MIRANDA RAMÓN

Certified Translator CTP No. 0243

CERTIFIED TRANSLATION No. 0653-2019

Page 1 of 1

[Logo]
UNIVERSIDAD DE LIMA [UL]
[UNIVERSITY OF LIMA]
Scientia et Praxis
MCMLXII

[Photograph]

CERTIFICATE

The University Director of Student Services and Registry does hereby certify that

Benjamin LIRA LUTTGES,

with code **20092009**, completed the curriculum of the PSYCHOLOGY degree program in the 2015 April-July academic term. He belongs to the graduating January-July Class of 2015 and ranked first in the Honor List out of 40 alumni.

This certificate is issued at the request of the interested party for the purposes deemed convenient.

Lima, October 14, 2015

[Signed]
University Bureau of Student Services and Registry

[Seal]
University Bureau of Student Services and
Registry
UL



I, the undersigned Certified Translator, Member of the Peruvine Association of Professional Licensed Translators (CTP), do hereby certify that this Certified Translation, consisting of OI pages, is a true Spanish enclosed herewith, which has been produced before me.

This certification shall be considered an acknowledgment of the accuracy of the translation but no of the authenticity or contents of the document in source language attached hereto. Signed in Lima, this 18 th day of November, 2019



CTP Nº 0243



icpna.edu.pe informes@icpna.edu.pe (511) 706 7000

Oficina Central As Angarnos Ceste 120 Mirchores Apartado 0784 - Luma 18 ; Por I

The undersigned Certified Translator, Member of the Peruvian Association of Professional Licensed Translators (CTP) with No. 0243, is currently working in the ICPNA's Translation and Interpretation Center, and is authorized by the CTP to sign certified translations.

Lima, November 18, 2019









CONSTANCIA



El Director Universitario de Servicios Académicos y Registro deja constancia de que

BENJAMIN LIRA LUTTGES

con código **20092009**, completó el plan de estudios de la carrera de PSICOLOGÍA en el período abril-julio del 2015. Pertenece a la promoción enero-julio del 2015 y obtuvo el puesto número 1 en el orden de mérito de un total de 40 egresados.

Se extiende la presente constancia a solicitud del interesado para los fines que considere conveniente.

Lima, 14 de octubre de 2015.

Dirección Universitaria o de Servicios Académicos y Registro

Collegio de Traductiones del Perú Cierdopor Ley Nº 26684

GRACIELA M. MIRANDA RAMÓN

Certified Translator CTP No. 0243

Spanish – English – German

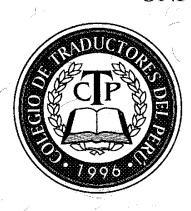
Calle Maurizio Cassati 115, Dpto. 101 San Borja

Cellphone: 998 948628

E-mail: gramiranda@hotmail.com

CERTIFIED TRANSLATION CT No. 0651-2019

ACADEMIC TRANSCRIPT: GENERAL STUDIES PROGRAM BENJAMIN LIRA LUTTGES UNIVERSIDAD DE LIMA



Graciela Miranda Ramón CTP Nº 0243

Valor 3.50 Soles

TRADUCTORIES DEL PERÚ



CERTIFIED TRANSLATION No. 0651-2019

Page 1 of 1

No. 0087474

UNIVERSIDAD DE LIMA [UL]

[UNIVERSITY OF LIMA]

ACADEMIC TRANSCRIPT

[Photograph]

[Logo] UĽ Scientia et Praxis

GENERAL STUDIES PROGRAM

The undersigned UL authorities do hereby certify that Benjamin LIRA LUTTGES, code 20092009

took the courses shown below with the following results:

Code Cou		with the f				
6324 Introduction to University Re 6320 Spanish Language I 6319 Contemporary Universal Hist 6321 Introduction to Research 6322 Foundations of Political Scien	search	04.0 01.0 04.0 03.0 03.0	CVLI CVLI Seventeen Eighteen	Book D. R.D. 2009 D. R.D. 2009 D. R.D. 2009 113 113	9/345	Term 2009-1 2009-1 2009-1 2009-1
6323 Psychology 6327 General Economics 6328 Spanish Language II 6329 Introduction to Social Science 6330 History of Contemporary Peru 6331 Literature Philosophy		03.0 03.0 03.0 03.0 04.0	Eighteen Sixteen Nineteen Eighteen Nineteen Seventeen Eighteen Seventeen	113 113 113 113 113 114 114	472 588 844 926 939 703 749	2009-1 2009-1 2009-1 2009-1 2009-1 2009-2 2009-2

AS STATED IN THE BOOKS TO WHICH WE REFER IF NECESSARY.

This transcript records courses with passing grades only. It does not attest to the completion of studies or the attainment of any academic degree

Academic performance is graded on a 20-point scale, eleven [11] being the minimum passing grade. Any amendment or addition voids this transcript.

Lima, June 13, 2018

[Signed]

Bárbara Milagros FARFÁN FIORANI

Secretary General

[Signed]

Alejandro Gustavo LARREA DAVILA

University Director of Student Services and Registry

[[Seal]

UL

Lima - Perú

General Secretariat

[Scal]

University Bureau of Student Services and Registry

UL

[Watermark logo]

UL.

Scientia et Praxis



I, the undersigned Certified Translator, Member of the Peruvian Association of Professional Licensed Translators (CTP), do hereby certify that this Certified Translation, consisting of Ol pages, is a true and corract translation into English of the original document in PANTSh enclosed herewith, which has been produced before the

This certification shall be considered an acknowledgment of the accuracy of the translation but no of the authenticity or contents of the document in source language attached hereto. Signed in Lima, this 18 day of November 2019



Oraciesa Miranda Ramón CTP Nº 0243

UNIVERSIDAD DE LIMA **CERTIFICADO DE ESTUDIOS**



PROGRAMA DE ESTUDIOS GENERALES



Las autoridades de la Universidad de Lima que suscriben, certifican que : BENJAMIN LIRA LUTTGES, código 20092009,

ha cursado las asignaturas que se indican con los resultados siguientes:

Código	Nombre de Asignatura	Crédito	Calificativo	Tomo	Folio	Ciclo
6325	FUNDAMENTOS DE MATEMÁTICA	04.0	CVLD. F	R.D.2009/34	5	2009 - 1
6324	INTRODUCCIÓN AL TRABAJO UNIVERSITARIO	01.0	CVLD. R.D.2009/345			2009 - 1
6320	LENGUAJE I	04.0	CVLD. R.D.2009/345			2009 - 1
6319	HISTORIA UNIVERSAL CONTEMPORÁNEA	03.0	DIECISIETE	113	102	2009 - 1
6321	INTRODUCCIÓN A LA INVESTIGACIÓN	03.0	DIECIOCHO	113	350	2009 - 1
6322	FUNDAMENTOS DE CIENCIA POLÍTICA	02.0	DIECIOCHO	113	472	2009 - 1
6323	PSICOLOGÍA	03.0	DIECISEIS	113	588	2009 - 1
6327	ECONOMÍA GENERAL	03.0	DIECINUEVE	113	844	2009 - 1
6328	LENGUAJE II	03.0	DIECIOCHO	113	926	2009 - 1
6329	INTRODUCCIÓN A LAS CIENCIAS SOCIALES	03.0	DIECINUEVE	113	939	2009 - 1
6330	HISTORIA DEL PERÚ CONTEMPORÁNEO	03.0	DIECISIETE	114	703	2009 - 2
6331	LITERATURA	04.0	DIECIOCHO	114	749	2009 - 2
6332	FILOSOFÍA	04.0	DIECISIETE	114	799	2009 - 2

ASI CONSTA EN LOS LIBROS A LOS QUE NOS REMITIMOS EN CASO NECESARIO.

El presente certificado consigna únicamente las asignaturas aprobadas y no acredita la culminación de estudios o la obtención del alia de Servicios

grado académico o título profesional.

El rendimiento académico se califica con notas de cero (00) a veinte (20), siendo once (11) la nota mínima aprobatoria.

Cualquier enmendadura o anotación invalida el presente certificado.

SECRETARIA GENERAL

Lima, 13 de junio de 2018

BÁRBARA MILAGROS FARFA

SECRETARÍA GENERAL

ALEJANDRO GUSTAVO LARREA DAVILA DIRECCIÓN UNIVERSITARIA DE SERVICIOS ACADÉMICOS Y REGISTRO

UNIVERSIDAD DE LIMA



icpna.edu.pe informes@icpna.edu.pe (511) 706 7000

Officina Central Av. Angumos Oesta 120 Mikaflores Apartado 0784 - Limu 18., Perú

65 February 25

The undersigned Certified Translator, Member of the Peruvian Association of Professional Licensed Translators (CTP) with No. 0243, is currently working in the ICPNA's Translation and Interpretation Center, and is authorized by the CTP to sign certified translations.

Lima, November 18, 2019









Cherchporley NP 26684

GRACIELA M. MIRANDA RAMÓN

Certified Translator CTP No. 0243
Spanish – English – German
Calle Maurizio Cassati 115; Dpto. 101 San Borja
Cellphone: 998 948628
E-mail: gramiranda@hotmail.com

CERTIFIED TRANSLATION

CT No. 0652-2019

ACADEMIC TRANSCRIPT: PSYCHOLOGY ACADEMIC
PROGRAM
BENJAMIN LIRA LUTTGES
UNIVERSIDAD DE LIMA



Scription Parada Ramán CTP Nº 0243

Valor 3.50 Soles



CERTIFIED TRANSLATION No. 0652-2019

Page 1 of 2

No. 0087475

UNIVERSIDAD DE LIMA [UL]

[UNIVERSITY OF LIMA]

ACADEMIC TRANSCRIPT

[Photograph]

[Logo] UL Scientia et Praxis

PSYCHOLOGY ACADEMIC PROGRAM

The undersigned UL authorities do hereby certify that Benjamin LIRA LUTTGES, code 20092009

took the courses shown below with the following results:

				Eolio	Term
					2009-2
Written Expression		1 1			2009-2
National Problems				1	2009-2
Social Behavior				i i	2010-1
Value Theory		1			2010-1
Psychology of Human Communication					2010-1
Psychology of Learning		1		1	2010-1
				I	2010-1
Psychology of Motivation	04.0	Nineteen	7	290	2010-1
	03.0	Eighteen	7	321	2010-1
Development of Social Skills	03.0	Nineteen	8	153	2010-2
		Nineteen	8	155	2010-2
		Twenty	8	196	2010-2
		Seventeen	8	217	2010-2
		Nineteen	8	234	2010-2
Human Biopsychology II (Methabolic and Functional		Nineteen	8	291	2010-2
Level of Psychic Activity)		_	1.0	1	2011-1
		1 7 1		- 1	2011-1
					2011-1
		1 1			2011-1
Psychology of Personality				1	2011-1
Cognitive Psychology II	04.0	Nineteen	10	203	2011-1
	03.0	Twenty	10	318	2011-1
	03.0	Fighteen	11	4	2011-2
		1 -	11	168	2011-2
			11	174	2011-2
Psychology of Augustinett		1	11	181	2011-2
Psychological Systems II			1.1	223	2011-2
Culture and Personality				007	2011.2
	03.0	Nineteen	11	297	2011-2
	03.0	Twenty	12	34	2012-0
	03.0	Seventeen	13	189	2012-1
	03.0	Nineteen	13	200	2012-1
			13	214	2012-1
	Written Expression National Problems Social Behavior Value Theory Psychology of Human Communication Psychology of Learning Community Psychology Psychology of Motivation Ifuman Biopsychology I (Cellular Level of Psychic Activity) Development of Social Skills Life Cycle Development I Experimental Psychology Philosophy of Science Cognitive Psychology I Human Biopsychology II (Methabolic and Functional Level of Psychic Activity) Statistics I Life Cycle Development II Psychological Systems I Psychology of Personality	CourseCreditsWritten Expression03.0National Problems03.0Social Behavior03.0Value Theory03.0Psychology of Human Communication03.0Psychology of Learning04.0Community Psychology02.0Psychology of Motivation04.0Ituman Biopsychology I (Cellular Level of Psychic03.0Activity)03.0Development of Social Skills03.0Life Cycle Development I03.0Experimental Psychology04.0Philosophy of Science03.0Cognitive Psychology II (Methabolic and Functional03.0Level of Psychic Activity)03.0Statistics I03.0Life Cycle Development II03.0Psychological Systems I03.0Psychology of Personality04.0Cognitive Psychology II (Unconscious Level of03.0Psychic Activity)04.0Statistics II03.0Interview and Observation Techniques04.0Psychological Systems II03.0Culture and Personality04.0Human Biopsychology III (Conscious Level of Psychic Activity)03.0Foundations of Psychotherapy03.0Epistemology of Psychology03.0Projective Techniques I03.0	Course Credits Grade Written Expression 03.0 Ninetecn National Problems 03.0 Ninetecn Social Behavior 03.0 Sixteen Value Theory 03.0 Scventeen Psychology of Human Communication 03.0 Sixteen Psychology of Learning 04.0 Ninetecn Community Psychology 02.0 Eighteen Nineteen Nineteen Eighteen Activity) 04.0 Nineteen Development of Social Skills 03.0 Nineteen Life Cycle Development I 03.0 Nineteen Experimental Psychology 04.0 Nineteen Life Cycle Development I 03.0 Seventeen Cognitive Psychology I (Methabolic and Functional 03.0 Nineteen Level of Psychic Activity) 03.0 Twenty Statistics I 03.0 Nineteen Psychological Systems I 03.0 Nineteen Psychology of Personality 04.0 Nineteen Psychology o	Written Expression 03.0 Ninetecn 5 National Problems 03.0 Nineteen 5 Social Behavior 03.0 Sixteen 5 Value Theory 03.0 Sixteen 7 Psychology of Human Communication 03.0 Sixteen 7 Psychology of Human Communication 03.0 Sixteen 7 Psychology of Motivation 04.0 Nineteen 7 Community Psychology 02.0 Eighteen 7 Psychology of Motivation 04.0 Nineteen 7 Itiman Biopsychology I (Cellular Level of Psychic 03.0 Eighteen 7 Activity) Development of Social Skills 03.0 Nineteen 8 Life Cycle Development I 03.0 Nineteen 8 Philosophy of Science 03.0 Seventeen 8 Cognitive Psychology I (Methabolic and Functional 03.0 Nineteen 8 Level of Psychic Activity) 03.0 Twenty 10 Statistics I 03.0	Written Expression O3.0 Nineteen 5 47 National Problems O3.0 Nineteen 5 93 Social Behavior O3.0 Sixteen 5 153 Sixteen 5 153 Value Theory O3.0 Sixteen 7 115 Social Behavior O3.0 Sixteen 7 115 Sixteen 7 214 Sixteen 7 229 Sixteen 7 229 Sixteen 7 229 Sixteen 7 229 Sixteen 7 230 Sixteen 8 153 Sixteen 7 230 Sixteen 8 153 Sixteen 8 153

AS STATED IN THE BOOKS TO WHICH WE REFER IF NECESSARY.

This transcript records courses with passing grades only. It does not attest to the completion of studies or the attainment of any academic degree or professional title.

Academic performance is graded on a 20-point scale, cleven [11] being the minimum passing grade.

Any amendment or addition voids this transcript.

Lima, June 13, 2018

[Signed]

Bárbara Milagros FARFÁN FIORANI

Secretary General

Seal]

UL
Lima - Perú

General Secretariat

[Signed]

Alejandro Gustavo LARREA DAVILA

University Director of Student Services and Registry

University Bureau of Student Services and Registry



CERTIFIED TRANSLATION No. 0652-2019

Page 2 of 2

No. 0087476

UNIVERSIDAD DE LIMA [UL]

[UNIVERSITY OF LIMA]

[Logo] UL Scientia et Praxis

ACADEMIC TRANSCRIPT

[Photograph]

PSYCHOLOGY ACADEMIC PROGRAM

The undersigned UL authorities do hereby certify that Benjamin LIRA LUTTGES, code 20092009

took the courses shown below with the following results:

Code	Course	Credits	Grade	Book	Folio	Term
6292	Organizational Behavior I	03.0	Seventeen	13	265	2012-1
6309	Educational Psychology I	04.0	Twenty	13	283	2012-1
6349	Qualitative Research	03.0	Eighteen	13	296	2012-1
6152	Projective Techniques II	03.0	Seventeen	14	189	2012-1
6168	Psychometry II	04.0	Nineteen	14	202	2012-2
6208	Professional Ethics	03.0	Twenty	14	210	2012-2
6285	Psychopathology	04.0	Twenty	14	244	2012-2
6293	Organizational Behavior II	03.0	Eighteen	14	250	2012-2
6341	Educational Psychology II	03.0	Nineteen	14	270	2012-2
6169	Design and Construction of Psychological Instruments	03.0	Eighteen	16	226	2013-1
6343	Diagnosis and Psychological Report	04.0	Eighteen	16	302	2013-1
6344	Psychological Research Methodology	03.0	Twenty	16	306	2013-1
6345	Group Techniques	03.0	Nineteen	16	308	2013-1
6350	Staff Training and Development	03.0	Eighteen	16	314	2013-1
6351	Instructional Psychology	03.0	Nineteen	16	316	2013-1
901124	Cognitive Science	02.0	RCNC, R.D. 2014/653			2013-2
901414	Education in Relation to Society and Culture	03.0	RCNO	2013-2		
901415	Educational Effectiveness	03.0	RCNO	2013-2		
	Educational Policy	03.0	RCNO	C. R.D. 2014	653	2013-2
901416	Fundamentals of Artificial Intelligence	02.0	RCNO	2013-2		
	Philosophy of Education	03.0	RCNC	. R.D. 2014	653	2013-2
	Psychological Counseling	03.0	Nineteen	19	124	2014-1
6297	Project Design and Evaluation	03.0	Eighteen	19	129	2014-1
6423	Vocational and Occupational Guidance	04.0	Nineteen	19	234	2014-1
6424	Psychology of Exceptionality	04.0	Nineteen	19	236	2014-1
6426	Diagnosis of Organizational Culture and Climate	03.0	Twenty	19	238	2014-1
6428	Research Seminar I	04.0	Twenty	20	234	2014-2
6429	Internship I	04.0	Nineteen	20	239	2014-2
6430	Current Issues in Psychology I	1	Nineteen	20	242	2014-2
	Research Seminar II	04.0	Nineteen	22	258	2015-1
	Internship II	04.0	Nineteen	22	260	2015-1
6433	Current Issues in Psychology II	04.0	Twenty	22	264	2015-1

AS STATED IN THE BOOKS TO WHICH WE REFER IF NECESSARY.

This transcript records courses with passing grades only. It does not attest to the completion of studies or the attainment of any academic degree

Academic performance is graded on a 20-point scale, eleven [11] being the minimum passing grade.

Any amendment or addition voids this transcript.

Lima, June 13, 2018

[Signed]

Bárbara Milagros FARFÁN FIORANI

Secretary General

Alejandro Gustavo LARREA DAVILA

University Director of Student Services and Registry

[Seal]

Lima - Perú General Secretariat

[Seal]

University Bureau of Student Services and Registry

I, the undersigned Certified Translator, Member of the Peruvial Association of Professional Licensed Translators (CTP), do herebodify that this Certified Translation, consisting of 2 pages, is a true and correct translation into English of the applical document in Spanis Menclosed herewith, which has been produced before me.

This certification shall be considered an acknowledgment of the accuracy of the translation but no of the authenticity or contents of the document in source language attached hereto.

Signed in Lima, this 18⁴⁴ hav of November 2019



Straid Straids Pandr Oracled Strange Pandr OTP 119 0243

UNIVERSIDAD DE LIMA **CERTIFICADO DE ESTUDIOS**



CARRERA DE PSICOLOGÍA



Las autoridades de la Universidad de Lima que suscriben, certifican que : BENJAMIN LIRA LUTTGES, código 20092009,

ha cursado las asignaturas que se indican con los resultados siguientes:

Código	Nombre de Asignatura	Crédito	Calificativo	Tomo	Folio	Ciclo
1471	EXPRESIÓN ESCRITA	03.0	DIECINUEVE	5	47	2009 - 2
1478	PROBLEMÁTICA NACIONAL	03.0	DIECINUEVE	5	93	2009 - 2
6020	CONDUCTA SOCIAL	03.0	DIECISEIS	5	153	2009 - 2
1479	TEORÍA DE LOS VALORES	03.0	DIECISIETE	7	115	2010 - 1
6021	PSICOLOGÍA DE LA COMUNICACIÓN HUMANA	03.0	DIECISEIS	7	181	2010 - 1
6156	PSICOLOGÍA DEL APRENDIZAJE	04.0	DIECINUEVE	7	214	2010 - 1
6194	PSICOLOGÍA COMUNITARIA	02.0	DIECIOCHO	7	229	2010 - 1
6304	PSICOLOGÍA DE LA MOTIVACIÓN	04.0	DIECINUEVE	7	290	2010 - 1
6355	PSICOBIOLOGÍA HUMANA I (EL NIVEL CELULAR DE LA					
	ACTIVIDAD PSÍQUICA)	03.0	DIECIOCHO	7	321	2010 - 1
6022	DESARROLLO DE HABILIDADES SOCIALES	03.0	DIECINUEVE	8	153	2010 - 2
6023	DESARROLLO DEL CICLO VITAL I	03.0	DIECINUEVE	8	155	2010 - 2
6175	PSICOLOGÍA EXPERIMENTAL	04.0	VEINTE	8	196	2010 - 2
6248	FILOSOFÍA DE LA CIENCIA	03.0	DIECISIETE	8	217	2010 - 2
6273	PSICOLOGÍA COGNITIVA I	03.0	DIECINUEVE	8	234	2010 - 2
6356	PSICOBIOLOGÍA HUMANA II (EL NIVEL METABÓLICO Y		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		990-2190-16	
	FUNCIÓNAL DE LA ACTIVIDAD PSÍQUICA)	03.0	DIECINUEVE	8	291	2010 - 2
1203	ESTADÍSTICA I	03.0	VEINTE	10	1	2011 - 1
6029	DESARROLLO DEL CICLO VITAL II	03.0	DIECIOCHO	10	186	2011 - 1
6139	SISTEMAS PSICOLÓGICOS I	03.0	DIECINUEVE	10	200	2011 - 1
6150	PSICOLOGÍA DE LA PERSONALIDAD	04.0	DIECINUEVE	10	206	2011 - 1
6274	PSICOLOGÍA COGNITIVA II	04.0	DIECINUEVE	10	263	2011 - 1
6357	PSICOBIOLOGÍA HUMANA III (EL NIVEL INCONSCIENTE DE LA	100		1 1	1	
	ACTIVIDAD PSÍQUICA)	03.0	VEINTE	10	318	2011 - 1
1204	ESTADÍSTICA II	03.0	DIECIOCHO	11	4	2011 - 2
6031	TÉCNICAS DE ENTREVISTA Y OBSERVACIÓN	04.0	DIECIOCHO	11	168	2011 - 2
6032	PSICOLOGÍA DEL AJUSTE	04.0	DIECINUEVE	11	174	2011 - 2
6140	SISTEMAS PSICOLÓGICOS II	03.0	DIECIOCHO	11	181	2011 - 2
6249	CULTURA Y PERSONALIDAD	03.0	VEINTE	11	223	2011 - 2
6358	PSICOBIOLOGÍA HUMANA IV (EL NIVEL CONSCIENTE DE LA	1	JAN-18/12/18/2004			
	ACTIVIDAD PSÍQUICA)	03.0	DIECINUEVE	11	297	2011 - 2
6033	FUNDAMENTOS DE PSICOTERAPIA	03.0	VEINTE	12	34	2012 - 0
6138	EPISTEMOLOGÍA DE LA PSICOLOGÍA	03.0	DIECISIETE	13	189	2012 - 1
6151	TÉCNICAS PROYECTIVAS I	03.0	DIECINUEVE	13	200	2012 - 1
6167	PSICOMETRÍA I	04.0	VEINTE	13	214	2012 - 1

ASI CONSTA EN LOS LIBROS A LOS QUE NOS REMITIMOS EN CASO NECESARIO.

El presente certificado consigna únicamente las asignaturas aprobadas y no acredita la culminación de estudios o la obtención del grado académico o título profesional.

El rendimiento académico se califica con notas de cero (00) a veinte (20), siendo once (11) la nota mínima aprobatoria. Cualquier enmendadura o anotación invalida el presente certificado.

Lima, 13 de junio de 2018

GENERAL

SECRETARIA

ALEJANDRO GUSTAVO LARREA DAVIDA DIRECCIÓN UNIVERSITARIA DE SERVICIOS ACADÉMICOS Y REGISTRO

de Servicios

UNIVERSIDAD DE LIMA

BÁRBARA MILAGROS FARFÁ SECRETARIA GENERAL

UNIVERSIDAD DE LIMA **CERTIFICADO DE ESTUDIOS**



CARRERA DE PSICOLOGÍA



Las autoridades de la Universidad de Lima que suscriben, certifican que : BENJAMIN LIRA LUTTGES, código 20092009,

ha cursado las asignaturas que se indican con los resultados siguientes:

Código	Nombre de Asignatura	Crédito	Calificativo	Tomo	Folio	Ciclo
6292	COMPORTAMIENTO ORGANIZACIONAL I	03.0	DIECISIETE	13	265	2012 - 1
6309	PSICOLOGÍA EDUCATIVA I	04.0	VEINTE	13	283	2012 - 1
6349	INVESTIGACIÓN CUALITATIVA	03.0	DIECIOCHO	13	296	2012 - 1
6152	TÉCNICAS PROYECTIVAS II	03.0	DIECISIETE	14	189	2012 - 2
6168	PSICOMETRÍA II	04.0	DIECINUEVE	14	202	2012 - 2
6208	ÉTICA PROFESIONAL	03.0	VEINTE	14	210	2012 - 2
6285	PSICOPATOLOGÍA	04.0	VEINTE	14	244	2012 - 2
6293	COMPORTAMIENTO ORGANIZACIONAL II	03.0	DIECIOCHO	14	250	2012 - 2
6341	PSICOLOGÍA EDUCATIVA II	03.0	DIECINUEVE	14	270	2012 - 2
6169	DISEÑO Y CONSTRUCCIÓN DE INSTRUMENTOS PSICOLÓGICOS	03.0	DIECIOCHO	16	226	2013 - 1
6343	DIAGNÓSTICO E INFORME PSICOLÓGICO	04.0	DIECIOCHO	16	302	2013 - 1
6344	METODOLOGÍA DE LA INVESTIGACIÓN PSICOLÓGICA	03.0	VEINTE	16	306	2013 - 1
6345	TÉCNICAS DE GRUPOS	03.0	DIECINUEVE	16	308	2013 - 1
6350	CAPACITACIÓN Y DESARROLLO DE PERSONAL	03.0	DIECIOCHO	16	314	2013 - 1
6351	PSICOLOGÍA INSTRUCCIONAL	03.0	DIECINUEVE	16	316	2013 - 1
901124	COGNITIVE SCIENCE	02.0	RCNC. F	R.D.2014/65	2013 - 2	
901414	EDUCATION IN RELATION TO SOCIETY AND CULTURE	03.0	RCNC. R.D.2014/653			2013 - 2
901415	EDUCATIONAL EFFECTIVENESS	03.0	RCNC, R.D.2014/653			2013 - 2
901412	EDUCATIONAL POLICY	03.0	RCNC. F	R.D.2014/65	53	2013 - 2
901416	FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE	02.0	RCNC. F	R.D.2014/65	53	2013 - 2
901413	PHILOSOPHY OF EDUCATION	03.0	RCNC. F	R.D.2014/65	53	2013 - 2
6294	CONSEJERÍA PSICOLÓGICA	03.0	DIECINUEVE	19	124	2014 - 1
6297	DISEÑO Y EVALUACIÓN DE PROYECTOS	03.0	DIECIOCHO	19	129	2014 - 1
6423	ORIENTACIÓN VOCACIONAL Y OCUPACIONAL	04.0	DIECINUEVE	19	234	2014 - 1
6424	PSICOLOGÍA DE LA EXCEPCIONALIDAD	04.0	DIECINUEVE	19	236	2014 - 1
6426	DIAGNÓSTICO DE CULTURA Y CLIMA ORGANIZACIONAL	03.0	VEINTE	19	238	2014 - 1
6428	SEMINARIO DE INVESTIGACIÓN I	04.0	VEINTE	20	234	2014 - 2
6429	INTERNADO I	04.0	DIECINUEVE	20	239	2014 - 2
6430	TEMAS ACTUALES EN PSICOLOGÍA I	04.0	DIECINUEVE	20	242	2014 - 2
6431	SEMINARIO DE INVESTIGACIÓN II	04.0	DIECINUEVE	22	258	2015 - 1
6432	INTERNADO II	04.0	DIECINUEVE	22	260	2015 - 1
6433	TEMAS ACTUALES EN PSICOLOGÍA II	04.0	VEINTE	22	264	2015 - 1

ASI CONSTA EN LOS LIBROS A LOS QUE NOS REMITIMOS EN CASO NECESARIO.

El presente certificado consigna únicamente las asignaturas aprobadas y no acredita la culminación de estudios o la obtención del grado académico o título profesional.

El rendimiento académico se califica con notas de cero (00) a veinte (20), siendo once (11) la nota mínima aprobatoria.

Cualquier enmendadura o anotación invalida el presente certificado.

IDAD

Lima, 13 de junio de 2018

SECRETARIA GENERAL

BÁRBARA MILAGROS FARFAN FIQRANI

SECRETARÍA GENERAL

ALEJANDRO GUSTAVO LARRE

DIRECCIÓN UNIVERSITARIA DE SERVICIOS ACADÉMICOS Y REGISTRO

de Servicios

UNIVERSIDAD DE LIMA

[Logo] UNIVERSIDAD DE LIMA [UNIVERSITY OF LIMA] SCIENTIA ET PRAXIS **MCMLXII**

[PHOTOGRAPH]

CERTIFICATE

The University Director of Academic Services and Registration does here certify that

BENJAMIN LIRA LUTTGES

(Student ID 20092009) completed his studies in the Psychology Major in the period March-July 2015 and earned a cumulative weighted average (P.P.A.) of 18.633.

The equivalence in the above-mentioned major between the P.P.A. 20-point grading scale (0-20) and the G.P.A. (0-4) is given in the following table:

20-point grading scale	G.P.A.
11.0 to 13.89	2.0 to 2.49
13.9 to 4.99	2.5 to 3.49
15.0 to 15.99	3.5 to 3.99
16.0 and above	4.0

This certificate is issued at the request of the interested party to serve and avail as occasion shall or may require.

Lima, November 29, 2019

(Illegible Signature) ALEJANDRO GUSTAVO LARREA DAVILA BÁRBARA MILAGROS FARFÁN FIORANI Director Academic Services and Registration

(Signed) B. Farfán General Secretariat

> [Barcode] 67783

CONSTANCIA



El Director Universitario de Servicios Académicos y Registro deja constancia de que

BENJAMIN LIRA LUTTGES

con código **20092009** completó el plan de estudios de la carrera de Psicología en el período académico 2015-1 y obtuvo 18.633 de promedio ponderado acumulado.

La equivalencia entre las escalas vigesimal (0-20) y G.P.A (0-4) para dicha carrera es la siguiente:

Escala vigesimal	G.P.A
11.0 a 13.89	2.0 a 2.49
13.9 a 14.99	2.5 a 3.49
15.0 a 15.99	3.5 a 3.99
16.0 en adelante	4.0

Se extiende la presente constancia a solicitud del interesado para los fines que considere convenientes.

Lima, 29 de noviembre de 2019

ALEJANDRO GUSTAVO LARREA DAVILA DIRECTOR UNIVERSITARIO DE SERVICIOS ACADÉMICOS Y REGISTRO

BÁRBARA MILAGROS FARFÁN FIORANI SECRETARIA GENERAL

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