

## TECHNOLOGY EDUCATOR AND LEARNING SCIENTIST

I am an educator who went from GED to PhD. I have broad experience with learning technologies, platforms, and data systems. My career began developing software. From there I moved into supporting learning about and with technology and then earned my advanced degrees as an adult. I have been responsible for consulting, classroom/online instruction, and leading teams. I enjoy classroom teaching and creating an environment where learners become engaged and take responsibility for their own learning to embrace the creativity of technology careers.

### EDUCATION

#### University of Michigan Ann Arbor, School of Education (2008)

Ph.D. titled *Learning Sciences: Materials, Measurement, and Information Architecture*

#### Georgetown University (2003)

M.A. in Communication, Culture, & Technology

#### University of Maryland University College (2001)

B.S. Information Systems (magna cum laude)

### EMPLOYMENT HISTORY

#### December 2022 – Present: Montgomery County Public Schools

Computing and Technology Teacher at Richard Montgomery High School: Working with great kids and dedicated educators.

#### August 2022 – Present: Independent Researcher

Leading the Learning Sciences Network to adapt Computational Archival Science approaches to teaching in secondary and post-secondary contexts.

#### August 2014–August 2022: University of Maryland

Non-tenure line faculty teaching a range of courses focusing on educational tools and analytics.

- Taught 16 different courses in both the College of Information Studies (iSchool) and Smith School of Business
- Chair, Chief Information Officer's Learning Technologies Working Group advising on new developments with learning technologies and innovative approaches.
- Member, of the Programs, Courses, and Curricula committee that reviews new course offerings and changes for all university programs.
- Principal Investigator of \$1.1m National Science Foundation research grant to develop and study a digital learning platform with undergraduate students. Responsible for three institution collaboration and research/development team of 12. Team developed a cloud-based digital simulation and cloud-based collaboration tools.

#### 2010 – 2014 Consultant and Author

While raising young children, consulted with the Cisco Networking Academy on their learning infrastructure, the Bill and Melinda Gates Foundation's Learning Analytics Work Group, and wrote a book on educational data use.

#### 2008 – 2010 American Institutes for Research: Learning and Information Scientist

Supported technical assistance projects and helped initiate a new research and development center focusing on Science, Technology, Engineering, and Math.

**2000 - 2008 Full-time Student (Maryland, Georgetown, Michigan)**

A lifelong learner. I returned to college initially to complete an incomplete undergraduate degree. I enjoyed it so much I continued for graduate and then doctoral studies.

**1999 – 2000 Founder, Correlation Technology, Inc.**

Consulting company working to develop an information management technology.

**1996 – 1999 Oracle Corporation: Curriculum Manager and Instructor**

Worked with the custom-development product stack (client/server and pre-cloud web).

- Managed international curriculum group (10-20 team members in matrix structure). supporting training needs of global custom development consulting practices
- Developed custom development bootcamp, a 12-week experience that blended off-the-shelf courses with project and team-based activities to meet over 700 learning goals.
- Course developer for Oracle products and presenter at Oracle Open World.
- Member international Product Release Team representing training interests.
- Taught internationally various technology courses and trained new instructors (see below).

**1987 - 1996 CGI Systems, an IBM Company: Consulting & Software Product Manager**

Began as a consultant, was promoted to branch manager with responsibility for financial staff and operations before company acquired. Later product manager after IBM acquired company<sup>i</sup>.

- Designed and led the development of a *lateral engineering* software product that converted applications written in one programming language to a new platform.
- Ran successful consulting practice serving Fortune 500 corporations and governments with value-added technology services.
- Developed and taught various database technology courses.

**GRANTS**

- Principal Investigator: *Collaboration in the Future of Work: Developing Playable Case Studies to Improve STEM Career Pathways* (careersinplay.umd.edu). National Science Foundation award 1915563, Project \$1.9m across three institutions with \$1.1m for the University of Maryland
- Co-principal Investigator: *Training of Archival & Library Educators with iInnovative Technologies* (TALENT) Network. IMLS Laura Bush 21st Century Librarian Implementation Grant \$400,000.
- Co-principal Investigator: *Piloting an Online National Collaborative Network for Integrating Computational Thinking into Library and Archival Education and Practice*. Institute of Museum and Library Services (Award: RE-73-18-0105-18) \$299,996.
- Educational Expert: *Workshop Project Laura Bush 21st Century Librarian Program*. Institute of Museum and Library Services (Award: RE-73-18-0105-18) \$99,176.

**PUBLICATIONS****Books**

Piety, P. J. (2013). *Assessing the educational data movement*. Teachers College Press.

**Edited Volumes and Chapters**

Piety, P. J., & Pea, R. D. (2018). Understanding learning analytics across practices. In D. Niemi, R. D. Pea, B. Saxberg, & R. E. Clark (Eds.), *Learning analytics in education* (pp. 215-232). Charlotte, NC: Information Age.

Niemi, D, Pea, R, Piety, P (2018). Introduction. In D. Niemi, R. D. Pea, B. Saxberg, & R. E. Clark (Eds.), *Learning analytics in education* (pp. 1–48). Charlotte, NC: Information Age.

Behrens, J. T., Piety, P., DiCerbo, K. E., & Mislevy, R. J. (2018). Inferential foundations for learning analytics in the digital ocean. In D. Niemi, R. D. Pea, B. Saxberg, & R. E. Clark (Eds.), *Learning analytics in education* (pp. 1–48). Charlotte, NC: Information Age.

Moss, P. A. (2007). *Evidence and decision making: The 106th yearbook of the National Society for the Study of Education, Part I*. Malden, MA: Blackwell. (editorial assistant) ISSN: ISSN-0077-5762

Moss, P., & Piety, P. (2007). Introduction: *Evidence and Decision Making*. Yearbook of the National Society for the Study of Education. Blackwell, Chicago, IL

### Journal Articles

Piety, P. (2019). *Components, Infrastructures, and Capacity; The Quest for the Impact of Actionable Data Use on P-20 Educator Practice*. Review of Research in Education, 43.

Piety P. (2004) *The Language System of Audio Description: An investigation as a Discursive Process*. The Journal of Visual Impairment and Blindness, 98(8) 453-469.

### Conference Proceedings

Piety, P., Balzotti, J, Singh, A (2021). *Using PDE to Design Playable Case Study for Increasing STEM Career Pathways*, Paper in the 2021 American Educational Research Association Annual Meeting.

Singh, A., Piety, P., Liu, C, Naik, R (2021). *Developing Effective Visualizations to Understand and Scaffold Collaborative Textual Practices*. Poster in the Learning Analytics and Knowledge 2021 (LAK-21).

Piety, P. (2020). *Expanding the Frame: Designing a Learning Analytics System Using a Theory of Learning*. Paper for the International Conference of the Learning Sciences

Piety, P. (2019). *Looking for Impact Across Data Use Practices: An Evidence Evaluation Framework from a Literature Review*. Paper for the American Educational Research Association annual meeting. Toronto, CA

Piety, P. J., Hickey, D. T., & Bishop, M. J. (2014, March). *Educational data sciences: framing emergent practices for analytics of learning, organizations, and systems*. In Proceedings of the Fourth International Conference on Learning Analytics and Knowledge (pp. 193-202). ACM.

Piety, P; Pea, R; Behrens, J (2013). *Big Data in Education: Arguing for an Educational Decision Sciences*. Paper for the American Educational Research Association annual meeting. San Francisco, CA.

Behrens, J. Mislevy, R; Piety; and DiCerbo (2013). *Evidence Centered Design for Learning Analytics*. Commissioned paper for Learning Analytics Workgroup. Roy Pea, principal investigator

Piety, P; Behrens, J; Baker, R; Guidera, A; Styles, K (2013) *Big Data American Style*. Symposia for the American Educational Research Association (Division H), San Francisco, CA.

Piety, P; Behrens, J; Linn, M; Byrnes, J; Tindal, J; Coleman, L; Buckley, J, Beuschel, A; Deiterle, E; Gummer, E. (2013) *Big Data: New Opportunities for Measurement & Data Analysis*. Presidential invited session for the National Council on Measurement in Education annual meeting San Francisco, CA.

Piety, P., Dede, C., Halverson, R., Loeb, S., Supovitz, J., Talbert, J. (2010) *Towards a Holistic Research Agenda into Data and Decisions in Education: Methodological Possibilities for Studying Information Across Systemic Levels*. Presidential Invited Symposia for the American Educational Research Association (Division D), Denver, Colorado.

Piety, P. (2010) *Actors and Actants in Education: Are Recent Trends in Evidentiary Systems and Instructional Responsibility Parallel Trends or Janus Head?* Paper to be presented at the American Educational Research Association (Division A), Denver, Colorado.

Piety, P. (2008). *Classroom Practices and Boundary Practices: Information Integration Points for Middle School Science Assessment*. Paper presented at the American Educational Research Association (Division H), New York,

Piety, P. (2007, April). *Learning Progressions: Systemic Considerations for Implementation*. Paper presented at the American Educational Research Association (Division C), Chicago, IL.

Draney, K., Mohan, L., Piety, P., & Choi, J. (2007, April). *Learning Progressions in the Carbon Cycle*. Paper presented at the American Educational Research Association (Division C), Chicago, IL.

Piety and Palincsar (2006, June). *"How Do We See?": Information Architecture as Theory*. Paper presented at the International Conference of the Learning Sciences, Bloomington, Indiana.

### Invited Reviews/ Perspectives, Opinions, and Letters

Piety (2013) *DO NOT FOLD, SPINDLE, or MUTILATE: Broadening the Discussion about Educational Data (A Response to Iorio and Adler)*. Teachers College Record: <https://www.tcrecord.org/Content.asp?ContentID=17099>

Piety, P. (2011). *Educational Data Use: A Sociotechnical Process*. *Measurement: Interdisciplinary Research & Perspective*, 9(4), 217-221.

Piety (2003, April) *Audio Description, A Visual Assistive Discourse*. Invited presentations based on this research to the National Center for Accessible Media (NCAM) within the Center for Applied Special Technology (CAST).

## COURSES TAUGHT

### At MCPS

AP Computer Science Principles  
 Foundations of Technology  
 IB Computer Science  
 Python

### The University of Maryland College Park

BMGT301 – Introduction to Information Systems  
 BMGT403 – Systems Analysis and Design  
 BUDT706 – Social Media and Web 2.0  
 BUDT758M – Healthcare Informatics  
 BUDT758N – Business Process Analysis and Agile Development  
 INST126 – Introduction to Python Programming  
 INST335 – Management, Organizations, & Teams  
 INST466 – Technology, Culture, & Society  
 INST490 – Integrated Capstone for Information Science with Agile  
 INST651 – Rich Learning with Technology  
 INST706 – Project Management:  
 INFM600 – Information Environments with RDBMS, Elasticsearch, & GitHub  
 INFM700 – Information Architecture  
 INFM733 – Database Design and Modeling  
 LBSC631 – Achieving Organizational Excellence  
 LBSC671 – Creating Information Infrastructures

### With Oracle University

Database Design and Modeling  
 Enterprise Modeling  
 Distributed Database Systems  
 Custom Development Methods

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<sup>i</sup> Compagnie Générale d'Informatique (CGI) was the largest information technology services provider in France and one of the leaders in Europe before becoming part of International Business Machines. This CGI is different from the Canadian firm known as CGI Group.