

ANNE TRAYNOR
Educational Measurement and Research Methodology
College of Education
Purdue University

Contact Information

Office: 100 North University Street
Beering Hall 5158
West Lafayette, Indiana 47907
USA

Phone: 1-765-494-7347
E-mail: atraynor@purdue.edu

Education

Ph.D.	Michigan State University Measurement and Quantitative Methods	2014
B.S.	University of Notre Dame Science-Education	2003

Areas of Expertise

- Test-to-curriculum alignment methods
- Score reliability and precision estimation methods
- Multidimensional item response theory

Employment

2020 – present	Associate Professor. Department of Educational Studies. College of Education. Purdue University.
2014 – 2020	Assistant Professor. Department of Educational Studies. College of Education. Purdue University.
2013 – 2014	Statistical Consultant. Department of Teacher Education. College of Education. Michigan State University.
2012	Intern. Measurement Research Department. ACT, Inc., Iowa City, Iowa.
2009 – 2012	Research and Teaching Assistant. Department of Counseling, Educational Psychology and Special Education. College of Education. Michigan State University.
2008 – 2009	Interviewer. Center for Advancing Research and Communication

in Science, Technology, Engineering, and Mathematics. National Opinion Research Center. University of Chicago.

2005 – 2008 Principal. Xavier High School, Chuuk, Fed. States of Micronesia.

2003 – 2008 Science Teacher. Xavier High School.

2002 – 2003 Practicum Teacher. Mishawaka High School, Mishawaka, Indiana.

RESEARCH, SCHOLARLY, AND CREATIVE ACTIVITIES

Professional Organizations

American Educational Research Association (AERA). 2013 – present.

National Council on Measurement in Education (NCME). 2009 – present.

Psychometric Society. 2016 – present.

Papers (* denotes first author)

Traynor*, A., Li, T., & Zhou, S. (2020). Gauging uncertainty in test-to-curriculum alignment indices. *Applied Measurement in Education*, 33(2), 141–158.

Zhou*, S., Zhou, W., & Traynor, A. (2020). Parent and teacher homework involvement: Relations with students' homework disaffection and achievement. *Learning and Individual Differences*, 77, 101780.

Al-Mamari*, K., & Traynor, A. (2020). Predictive validity of the Air Force Officer Qualifying Test (AFOQT) for pilot performance. *Aviation Psychology and Applied Human Factors*.

Al-Mamari*, K., & Traynor, A. (2019). Multiple test batteries as predictors for pilot performance: A meta-analytic investigation. *International Journal of Selection and Assessment*, 27(4), 337–356.

Traynor*, A., & Merzdorf, H. E. (2018). Rater agreement in test-to-standards alignment reviews. *Educational Measurement: Issues and Practice*, 37(3), 55–64.

Camargo*, S., Herrera, A. N., & Traynor, A. (2018). Looking for consensus in the discussion about the concept of validity: A Delphi study. *Methodology*, 14(4), 146–155.

Yu*, S., Traynor, A., & Levesque-Bristol, C. (2018). Psychometric examination of the short version of the Learning Climate Questionnaire using item response theory. *Motivation and Emotion*, 42(6), 795–803.

Herbel-Eisenmann*, B., Keazer*, L., & Traynor*, A. (2018). Districts' considerations of equity

in decision-making about algebra. *Teachers College Record*, 120.

Traynor*, A. (2017). Does test item performance increase with test-to-standards alignment? *Educational Assessment*, 22(3), 171–188.

Remillard*, J., Hoe, N. D., Baker, J. Y., Steele, M. D., & Traynor, A. (2017). Universal Algebra I policy, access, and inequality: Findings from a national survey. *Educational Policy Analysis Archives*, 25(101).

Traynor*, A. (2017). Sensitivity of cross-state assessment item difficulty to differences in state curricular content standards. *Applied Measurement in Education*, 30(4), 329–342.

Raykov*, T., & Traynor, A. (2016). Evaluation of multi-component measuring instrument reliability in complex design studies. *Structural Equation Modeling*, 23(2), 270–277.

Traynor*, A., & Chapman, A. (2015). Impeded attainment? The role of state exit examination-alternative route policy combinations. *Teachers College Record*, 117(9).

Raykov*, T., West, B. T., & Traynor, A. (2014). Evaluation of coefficient alpha for multiple component measuring instruments in complex sample designs. *Structural Equation Modeling*, 22(3), 429–438.

Konstantopoulos*, S., & Traynor, A. (2014). Class size effects on reading achievement using PIRLS data: Evidence from Greece. *Teachers College Record*, 116(2).

Woodruff*, D., Traynor, A., Cui, Z., & Fang, Y. (2013). *A comparison of three methods for computing scale score conditional standard errors of measurement* (ACT Research Report No. 2013-7). Iowa City, IA: ACT, Inc.

Traynor*, A., & Raykov, T. (2013). Household possessions indices as wealth measures: A validity evaluation. *Comparative Education Review*, 57(4), 662–688.

Akyol*, G., Tekkaya*, C., Sungur, S., & Traynor, A. (2012). Modeling the interrelationships among pre-service science teachers' understanding and acceptance of evolution, their views on nature of science and self-efficacy beliefs regarding teaching evolution. *Journal of Science Teacher Education*, 23(8), 937–957.

Contributed Presentations

Li, T. & Traynor, A. (2020, April). *The use of cognitive diagnostic modeling in the assessment of computational thinking*. Poster to be presented the AERA Annual Meeting, San Francisco, CA (Conference Canceled).

Rogat, T. K., Cheng, B., Traynor, A., Adeoye, T., Gomoll, A., Lundh, P., & Hmelo-Silver, C.

- (2019, August). *Collaborative group behavior as indices of students' group and individual motivation and engagement*. Paper presented at the Conference of the European Association for Research on Learning and Instruction, Aachen, Germany.
- Traynor, A., Li, T., & Zhou, S. (2019, April). *A process for using content alignment indices in instrument revision*. Paper presented at the National Council on Measurement in Education Annual Meeting, Toronto, Canada.
- Traynor, A. (2018, July). *Gauging uncertainty in test-to-curriculum alignment indices*. Paper presented at the International Meeting of the Psychometric Society, New York, NY.
- Zakharov, W., Li, H., Fosmire, M., Traynor, A., & Pascuzzi, P. (2018, July). *Supporting students' self and peer assessment for writing assignments with Gradient*. Paper presented at the 2018 Pacific-Rim Objective Measurement Symposium (PROMS), Shanghai, China.
- Jung, J. Y., & Traynor, A. (2018, May). *Examining the factor structure and measurement invariance of science attitude items across genders*. Paper presented at the Modern Modeling Methods Conference, Storrs, CT.
- Traynor, A. (2017, April). *Independent replicability of test developers' item content classifications*. Paper presented at the Annual Meeting of the National Council on Measurement in Education, San Antonio, TX.
- Traynor, A. (2016, July). *Rater agreement in test-to-curriculum alignment procedures: A meta-analysis*. Paper presented at the International Meeting of the Psychometric Society, Asheville, NC.
- Traynor, A. (2015, April). *Are National Assessment of Educational Progress Mathematics Test state rankings influenced by curriculum content differences?* Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.
- Traynor, A. (2014, April). *Examining the validity of test-to-curriculum alignment indices*. Paper presented at the Annual Meeting of the National Council on Measurement in Education, Philadelphia, PA.
- Keazer, L., Herbel-Eisenmann, B., McCormick, P., & Traynor, A. (2014, April). *Emphasizing equality over equity: District decision-making regarding Algebra I*. Paper presented at the National Council of Teachers of Mathematics 2014 Research Conference, New Orleans, LA.
- Traynor, A. (2012, April). *Impeded attainment? The role of graduation exam requirements in the high school diploma completion of language minority students*. Paper presented at the Annual Meeting of the National Council on Measurement in Education Graduate Student Poster Session, Vancouver, BC.

Konstantopoulos, S., Miller, S., van der Ploeg, A., Li, C.-H., & Traynor, A. (2011, September). *The impact of Indiana's system of diagnostic assessments on mathematics achievement*. Paper presented at the Fall 2011 Conference of the Society for Research on Educational Effectiveness, Washington, DC.

Invited Presentations

Traynor, A. (2019, May). *Using the graded response IRT model for survey design*. Presentation at the School of Management, National Sun Yat-sen University, Kaohsiung, Taiwan.

Dissertation

Traynor, A. *Examining alignment indices' validity as measures of test content representativeness*. Chair: Mark D. Reckase

Funding

2017. **Principal Investigator**. *Development and validation of a new computational thinking assessment for middle school students*. Purdue Research Foundation; \$18,565.

2017. **Co-Principal Investigator**. *Collaborative research: Theoretical and methodological tools for studying real-time situated group engagement*. (PI: Toni Rogat, Educational Studies, Purdue Univ.). National Science Foundation; \$997,141 (directly responsible \$50,600).

2016. **Principal Investigator**. *Rater agreement in test-to-curriculum alignment procedures: A meta-analysis*. Purdue Research Foundation; 2016; \$8,000.

Fellowships and Awards

2020 *University Faculty Scholar*, Purdue University.

2018 *Seed for Success Award*, Purdue University.

2015 *Outstanding Reviewer*, American Educational Research Journal.

2008 *University Distinguished Fellowship*, Michigan State University.

2002 *Social Concerns Scholarship*, University of Notre Dame.

TEACHING AND MENTORING

Teaching

Department of Educational Studies. Purdue University.

EDPS 327: Classroom Assessment
EDPS 531: Introduction to Measurement and Instrument Design
EDPS 635: Psychometric Theory and Application
EDPS 636: Item Response Theory

Department of Counseling, Educational Psychology, and Special Education. Michigan State University. (Teaching Assistant)

CEP 932: Quantitative Methods in Education Research I
CEP 933: Quantitative Methods in Education Research II
CEP 934: Multivariate Data Analysis I
CEP 991B: Multidimensional Item Response Theory

Mentoring

Doctoral Dissertation Committees, Purdue University

Lee, Sukwon. (2016). *Investigation of visualization literacy: A visualization sensemaking model, a visualization literacy assessment test, and the effects of cognitive characteristics.*

Cho, Hyun Jin. (2017). *Development of an inventory assessing international students' beliefs about assessment, and their relations with self-regulatory strategies in second language learning.*

Short, Heather. (2017). *A closer look: How high school principals' perceptions about teacher mindset impact instructional coaching.*

Gipson, John. (2018). *Predicting four-year graduation and college GPA: A multilevel analysis investigating the effect of final college major.*

Yi, Soohyun. (2018). *Postsecondary STEM paths of high achieving students in math and science: A longitudinal multilevel investigation of their selection, achievement, and persistence.*

Alshammari, Ali. (2018). *She is a computer scientist: A quantitative study of the impact of women's participation in and perceptions of a game design studio on learning of, self-efficacy in, attitudes toward, and domain identification with computer science.*

Lv, Jing. (2018). *Evaluating the efficacy of meta-analytic structural equation modeling under different patterns of missing correlations.*

Kim, Jungsun. (2018). *The academic talent development process of Honors College students: A comparative study of achieving and underachieving groups.*

Yu, Shi. (2018). *A cross-classified path analysis of the general self-determination theory*

model on situational, individual, and classroom levels.

Alamri, Hamdan. (2019). *Effects of personalized learning as an instructional approach on students' self-determination and learning engagement in online higher education.*

Hung, Ya-Hsin. (2019). *Affective engagement in information visualization.*

Breakall, Jared. (2019). *Characterizing multiple-choice assessment practices in undergraduate general chemistry.*

Li, Tingxuan. (2019; Chair). *The use of cognitive diagnostic modeling in the assessment of computational thinking.* [Now Assistant Professor, Graduate School of Education, Shanghai Jiao Tong University]

Karami, Sareh. (2020). *Development and validation of the Perceptions of Wisdom Exploratory Rating Scale: An instrument to examine teachers' perception of wisdom.*

Green, Corinne. (2020). *Examining the intercultural understandings of adolescents with gifts and talents attending a multicultural summer enrichment program.*

Li, Xiaorui. (2020). *The analysis of performance on the elicited imitation tasks of the ACE-IN assessment.*

Ghahremani, Mehdi. (2020). *Investigating creative and design-oriented practices in K-12 enrichment courses.*

Oh, Hyejeong. (2020). *Academic help seeking of undergraduate STEM students: Basic psychological needs theory perspective.*

ALMamari, Khalid. (2020; Chair). *Predictive relations between cognitive abilities and pilot performance: A structural equation modeling approach.*

Master's Thesis Committees, Purdue University

Guérin, Noémie. (2017). *Inter-rater reliability, structure, and convergent validity of the Observation of Human-Animal Interaction for Research, Version 2 (OHAIRE-v2).*

ALMamari, Khalid. (2018; Chair). *Psychometric meta-analysis of flight aptitude selection tests as predictors of aviation training success.*

Jung, Ji Yoon. (2019; Chair). *A comparison of confirmatory factor analysis and exploratory structural equation modeling approaches using TIMSS science attitudes items: Evidence from factor structure and measurement invariance.*

Master's Thesis Committee, Universidad Nacional de Colombia

Camargo, Sandra. (2018; Co-chair). *En búsqueda de consenso sobre el concepto de validez: Un estudio Delphi [Looking for consensus about the concept of validity: A Delphi study]*.

Doctoral Practicum Paper Committees, Michigan State University

Li, Cheng-Hsien. (September, 2011). *Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and robust weighted least squares estimation*.

Cheng, Yiling. (September, 2013). *The use of cognitive diagnostic models with a hierarchical structure*.

Saw, Guan K. (December, 2013). *The impact of being labeled as a Persistently Lowest Achieving School: Regression discontinuity evidence on school sanctions*.

Undergraduate Research Trainees, Purdue University

Stacey Gall, Psychology. 2019-2020.

SERVICE

Government Service

- US Department of Education, Office of Elementary and Secondary Education: Technical reviewer. [Two occasions during 2018-2020 period].
- Indiana Department of Education: Assessment Literacy Working Group. 2017 – 2018.
- Indiana Department of Education: Alignment reviewer for *Indiana Rules for Educator Preparation and Accountability Standards: Secondary School Setting Developmental Standards*. June–July 2016.

Service to Professional Organizations

Member, Mission Fund Committee, National Council on Measurement in Education (NCME). 2019 – present.

Discussant—NCME Annual Meeting. 2020 (rescheduled). NCME Graduate Student Poster Session. 2017.

Session moderator—NCME Annual Meeting. 2014.

Proposal reviewer—NCME Annual Meeting. 2013, 2017, 2019.

Group facilitator—Institute for Education Sciences Summer Training Institute on Randomized Controlled Trials. 2014.

Academic Journal Review

Editorial Boards

American Educational Research Journal (2015)

Reviewer (within past five years)

American Educational Research Journal.

Educational Assessment.

Educational Evaluation and Policy Analysis.

Educational Measurement: Issues and Practice.

Measurement: Interdisciplinary Research and Perspectives.

Sociological Methods and Research.

University and College Service

Institutional Review Board. Purdue University. 2020 – present.

Integrative Data Science Initiative Curriculum Committee. Purdue University. 2019 – present.

Teacher Education Foundations Committee. College of Education, Purdue University. 2015 – present.

Department of Educational Studies Head Search Committee. College of Education. Fall 2019 – Spring 2020.

Data Science Working Group. College of Education. 2018 – 2019.

Hicks Chair in Educational Measurement Search Committee. Department of Educational Studies. Fall 2017.

Grade Appeals Committee. College of Education. 2016 – 2019.

Curriculum Committee. College of Education. 2015 – 2018.

Research Integrity Committee, Student Representative. Michigan State University. 2012.