


ALBERTO GUZMAN-ALVAREZ, Ph.D.

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EMPLOYMENT

Research Data Scientist, 2023 – Present

American Institutes for Research (AIR), Arlington, VA

EDUCATION

University of Pittsburgh, Pittsburgh, PA

Ph.D. Learning Sciences and Policy, 2023

Co-Advised: Lindsay Page & Xu Qin

2021 National Academy of Education/Spencer Dissertation Fellow

Dissertation Title: *Deep learning for investigating causal effects with high-dimensional data: analytic tools and applications to educational interventions*

Committee: Lindsay Page, Xu Qin, Richard Correnti & Paul Scott

M.A. Research Methodology – Statistics, 2018

University of California – Davis, Davis, CA

B.S. Psychology, 2013

Affiliations: Research Affiliate, UC Davis Wheelhouse Center for Community College Leadership & Research. 2021 – Present

Research Interest: Education Data Science, Causal Inference, Quantitative Policy Analysis, Equity & Social Justice, College Access & Success, Financial Aid, Higher Education

FELLOWSHIPS, HONORS & GRANTS

Fellowships & Honors

- National Academy of Education/Spencer Dissertation Fellow (\$27,500; highly selective) (2021-2023)
- K. LeRoy Irvis Pre-Doctoral Fellow, University of Pittsburgh (\$75,000; selective) (2018-2023)
- Equity & Inclusion Fellowship, Association for Public Policy Analysis & Management (\$500; selective) (2017-2018)
- First Place Research Poster, Association for Public Policy Analysis & Management (2018)
- Pat Rogers First Place Research Poster, Society for Teaching and Learning in Higher Education (2015)
- Best Statistic Education Lesson, American Statistical Association (\$200) (2014)

Grants

- Summer Institute in Computational Social Sciences (SICSS-Chicago) Grant (\$300; selective) (2021)
- Building Bridges Grant, University of Pittsburgh – School of Education (\$400) (2021)
- Roe L. Johns Travel Grant, Association for Education Finance and Policy (\$500) (2020)
- Travel Grant, University of Pittsburgh Council for Graduate Students in Education (\$500) (2018)
- Research Methodology Kevin Kim Memorial Fund Travel Grant, University of Pittsburgh (\$250) (2018)

TRAININGS

- Quant for What?: Dreaming Toward Quantitative Paradigms for Anti-Racist Transformation, University of Pittsburgh (2022)
- Just Education Policy Summer Program, University of Georgia (2021)
- Summer Institute in Computational Social Sciences (SICSS-Chicago), Northwestern University (2021)
- Summer Empirical Workshop, West Virginia University (2018)
- Designing and Conducting Mixed Methods Research Projects, University of Pittsburgh (2018)

PUBLICATIONS

Peer-Reviewed Articles

Guzman-Alvarez, A., Scott, P., & Qin, X. (2022). Deep Neural Networks for Propensity Score Estimation. *Multivariate Behavioral Research*. (Abstract). <https://doi.org/10.1080/00273171.2021.2011695>

Qin, X., Wormington, S., Guzman-Alvarez, A., & Wang, M.-T. (2021). Why does a growth mindset intervention impact achievement differently across secondary schools? Unpacking the causal mediation mechanism from a national multisite randomized experiment. *Journal of Research on Educational Effectiveness*, 14(3), 617-644. <https://doi.org/10.1080/19345747.2021.1894520>

Guzman-Alvarez, A., & Page, L. C. (2021). Disproportionate Burden: Estimating the Cost of FAFSA Verification for Public Colleges and Universities. *Educational Evaluation and Policy Analysis*, 43(3), 545-551. <https://doi.org/10.3102/01623737211001420>

Garcia, G., & Guzman-Alvarez, A. (2021). Descriptive Analysis of Graduate Enrollment Trends at Hispanic Serving Institutions (HSIs): 2005-2015. *Journal of Hispanic Higher Education*, 20(2), 196-212. <https://doi.org/10.1177/1538192719835681>

Becker, E., Easlon, E., Potter, S., Guzman-Alvarez, A., Spear, J., Facciotti, M., Igo, M., Singer, M., & Pagliarulo, C. (2017). The Effects of Practice-Based Training on Graduate Teaching Assistants' Classroom Practices. *CBE Life Sciences Education*, 16(4), ar58. <https://doi.org/10.1187/cbe.16-05-0162>

Allen, G., Guzman-Alvarez, A., Falk Smith, A., Gamage, A., Molinaro, M. & Larsen, D. (2015). Evaluating the Effectiveness of the Open-Access ChemWiki Resource as a Replacement for Traditional General Chemistry Textbooks. *Chemistry Education Research and Practice*, 16(4), 939-948. <https://doi.org/10.1039/C5RP00084J>

Allen, G., Guzman-Alvarez, A., Molinaro, M., & Larsen, D. (2015). Assessing the Impact and Efficacy of the Open-Access ChemWiki Textbook Project. *Educause Learning Initiative Brief*, 1-8.

Falk Smith, A., Molinaro, M., Lee, A., & Guzman-Alvarez, A. (2014). Thinking with Data: Students Use Authentic Data to Form Evidence-Based Conclusions and Think like a Scientist. *The Science Teacher*, 81(8), 58-63.

Referred Conference Proceedings

Molinaro, M., Steinwachs, M., Li, Q., & Guzman-Alvarez, A. (2017) Promoting Instructor and Department Actions via Simple, Actionable Tools and Analyses. In *Companion Proceedings of the 1st Learning Analytics for Curriculum and Program Quality Improvement Workshop* (PCLA@LAK '16).

Book Chapters

Dockter, D., Uvarov, C., Guzman-Alvarez, A., & Molinaro, M. (2017). Improving Preparation and Persistence in Undergraduate STEM: Why an Online Summer Preparatory Chemistry Course Makes Sense. In *Online Approaches to Chemical Education* (pp. 7-33). American Chemical Society.

Op-Eds

Guzman-Alvarez, A., & Page, L. FAFSA Verification: And Undue Burden for Students and Public Colleges. *Brookings Brown Center Chalkboard*, June 7, 2021.

WORKING PAPERS & WORK IN PROGRESS

Guzman-Alvarez, A., Page, L. C., Nicola, T., Munoz-Najar Galvez, S., Avery, C. When In-Person Support is not Possible, can Virtual Outreach Help? Evaluating the Impact of an Artificially Intelligent Chatbot to Promote College Enrollment During the COVID-19 Pandemic.

Nathanson, R., Jefferys, A., Guzman-Alvarez, A., Tanenbaum, C. Findings from the Fisk-Vanderbilt STEM Graduate Bridge Program Serving Historically Marginalized Students.

Guzman-Alvarez, A., Scott, P., & Qin, X. Deep Learning Algorithms for Propensity Score Estimation: A Simulation Study.

Cuellar, M., Koren, E., Guzman-Alvarez, A., & Garcia, G. (Revise & resubmit). Validating the Multicultural Teaching Competency Scale in Higher Education: Testing Factor Structure among Faculty at Hispanic-Serving Institutions.

MEDIA COVERAGE

Higher Ed Drive. (May, 2022). [Ed Dept Will Continue to Waive Financial Aid Verification Rules for 2022-23.](#)

Forbes. (May, 2022). [Biden Department of Education Makes it Easier to Get Financial Aid This Year.](#)

Forbes. (February, 2022). [We Continue Asking Students To Prove Their Poverty With FAFSA Verification.](#)

Inside Higher Ed. (November, 2021). [Relieving the Verification Burden.](#)

Inside Higher Ed. (September, 2021). [Aid Verification Will Return to Normal for 2022-2023.](#)

The Chronicle of Higher Education. (July, 2021). [U.S. Education Department Will Relax Aid-Verification Rules in 2021-22.](#)

Inside Higher Ed. (July, 2021). [Federal Aid Verification Will Be More Targeted for 2021-22 Award Year.](#)

AERA Study Snapshot. (April, 2021). [Study Snapshot: Disproportionate Burden: Estimating the Cost of FAFSA Verification for Public Colleges and Universities.](#)

The Pitt Education Research Report. (April, 2021). [The Disproportionate Impact of FAFSA Verifications.](#)

Time to Finish Fixing the FAFSA: Hearing before the committee on Health, Education, Labor, and Pensions, 116th Cong. (2020) (testimony of Dr. Judith Scott-Clayton).

NASFAA Today's News. (August, 2020). [New Paper finds FAFSA Verification Costs have Outsized Impact on Public Institutions, Particularly Community Colleges.](#)

NCAN News: Federal Policy & Advocacy. (September, 2020). [Experts Continue to Document FAFSA Verification's Undue Burden on Students and Institutions.](#)

PRESENTATIONS

Invited Talks

2021 – 2022 Peabody College, Vanderbilt University; University of Florida, College of Education

2019 – 2021 Postsecondary National Policy Institute (PNPI) Researcher Showcase; Association for Public Policy Analysis & Management (APPAM) Student Research Online Seminar; Graduate Students in Economics of Education Zoom Seminars (GEEZ).

Peer-Reviewed Conference Presentations

Guzman-Alvarez, A., & Page, L. C. (2021). *Disproportionate Burden: Estimating the Cost of FAFSA Verification for Public Colleges and Universities*. Paper presented at the Association for the Study of Higher Education. San Juan, PR.

Cuellar, M., Koren, E., Guzman-Alvarez, A., & Garcia, G. (2021). *Validating the Multicultural Teaching Competency Scale for Faculty at Hispanic Serving Institutions: Testing Factor Structure and Measurement Invariance*. Paper presented at the Association for the Study of Higher Education. San Juan, PR.

Guzman-Alvarez, A., & Scott, P. (2020). *Deep Learning for Propensity Score Estimation*. (Paper accepted; conference cancelled due to COVID-19). American Educational Research Association. San Francisco, CA.

Lowry, D., Guzman-Alvarez, A. & Page L. C. (2020). *Unjust Deserts: How Geography Constrains Postsecondary Options*. (Paper accepted; conference cancelled due to COVID-19). American Educational Research Association. San Francisco, CA.

Guzman-Alvarez, A., & Garcia, G. (2020). *Does Financial Aid Affect Graduate Enrolment at Hispanic Serving Institutions? Exploring Disparities in Latinx Graduate Enrollment Across Institutional Types*. (Paper accepted; conference cancelled due to COVID-19). American Educational Research Association. San Francisco, CA.

Guzman-Alvarez, A., & Page L. (2020). *A Burden on the Poor: Compliance Cost Variation in FAFSA Verification*. Poster virtually presented at the Association for Education Finance and Policy. Fort Worth, TX.

Qin, X., Wormington, S., Guzman-Alvarez, A., & Wang, M.-T (2019). *Why does a growth mindset intervention impact achievement differently across secondary schools? Unpacking the mediation mechanism from a national multisite randomized experiment*. Paper presented at the capstone event of the National Study of Learning Mindsets Early Career Fellowship, Seattle, WA, U.S.

Guzman-Alvarez, A., & Garcia, G. (2019) *Rethinking Hispanic Serving Institutions through Organizational Learning*. Paper presented at the Association for the Study of Higher Education. Portland, OR.

Lowry, D. & Guzman-Alvarez, A. (2019). *Unjust Deserts: How Geography Constrains Postsecondary Options*. Poster presented at the CGSE Graduate Conference. Pittsburgh, PA.

Garcia, G., & Guzman-Alvarez, A. (2018) *Graduate Enrollment Trends at Hispanic Serving Institutions (HSIs): 2005-2015*. Paper presented at the Association for the Study of Higher Education. Tampa, FL.

Guzman-Alvarez, A., & Page L. (2018). *Clustering Algorithms in Educational Interventions*. Poster presented at the Association for Public Policy Analysis and Management Fall Conference. Washington, DC.

Graves, L., Guzman-Alvarez, A., & Chasens, E. (2018). *Evaluation of the Factor Structure of the Problems Areas in Diabetes (PAID) Questionnaire*. Poster presented at the American Association of Diabetes Educators. Baltimore, MA.

Guzman-Alvarez, A., & Page L. (2018). *Machine Learning Algorithms in Educational Interventions: Application of Longitudinal Clustering*. Poster presented at the Association for Public Policy Analysis and Management DC Regional Student Conference. Washington, DC.

Guzman-Alvarez, A., & Page L. (2018). *Machine Learning in Educational Research: Application of Cluster Analysis*. Poster presented at the CGSE Graduate Conference. Pittsburgh, PA.

Marco, M., Steinwachs, M., Li, Q., & Guzman-Alvarez, A. (2016). *Promoting Action from Instructors to Departments via Simple, Actionable Tools, and Analyses*. Paper presented at the Learning Analytics & Knowledge Conference, Edinburgh, Scotland, UK.

Dockter, D., Uvarov, C., Guzman-Alvarez, A., & Molinaro, M. (2016). *Rethinking Remedial Chemistry: Preparing and Motivating Incoming Undergraduate Students for Success in Introductory Chemistry Using an Adaptive-responsive Online Chemistry Preparation Course*. Paper presented at the 251st American Chemical Society Meeting, San Diego, CA.

Uvarov, C., Guzman-Alvarez, A., Allen, G., & Molinaro, M. (2016). *Enhancing Learning: More Evidence Evidence-Based Practices in Higher Enrollment General Chemistry*. Paper presented at the 251st American Chemical Society Meeting, San Diego, CA.

Guzman-Alvarez, A., Allen, G., Uvarov, C., & Molinaro, M. (2016). *Revalidation of the Colorado Learning Attitudes about Science Survey for Chemistry after Redefining its Categories Research*. Paper presented at the 251st American Chemical Society Meeting, San Diego, CA.

Guzman-Alvarez, A., Falk Smith, A., Allen, G., Molinaro, M., & Larsen, D. (2016). *The use of Non-Inferiority Testing in Chemical Education Research*. Paper presented at the CADACER Symposium: 251st American Chemical Society Meeting, San Diego, CA.

Guzman-Alvarez, A., Allen, G., Molinaro, M., & Larsen, D. (2015). *Implementing and Assessing the Efficacy of Open Access Hyperlibrary Textbook Resource*. Session presented at the Open Access Conference, San Jose, CA.

Larsen, D., Rusay, R., Allen, G., Guzman-Alvarez, A., & Molinaro, M. (2014). *The ChemWiki: A Free Online Substitute for Commercial Chemistry Textbook*. Paper presented at ConfChem 2014 ACS Digital Conference.

Falk Smith, A., Guzman-Alvarez, A., Steinwachs, Matt., & Lee, A. (2014). *From Data Visualization to Argument – Tools for Lifelong Science Literacy*. Session presented at the National Science Teacher Association National Conference, Boston, MA.

Guzman-Alvarez, A. (2014). *Now You SeeIt, Now You Don't: Using SeeIt to Compare Stacked Dotplots to Boxplots*. Session presented at the 35th Annual Institute on Research and Statistics, Sacramento, CA.

Molinaro, M., Diaz, R., Pagliarulo, C., Falk Smith, A., Lee, A., Steinwachs, M., & Guzman-Alvarez, A. (2016). *How Sure Are You? Science, Biostatistics, and Cancer Education*. Poster Presented at the 2016 National Institute of Health SciEd Conference, Rockville, MA.

Dockter, D., Uvarov, C., Guzman-Alvarez, A., & Molinaro, M. (2016). *Rethinking Remedial Chemistry: Preparing and Motivating Incoming Undergraduate Students for Success in Introductory Chemistry Using an Adaptive-responsive Online Chemistry Preparation Course*. Poster to be presented at the 251st American Chemical Society Meeting, San Diego, CA.

Guzman-Alvarez, A., Corbacho, A., Martin, S., Falk Smith, & A., Molinaro, M. (2015). *Easing the Shock: Improving first generation transfer student success in their transition to a 4-year institution*. Poster Presented at the Society for Teaching and Learning in Higher Education Conference, Vancouver, BC.

Falk Smith, A., Guzman-Alvarez, A. & Molinaro, M. (2015). *Understanding the Curve: Implications of Norm-Referenced Grading in Large Introductory Science Courses*. Poster Presented at the Society for Teaching and Learning in Higher Education Conference, Vancouver, BC.

Falk Smith, A., Guzman-Alvarez, A., & Molinaro, M. (2015). *You Can't Change What You Can't Measure: Measuring Teaching Practices and Student Learning to Promote Improvement in Introductory Science Classes*. Poster Presented at the Society for Teaching and Learning in Higher Education Conference, Vancouver, BC.

Gamage, R., Uvarov, C., Guzman-Alvarez, A., Allen, G., Pagliarulo, C., & Molinaro, M. (2015). *Flipping General Chemistry via a Highly Structures Teaching Pedagogy: Initial Findings*. Poster Presented at the 249th American Chemical Society Meeting, Boulder, CO.

Allen, G., Gamage, R., Guzman-Alvarez, A., Uvarov, C., Pagliarulo, C., & Molinaro, M. (2014). *Determining the Baseline of General Chemistry Student Performance at a Tier 1 University*. Poster Presented at the 248th American Chemical Society Meeting, San Francisco, CA.

Molinaro, M., Pagliarulo, C., DeLa Pena, C., Allan, G., Becker, E., Britt, A., Easlon, E., Gamage, A., Guzman-Alvarez, A., Kauzlarich, S., Keen, Susan., Larsen, D., Schaaf, J., Singer, M., Falk Smith, A., Steinwachs, M., & VanderGheynst, J. (2014). *Instructional and Cultural Change at UC Davis*. Poster Presented at the Association of American Universities, Washington, DC.

Becker, E., Easlon, E., Guzman-Alvarez, A., Molinaro, M., & Pagliarulo, C. (2014). *TA's Can Teach Like a Boss: Impact of TA lead highly structure discussion section on student outcomes in a large introductory biology course*. Poster Presented at the 2014 Society for the Advancement of Biology Education Research National Meeting, Twin Cities, MN.

Molinaro, M., Diaz, R., Pagliarulo, C., Falk Smith, A., Lee, A., Steinwachs, M., & Guzman-Alvarez, A. (2014). *How Sure Are You? Science, Biostatistics, and Cancer Education*. Poster Presented at the 2014 National Institute of Health SciEd Conference, Bethesda, MA.

TEACHING EXPERIENCE

Instructor of Record

University of Pittsburgh – School of Education, Pittsburgh, PA

PSYED 2410: Applied Regression Analysis (PhD/MA; 2018)

EDUC 2201: Introduction to Research Methodology. (MA; Online; 2016, 2017)

Teaching Fellow

University of Pittsburgh – School of Education, Pittsburgh, PA

PSYED 3471: Causal Inference in Educational Research. (PhD; 2019, 2020)

RESEARCH EXPERIENCE

University of Pittsburgh, Pittsburgh, PA

Graduate Student Researcher

UPMC Hillman Scholars Program Evaluation. (2020-2023)

Graduate Student Researcher – National Study of Learning Mindsets (NSLM). (2018-2020)

Graduate Student Researcher - Digital Messaging to Improve College Enrollment and Success (DIMES). (2016-2019).

Harvard University, Cambridge, MA
Graduate Student Researcher
CommonApp Program Evaluation. (2021-Present)

Carnegie Mellon University, Pittsburgh, PA
Graduate Data Scientist
Life@CMU. (2019-2021)

American Institutes for Research, Arlington, VA
Quantitative Research Intern
The Developments of Children's Gender Stereotype about STEM Abilities: A Meta-Analysis. (2021)
Louis Stokes Alliances for Minority Participation (Fisk-Vanderbilt Bridge Program). (2021)

PROFESSIONAL EXPERIENCE

Quantitative Research Intern, American Institute for Research (AIR). Remote (2021-Present)
Research Associate, Awaken Pittsburgh. Pittsburgh, PA (2017, 2020-2021)
Statistical Analyst, UC Davis Center for Educational Effectiveness – Educational Analytics. Davis, CA (2013-2016)
Evaluation Analyst, UC Davis Center for Education and Evaluation Services. Davis, CA (2013)

PROFESSIONAL SERVICE

Referee Service:

Editorial Board

Journal of Student Financial Aid (Rising Scholars Editorial Board), 2023-Present

Ad-Hoc Journal Reviewer

AERA Open
Journal of Student Financial Aid

Conferences Proposal Reviewer

American Educational Research Association (**AERA**) – Division D Measurement & Research Methodologies; American Educational Research Association (**AERA**) – Division J Postsecondary Education; Society for Research on Educational Effectiveness (**SREE**) – Research Methods; Society for Research on Educational Effectiveness (**SREE**) – Postsecondary Education; Association for the Study of Higher Education (**ASHE**) – Policy, Finance, and Economics; Association for the Study of Higher Education (**ASHE**) – Undergraduate Students: Access; Association for the Study of Higher Education (**ASHE**) – Philosophy, Foundations, and Methods

University Service:

Panelist, First Year Ph.D. Seminar, University of Pittsburgh – School of Education (2019-2021)
Committee Member, University of Pittsburgh School of Education – Critical Policy Analysis Faculty Search Committee (2020-2021)
Business Manager, Latin American Graduate Organization of Students (LAGOS) (2020-2021)
Representative, Graduate and Professional Student Government – University of Pittsburgh (2020-2021)
Panelist, First Year Ph.D. Seminar, University of Pittsburgh – School of Education (2019-2021)
Grants Committee Chair, University of Pittsburgh Council of Graduate Students in Education (CGSE) (2019-2020)
Panelist, Latino Student Association (LSA) Resume/CV Workshop (2019)
Panelist, Becoming a Faculty Ally: Teaching and Mentoring Latinx/Hispanic Students (2019)

Other Activities:

Panelist, LGBTQ+ Community Group - “Navigating the Job Market”, Association for Education Finance and Policy (AEFP) (2022)
Panelist, Doctoral Student Community Group - “Job Market Panel”, Association for Education Finance and Policy (AEFP) (2022)
Organizer, Scholars of Color Community Group – Brown Bag Series, Association for Education Finance and Policy (AEFP) (2021)
Session Chair, Unit – Policy, Finance & Economics, Association for the Study of Higher Education (ASHE) 2022 Conference
Session Chair, Unit – Undergraduate Students, Association for the Study of Higher Education (ASHE) 2022 Conference

Professional Affiliations

Society for Causal Inference; Latinx in AI; American Educational Research Association (AERA) – Division D Measurement and Research Methodology; American Educational Research Association (AERA) – Division L Educational Policy and Politics; AERA – SIG Latinx Research Issues; Association for Public Policy Analysis and Management (APPAM); Society for Research on Educational Effectiveness (SREE); Association for Education Finance and Policy (AEFP); Association for the Study of Higher Education (ASHE)

SKILLS

R; STATA; Python; Julia; Shell Scripting (bash/zsh); SQL and NoSQL; Version Control (git); Markdown; Quarto; ArcGIS; Fluent in English and Spanish