

City University of New York (CUNY)

CUNY Academic Works

Open Educational Resources

CUNY Central Office

2023

CITE Faculty Spotlight: Drs. Noble and Powietrzynska

Anthony Wheeler

The Graduate Center, City University of New York

[How does access to this work benefit you? Let us know!](#)

More information about this work at: https://academicworks.cuny.edu/oa_oers/6

Discover additional works at: <https://academicworks.cuny.edu>

This work is made publicly available by the City University of New York (CUNY).

Contact: AcademicWorks@cuny.edu

Applying “Technology Mindsets”

Computational Thinking for Planning and Making Equitable Decisions with Data

By Anthony Wheeler



Meet Drs. Linda Noble and Malgorzata Powietrzynska

Dr. Linda Noble and Dr. Malgorzata Powietrzynska are both Adjunct Assistant Professors in the School of Education at Brooklyn College. Dr. Noble is also a social science teacher at Brooklyn College Academy, and Dr. Powietrzynska is a school administrator, faculty mentor, and coach.

"Education is such a social endeavor. I enjoy and appreciate humanity and learning about myself through these engagements and interactions. What motivates me is the kids, the change you see in front of you, and that, to me, is so powerful." - Dr. Noble



"I am as much of a learner as I am a teacher. I enjoy the dialectic in education, the ability to continually learn from those that I 'quote, unquote' teach." - Dr. Powietrzynska

Noble and Powietrzynska **emphasize forging relationships and cultivating a sense of belonging for learners.** They find fulfillment in the challenges of working in education, the continuous learning opportunities it has presented them, and in making a positive impact on students' lives.

They co-teach a course called *Analysis of Classroom Interaction and Curriculum*. The CITE artifact they designed **leverages computational and critical thinking** to guide secondary education teacher candidates to **interrogate the kinds of data they use to drive instruction** and become **more systematic lesson planners**.

Noble & Powietrzynska’s “Why” for CITE

Drs. Linda Noble and Malgorzata Powietrzynska joined the CITE initiative for several reasons.

Both are experienced teacher educators who value **equity and culturally relevant pedagogies**. Their experiences and perspectives as immigrants and their awareness of being white educators in a largely Black community have shaped their educational approach and commitment to equity. Powietrzynska and Noble see themselves as learners and teachers and appreciate the opportunity to learn from their students continually. They saw CITE as a way to continue developing their pedagogy in those directions.

Both Noble and Powietrzynska emphasized their comfort with and interest in technology. They explained that technology permeates their everyday lives and mentioned using tools like Zoom in their teaching even before the COVID-19 pandemic. Through CITE, they learned that **computational thinking could be applied as a mindset for solving problems** and that integrating technology into their teaching could involve learning about, with, through, and against technology. They also learned more about the impact of technology on equity with CITE and felt a responsibility to address these issues in their courses.

"The digital is not just about using the tools, but a specific type of thinking – a computational understanding of the world. So I think that also has been a little bit of a shift for me."

-Dr. Malgorzata Powietrzynska

Noble & Powietrzynska's Context

Noble and Powietrzynska co-teach *Analysis of Classroom Interaction and Curriculum*, a foundations course. This course helps teacher candidates analyze classroom interactions, instructional settings, pedagogical strategies, learning processes, modes of communication, subject-specific discourses, and ways to use technology in the classroom, with an emphasis on working with students with special needs and English language learners. They shared that for them, in teaching equity, there's no straightforward answer or recipe.

"I would say it's always context. It's dependent on context. Equity looks different in different places, at different times, with different people, under different circumstances, with different lived experiences, and with different expectations. What might be equitable as a decision at this moment might be very different and not equitable at another moment. So it's very context-specific and a negotiated piece by the players. By all the folks involved...it has to be mutually arrived upon."

-Dr. Linda Noble

Noble & Powietrzynska's Artifact

Drs. Noble and Powietrzynska leveraged computational thinking (CT) to support teacher candidates with two key objectives: (1) to analyze and think critically about student data and (2) to research, design, and implement effective unit plans and assessments.

Activities in a nutshell

In the first series of activities, teacher candidates were guided to **understand the history, purpose, and context of computing technologies, particularly in relation to standardized testing.**

- 1) **Reflecting ABOUT data collection methods vis a vis equity:** Students read about standardized testing, reflected on computerized data collection mechanisms, and developed a set of rules (an algorithm) for student grade promotion. The professors hoped using CT this way would help students develop a critical lens toward computing technologies and unpack their impact on equity, access, and influence in education.
- 2) **Understanding students and contexts WITH CT and data:** To help teacher candidates understand how data might inform instructional decisions and to promote equitable grading practices, the professors asked students to collect data about students and their learning from multiple sources, analyze it using CT strategies, and visualize it.
- 3) **Talking back AGAINST data practices:** Teacher candidates engaged in discussions about the limitations of standardized data, particularly in capturing details about a community or student.

In the second set of activities, Drs. Noble and Powietrzynska introduced teacher candidates to computational thinking strategies and ways to apply them in the design of unit plans and assessments.

- 4) **Planning WITH CT, Data, and Digital Tools:** By using CT as a framework, teacher candidates were encouraged to approach assessment design with a structured, logical, and problem-solving mindset. This connection emphasizes the role of CT in shaping effective and culturally responsive assessment practices. As they designed their units, the candidates were encouraged to select and use digital tools to communicate and work collaboratively.

Activity Highlights

Reflecting ABOUT data collection methods vis a vis equity
<p>The faculty members asked teacher candidates to read about and reflect on the history of standardized testing and to discuss the context and purpose of this form of testing. This move aimed to deepen teacher candidates' understanding of the historical and sociopolitical factors that have shaped assessment practices.</p> <p>The faculty member asked teacher candidates to read about and reflect on what counts as data (textual, graphic, numeric, qualitative, quantitative), mechanisms for data collection, and how different kinds of assessments have implications for equity. This move aimed to broaden teacher candidates' understanding of the various types of data and data collection methods and develop their ability to critically evaluate the equity implications of using CT in assessment.</p>
Understanding students and contexts WITH CT and data

Teacher candidates were provided with student assessment data and were asked to filter, sort, or group the data to help them draw inferences about equitable grading practices while discussing the difference between correlation and causality. This move aimed to develop teacher candidates' data analysis skills and their ability to use data to make informed decisions about grading practices.

Teacher candidates imagined sources of data about schools and communities surrounding schools that could help them better understand students and inform their instruction. This move aimed to develop teacher candidates' ability to think critically about the data sources that could inform their instruction.

Teacher candidates then applied Computational Thinking to explore the essential steps that lead to fair and just forms of student assessment (Feldman, 2019 & Shepard, 2021). Teacher candidates were asked to develop a set of rules (an algorithm) for student grade promotion based on their data analysis. They discussed the constraints and potential disparate impacts of using data for decision-making, using visualizations to illustrate these impacts.

This move aimed to help teacher candidates develop their CT skills and their ability to use CT in the context of student assessment.

Talking back AGAINST data practices

Teacher candidates discussed standardized data's limitations, particularly in capturing details about a community or students.

Teacher candidates created data visualizations that told different stories, including some representative and others not. They developed questions for learners to reflect on the potential harm associated with data visualizations.

Planning WITH CT, Data, and Digital Tools

Teacher candidates were asked to design a culturally relevant summative assessment task and rubric for a unit in their subject area and to use CT to help them think about sequence, steps, and the planning process differently. Using CT as a planning framework, teacher candidates were encouraged to approach assessment design with a structured, logical, and problem-solving mindset. By tying the assessment to the experiences of their students and using CT/algorithmic thinking to effectively plan for how different students might experience the activity, teacher candidates learned to effectively strategize for using digital tools and pedagogies to educate the whole student through culturally significant approaches.

Teacher candidates were also asked to demonstrate they have used student and community data to help them differentiate and inform their instructional practices. Faculty members supported teacher candidates in developing student surveys, collecting data, and analyzing it.

What did this faculty member learn through implementation? Where do they want to go next?

Overall, Noble and Powietrzynska learned about the importance of equity in education, the application of technology for pedagogical purposes, the challenges of implementing non-traditional projects, and the value of learning from their students. They expressed a willingness to continue developing new artifacts and incorporating computational thinking into their teaching practices.