



Adapting Proven Math Models for Adult Learners

Background and Context

When the [Adult Numeracy in the Digital Era \(ANDE\)](#) team set out to design and pilot a new adult numeracy course in Pennsylvania, they began with an ambitious idea: could successful mathematics expertise and technology originally developed for K–12 and postsecondary settings be meaningfully adapted for adult basic education (ABE)?



Adult Numeracy in the Digital Era (ANDE) is a technology-enhanced, standards-aligned adult numeracy course and accompanying professional development package of supports for building classroom community, productive mindsets, and effective habits. The project was implemented in partnership with the Pennsylvania Department of Education (PDE), with testing and refinement occurring across a variety of adult basic education (ABE) programs and sites throughout the state. These settings include urban, rural, hybrid, fully online, and in-person instructional environments, reflecting the diverse contexts in which adult education operates. The project employed a mixed-methods approach. Data sources included classroom observations, interviews with instructors and learners, user-centered design (UCD) workshops, and platform usage logs.

At first glance, the approach seemed promising. The course design was inspired by Quantway, a quantitative reasoning course originally created for community college students in need of developmental math. Quantway emphasized contextualized real-world applications, critical thinking, and social-psychological supports such as fostering growth mindset and self-efficacy, elements with strong potential to shift how adult learners saw themselves as math learners.

The Challenge of Translation

The translation into adult education raised immediate challenges. Unlike traditional K–12 or college classrooms, ABE programs rarely operate on fixed schedules. Enrollment is often open, and learners come to ABE classrooms with

varied educational backgrounds and many competing work, family, and transportation obligations. Instructors may be experts in working with adult learners but often need additional training in math pedagogy as well as managing multiple levels in one classroom. Many students also bring prior negative experiences with math that may affect their confidence and motivation. The ANDE team quickly realized that successful adaptation would require more than simply importing a proven model; it demanded reimagining the course structure and implementation supports in collaboration with adult education partners.

Building Partnerships Across the System

To tackle this complexity, the team prioritized partnerships across every level of the ABE system. At the **state level**, the Pennsylvania Department of Education (PDE) proved to be an invaluable ally. PDE leadership had long identified mathematics as a barrier to adult learners' progress toward high school equivalency, making them eager to support innovation. Their infrastructure, including professional learning systems, established data collection, and reliable vendor relationships, offered a strong foundation. PDE staff played direct roles in helping the research team understand system requirements, navigate administrative hurdles, and connect with programs and instructors. This partnership not only provided legitimacy but also ensured that ANDE's design aligned with larger state priorities.

"Proven models for K-12 and postsecondary education can be powerful starting points for adult education."

At the **program and site level**, administrators became critical partners in testing structural adaptations. The ANDE team recognized that one barrier to success in the course was the limited time and resources adult learners had to complete prework and homework. Rather than abandoning these essential elements, site leaders collaborated with the ANDE team to extend class sessions by thirty minutes, creating dedicated in-class time for assignments and access to technology. In open-enrollment programs, students came and went frequently, making it difficult to sustain engagement in a long, ten-week course. Administrators and the ANDE team responded by restructuring the course into four-week modules that provided manageable milestones. This not only supported persistence but also offered students a sense of accomplishment at shorter intervals.

At the **classroom level**, instructor input guided ongoing refinements through a user-centered design process. Teachers participated in coaching calls, focus groups, and design meetings, offering candid insights about course pacing, learner engagement, and the challenges of implementing digital activities. Their feedback helped the team uncover root causes of difficulties and allowed the ANDE team and instructors to co-design practical solutions. This iterative approach ensured that course adjustments were grounded in real classroom experiences and teacher expertise, rather than imposed from the outside.

Outcomes and Lessons Learned

By weaving together insights from state leaders, program administrators, and classroom instructors, the ANDE project was able to meaningfully adapt a proven model for a new context. The result was not only a course that reflected best practices in math teaching but also one that responded directly to the realities of adult learners' lives and instructors' needs.

The lesson from this effort is clear: while K–12 and postsecondary models can inform curriculum design in adult basic education, they cannot simply be transferred. They must be reimagined in partnership with those who are most familiar and have expertise with the context. Building trust, aligning with system goals, and learning from the perspectives of administrators and instructors ensured that the final product was not just technically sound but also contextually relevant. For innovations in adult education to succeed, partnership across all levels of the system is not optional, rather it is essential.

Key Takeaways

The success of ANDE illustrates that proven models from K–12 and postsecondary education can be powerful starting points for adult education. Yet, adaptation must center the unique realities of ABE systems, learners, and educators. Partnerships at the state, site, and classroom levels are indispensable, and iterative design grounded in teacher and learner input supports innovations that are relevant, feasible, and impactful.