

Sebastián Sarmiento

LEARNING SCIENTIST · CURRICULUM ENGINEER · EDTECH PRODUCT STRATEGIST

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PROFESSIONAL SUMMARY

Learning scientist and curriculum engineer working where **psychometrics, educational data mining, curriculum design, and product** meet. A decade turning learning science into measurement systems – IRT/BKT, item validation, and AI-assisted content with automated quality gates – that hold their shape under real curricula, real classrooms, and real data. *I sell judgment about what is worth measuring and how to institutionalize quality, not inflated outcomes.*

SKILLS

MEASUREMENT & ANALYTICS – Item Response Theory (IRT) · Bayesian Knowledge Tracing (BKT) · Educational Data Mining (EDM) · psychometrics · learning analytics · assessment & item design

CURRICULUM & LEARNING SCIENCE – mastery-based learning · curriculum design · IB MYP · ESSA evidence tiers · instructional design

PRODUCT & SYSTEMS – product discovery · system design · automated quality gates · experimentation · data visualization

TECHNICAL – Python · SQL · R · LaTeX · Next.js · Firebase · AWS Bedrock · LLM / AI pipelines

EXPERIENCE

AI-Driven Math Learning Strategist, HS Math DRI · Alpha School

2025 – Present

High-school math research, AI-assisted content, and the quality gates that keep it honest.

- Built the Alpha HS Math Hub (Next.js, Firebase, AWS Bedrock): a research platform of 19 investigations graded by ESSA evidence tiers (I-IV).
- Shipped a SAT-prep app to production: an AI-generated, hand-curated bank of 700+ verified items.
- Institutionalized quality as automated build gates – a “derive-the-truth” check recomputes every answer and fails the build on mismatch.
- Designed a cohort / sub-rung scaffolding engine so difficulty is a calibrated property, not a label.
- Hardened the platform’s student-data pipelines – securing 42 unauthenticated routes so learner records stay protected, with zero production vulnerabilities.

Co-founder (part-time) · MACT – EdTech

2025 – Present

An early-stage Chilean EdTech for data-driven, personalized mathematics learning.

- Founded the company and set its measurement and curriculum direction.
- Designed the evidence model behind personalization – what a recommendation is allowed to assume about a learner.

Curricular Strategy Lead & Mathematics Coordinator – Middle Section · Craighouse School

2024 – 2025

IB MYP leadership, performance strategy, and data-informed instruction.

- Led the entire Middle Section mathematics program under the IB MYP framework, ensuring curricular alignment and pedagogical consistency.
- Supervised the teaching team and designed data-informed strategies to lift attainment and conceptual understanding.
- Certified in Mathematics (CAT.1) and Administration of Evaluation in the MYP.

Item Constructor & Review Advisor · Universidad de Chile (DEMRE)

2024

Psychometrics (IRT) for national university-admission exams.

- Designed and reviewed high-stakes items, ensuring psychometric validity and curricular alignment for the national testing instrument.

Professor · DUOC UC

2022 – 2024

Algebra, applied mathematics, and statistics for technical higher education.

- Developed course content including mathematical modeling to strengthen students' problem-solving.

Innovation Manager & Pedagogical Data Analyst · Preuniversitario Cpech

2016 – 2020

National-scale assessment data and a self-learning platform.

- Managed national assessment results and surveys for 52 campuses, automating data management to optimize pedagogical operations.
- Led development of a self-learning platform and information systems improving educational access.

Earlier Teaching & Academic Roles

2013 – 2021

Teaching Assistant at Pontificia Universidad Católica and math-teacher roles.

SELECTED PROJECTS & PUBLICATIONS

Alpha HS Math Hub – *research platform lead*

Alpha School · internal

19 math investigations graded by ESSA evidence tiers (I–IV), each with a scrollytelling brief and a decision log.

SAT Prep (Desmos) – *builder*

Alpha School · internal

Production app with a bank of 700+ verified items, generated via an AI pipeline and gated by automated quality checks.

AI-Enhanced Cryptography Curriculum – *designer*

ISTELive 2025

An AI-supported unit selected for ISTELive 2025, resulting in a meeting with the ISTE CEO.

Product Book & Portfolio – *author*

<https://sarmiento.work/product-book>

A curated, abstracted portfolio of products and research efforts, with the decision logic behind each build.

EDUCATION

M.A. (cand.), Educational Research – Universidad de Chile · 2023

Thesis: “Mathematics teachers’ beliefs on skills and knowledge in the era of post-truth and artificial intelligence.”

Diploma, Instructional Design (Virtual Learning Environments) – Universidad del Desarrollo · 2021

B.A., Secondary School Teacher, Major in Mathematics – Pontificia Universidad Católica de Chile · 2021

LANGUAGES

English (C1) · Spanish (native)

INTERESTS

Bass & drums – I keep time for a living and for fun.