

# FRANK BROCKMANN

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## **EDUCATION**

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### **M.B.A., General Business Administration**

*University of Phoenix*, San Jose, CA - 2001

### **B.A., Literature/Creative Writing**

*University of California, Santa Cruz*, Porter College - 1993

## **PUBLICATIONS**

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Kūkea-Shultz, P., Brockmann, F., et al. (under review). *Beyond human-in-the-loop: Centering cultural expertise in AI-assisted item analysis*. Submitted to International Test Commission Conference, Wellington, New Zealand.

Kūkea-Shultz, P. & Brockmann, F. (2025). *Bridging psychometric and content development practices with AI: A community-based workflow for augmenting Hawaiian language assessments*. arXiv:2512.17140. <https://doi.org/10.48550/arXiv.2512.17140>

Brockmann, F. (2025). *Formative AI scaffolding: A framework for studying AI's role in adult identity and community connection*. Working paper.

Brockmann, F. (2025). *Beyond capabilities: A framework for mission-first AI adoption in identity-critical contexts*. Working paper.

Brockmann, F. (2019–2023). Technical documentation suite for the Kaiapuni Assessment of Educational Outcomes (KĀ'EO), submitted as part of federal peer review under ESEA:

- *KĀ'EO Test Specifications*
- *KĀ'EO Item Specifications and Style Guide (bilingual Hawaiian/English)*
- *KĀ'EO Item Development Manual*

Internal documentation contributed to a successful federal peer review decision (U.S. Department of Education, 2022). *Decision letter*: <https://www.ed.gov/sites/ed/files/2022/12/hi12.pdf>

### **Technical monographs and research reports for the Council of Chief State School Officers (CCSSO):**

Auty, B. and Brockmann, F. (2012). *Growth model comparison study: A summary of results*.

Brockmann, F. (2011). *Commonly unrecognized error variance in statewide assessment programs*.

Brockmann, F., & Ryan, J. (2009). *A practitioner's introduction to equating with primers on classical test theory and item response theory*. (Book-length technical monograph.)

## **APPLIED RESEARCH**

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### **The KĀ'EO AI Lab: AI-Assisted Evaluation of Test Items in Hawaiian-Medium K-8 Assessments**

*Lead system designer, University of Hawai'i at Mānoa, College of Education · 2025*

- Designed and implemented an **LLM-based pattern diagnostic system** that performs forensic analysis of psychometrically flagged Hawaiian-language assessment items to surface qualitative failure patterns.

- Developed a **multi-phase framework** integrating item statistics with systematic analysis of cognitive mismatches, linguistic barriers, and construct-irrelevant variance to produce structured diagnostic reports.
- Enabled cross-item pattern recognition across Hawaiian Language Arts, Mathematics, and Science within a **closed, policy-constrained AI workflow**, generating bilingual narrative recommendations that preserve human linguistic authority.
- Bridges HCI, NLP for low-resource languages, and educational measurement; **published** as Kūkea-Shultz & Brockmann (2025).

### **AI Governance Frameworks for Indigenous Data Sovereignty**

*Policy architect, KĀ'EO Program (Hawai'i DOE/RCUH) & F.E.A.S.T. · 2024 - present*

- Led development of comprehensive **AI ethics and governance frameworks** that operationalize indigenous data sovereignty, human-in-the-loop mandates, and bias mitigation in assessment and nonprofit care contexts.
- Defined constraints for **closed, auditable AI workflows**, including restrictions on Hawaiian language data use, documentation requirements, and clear attribution of AI versus human contributions.
- Frameworks now guide technology and AI adoption decisions across the KĀ'EO project and F.E.A.S.T., serving as a template for community-governed AI practice.

### **Information Architecture as Care Infrastructure (F.E.A.S.T.)**

*Director of Technology Services, F.E.A.S.T. · 2020 - present*

- Designed and implemented **workflow and data architectures** for an international nonprofit serving eating-disorder caregivers, including Salesforce schema, donation pipelines, and integrated web infrastructure.
- Built and maintained content production pipelines (podcast, impact reports, targeted email campaigns) that coordinate multiple platforms and automate routine tasks, framing them as computational supports for caregiver communities.
- Drafted and implemented organization-wide AI and data governance policies that shape technology strategy and safeguard caregiver and donor data.
- Research focus: how computational tools and information architecture can sustain care infrastructure under chronic resource constraints.

### **Computational Infrastructure for Indigenous Language Assessment (KĀ'EO)**

*Lead technical architect, Kaiapuni Assessment of Educational Outcomes (KĀ'EO) · 2016 - present*

- Developed a suite of interoperating applications supporting the first federally peer-reviewed Hawaiian-language assessment, including real-time item selection tools, test sequencing and QA utilities, and bilingual reporting interfaces.
- Designed and implemented multi-day remote item review processes with Hawaiian language educators, integrating custom digital workflows with psychometric review practices.
- Combined user-centered design, educational measurement, and culturally-responsive technology principles to maintain linguistic and cultural authority with the Hawaiian immersion community while scaling statewide assessment metadata infrastructure.

## **PROFESSIONAL EXPERIENCE**

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### **Founder / President**

*Center Point Assessment Solutions, Inc.*, Sacramento, CA 2004 - Present

Research-based consulting for universities, state education agencies, and nonprofits in K-12 assessment. Led user-centered design and iterative prototyping of custom assessment applications and data visualization tools.

### **Assessment Content Development Supervisor**

*CTB/McGraw-Hill*, Monterey, CA 1994 - 2004

Supervised content development and workflow design for multiple statewide assessment programs, including oversight of a custom test-bank software project and associated quality assurance.

## **TEACHING & WORKSHOP FACILITATION**

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### **Professional Development Facilitator**

*University of Hawai'i at Mānoa* 2015 - Present

Designed and facilitated workshops for Hawaiian-medium educators on assessment development, universal design, data interpretation, and secure bias / fairness / sensitivity / accessibility reviews. Emphasis on culturally-responsive approaches and the practical application of assessment data management systems.

### **Volunteer Educator & Mentor**

*F.E.A.S.T. & UC San Diego Eating Disorders Center* 2020 - 2024

Facilitated educational mentoring for caregivers; coordinated mentor program and assignments with clinical staff.

### **Workshop Co-Facilitator & Curriculum Designer**

*Project Lead The Way* 2017 - 2019

Designed and co-led teacher workshops on assessment and framework alignment for national PLTW institutes (Indianapolis), including two training modules on assessment design and interpretation for STEM teachers.

## **TECHNICAL COMPETENCIES**

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Programming / AI & Data: JavaScript, HTML/CSS, Python; LLM-based workflows (context engineering, prompt design, constrained pipelines, human-in-the-loop evaluation), interpretation of psychometric data (item statistics, DIF analysis), dashboarding and reporting

Systems & Platforms: Git/GitHub, Google Workspace (Admin certified), Salesforce (Admin), WordPress (Admin), Adobe Creative Suite, static site generators (GitHub Pages)

Methods: User-centered design, iterative prototyping, usability testing, workshop facilitation, documentation for non-technical stakeholders

Domains: Large-scale educational assessment, indigenous and low-resource language contexts, nonprofit and care-infrastructure systems, workflow automation

## **SERVICE**

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Board Member, F.E.A.S.T. • Chair, Technical Advisory Committee, F.E.A.S.T. • Member, Experts by Experience Committee, Academy for Eating Disorders • Former Mentor and Coordinator, Parent Advisory Committee, UC San Diego Eating Disorders Center