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Adult Literacy Education:

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Special Research Feature and Forum

Introduction to the Special Research Feature and Forum

Daphne Greenberg, Elizabeth L. Tighe, M Cecil Smith

We are excited to introduce a feature that we hope to include periodically in future issues: specifically, a scholarly research article followed by responses from a range of voices engaging with the scholarship. In this issue, we are proud to feature Dr. Stephen Reder, Professor Emeritus from Portland State University, who reports findings from his 12-year longitudinal study of a state's administrative data on learner participation in adult education programs and their skill development. Analyses of this kind are invaluable to our field—it is extremely rare for longitudinal analyses to be conducted in adult education, and it is only through this type of work that skill gain in adult education can be best understood. This insight is particularly important given that funding decisions are often predicated on demonstrated participation and measurable skill growth. Although Dr. Reder's result of skill growth increasing with instructional hours may seem intuitive, it provides empirical support for the need for sustained funding of long-term instructional hours in a field that unrealistically encourages gains to occur within limited instructional time.

Responses to Dr. Reder's work include researchers who focus on quantitative and/or qualitative research, a policymaker/researcher, and a practitioner/researcher. Dr. Kaldes' response focuses on the strength of Dr. Reder's use of de-duplicated student longitudinal records, with the suggestion for other quantitative researchers to extend this type of work through different analytical approaches. She also offers that adding qualitative interviews to quantitative research can enrich the information gained—something that is true no matter what the subject area. Dr. Kobrin responds to Dr. Reder's work by emphasizing the importance of reading his article while thinking about distance education and how participation and skill development may be impacted by technology. She praises Dr. Reder for describing various nuances regarding adult education distance learning and encourages all of us to include distance education in our work—an important suggestion as distance education continues to expand and may offer benefits for learners who need flexible options due to other demands (such as work and childcare). Mr. Lilly explains the difficulties that states have in assigning unique identifiers for learners across programs and years. As a policymaker/researcher, he finds Dr. Reder's study of a specific state illuminating and informative of potential future adult education data system improvements. Mr. Lilly also suggests further longitudinal research in areas such as investigating student goals and how long-term skill gains translate into learners transitioning from one program to another (such as ESL to ABE). Finally, Dr. Lotas writes how Dr. Reder's work is powerful because it gives credence to what many adult educators know in their hearts, but those outside of adult education do not understand. She is appreciative of the acknowledgment of "stop-out" vs. "drop-out" and that adult learners gain skills over an extended period of time. Dr. Lotas shares that her program supports adult learners when they are at risk for "stopping-out." She stresses the need for and importance of adult education to explore the barriers that learners often face.

As readers, do any of you—after reading Dr. Reder's work and the responses to his scholarship—want to share your own comments? We would love to hear from you! Please write to us at ALEjournal@proliteracy.org. In the subject line, write "Reader's response," and we may publish your letter.

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Special Research Feature and Forum

Lifelong Learning in Adult Education: A 12-Year Longitudinal Study of Participation and Skill Growth

Stephen Reder, Department of Applied Linguistics, Portland State University

Abstract

Analyses of administrative data from one state's Title II adult education programs between 2007 and 2019 focus on the longitudinal participation patterns and skill growth of nearly half a million adult students. In contrast with single program year reports, adults' participation and learning is seen across multiple years and multiple providers. One third of students participated in multiple years, and over one third participated in multiple programs. Literacy and numeracy skill growth is systematically related to long-term instructional hours attended over time and across programs. These results provide new insights into how adult education supports long-term skill growth and lifelong learning. Implications of these extended participation patterns and long-term skill growth are considered for programs and policy.

Education and literacy have long been believed to be central to our social and economic wellbeing (Desjardins, 2008; Kirsch et al., 2016; Martin, 2018; Reder & Bynner, 2009; Sands, 2021). In addition to the education individuals attain in their first cycle of schooling, their continued education as adults is also associated with better life outcomes and wellbeing (Duckworth & Cara, 2012; Jenkins & Wiggins, 2015; Tuijnman, 1990; Vera-Toscano et al., 2017). There is growing evidence from numerous international and national surveys that literacy and numeracy skills are positively associated with a range of economic and social outcomes.

Hanushek et al. (2015) highlighted the economic returns to cognitive skills such as literacy and numeracy using Mincer-like wage equation models. A variety of social outcomes including health, social trust, political efficacy, and civic engagement have been examined in surveys such as the Adult Literacy and Lifeskills (ALL) survey, the International Adult Literacy Survey (IALS), and most recently the Survey of Adult Skills (also known as the Program for the International Assessment of Adult Competencies or PIAAC). Analyses of these survey data generally find that both education and literacy skills are associated with better social outcomes (Borgonovi & Burns, 2015; Desjardins, 2008; Costa et al., 2014; Duckworth, 2012; OECD, 2013). In these studies, individuals with higher levels of assessed literacy or numeracy skills are likely to have better economic and social outcomes, even after controlling for demographic and educational attainment variables. Hampf et al. (2017) provide various types of evidence that these observed relationships between skills and economic outcomes are causal in nature.

In addition to supporting important economic and social outcomes, literacy and numeracy skills are essential for lifelong learning and sustainable development. High levels of adult literacy and numeracy are an integral part of the United Nations Sustainable Development Goal (SDG) 4, being both prerequisites for and the by-product of lifelong learning. Policies and programs that foster increased literacy and numeracy skills effectively support SDG 4, designed to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UNESCO Institute for Statistics, 2018, p. 7).

Impact of Participation in Adult Education on Foundational Skill Development

Adults who have not completed secondary education often participate in adult education programs to improve their foundational skills; prepare for tests that provide alternative secondary credentials; or transition into postsecondary education, training, or higher paying jobs. As important as these pathways are for adults and their families, and for society more generally, there is relatively little research that rigorously examines the long-term impact and effectiveness of these programs (Beder, 1999; Cross, 1981; Reder & Bynner, 2009). Most research on adult literacy development looks only at short-term changes as students pass through single adult education programs. Most studies use short follow-up intervals and include only program participants, making it difficult to see the longer-term patterns of program participation and persistence and to assess the long-term impact of program participation (Beder, 1999; Brooks et al., 2001; Lesgold & Welch-Ross, 2012; Reder, 2014; Smith, 2009). In this sense, much of the existing research is not conceptualizing program participation and skill development as part of lifelong learning.

Although program evaluation and accountability reports typically show small skill gains for program participants, these studies rarely include comparison groups of nonparticipants, and many studies that do include such controls have not found statistically significant program impact on skill development (Friedlander & Martinson, 1996; Reder, 2019; Smith, 2009; Vorhaus et al., 2011; Wolf & Evans, 2011). Secondary reviews and meta-analyses of numerous research and evaluation studies of adult education programs have found little rigorous evidence of program impact on adults' skill growth (Beder, 1999; Brooks et al., 2001; Smith, 2009). Experimental comparisons of skill gains in different adult education instructional conditions, such as those reviewed by Miller et al. (2011), typically fail to show effects of instructional hours on skill growth, raising questions about the logic model connecting instruction to foundational skill development. These inconsistent findings prompted interest in research examining skill growth across the adult life span using repeated measurements of skill in longitudinal studies.

The Need for Longitudinal Research on Adult Foundational Skill Development

Reder and Bynner (2009) point out the importance of longitudinal research for understanding program participation and skill development processes and note there are very few longitudinal studies of adult literacy and numeracy development, and even fewer that examine the relationship between participation in adult education and skill growth. One such study, The Longitudinal Study of Adult Learning (LSAL), followed a representative sample of about 1,000 adults from the target population for adult education in a metropolitan area (Reder, 2009). Over an eight-year period, repeated interviews were conducted about individuals' education, work, and community experiences along with repeated standardized assessments of their literacy skills and reports about how those skills were used in everyday life. For those who participated in adult education, observed trajectories of participation and skill growth often extended over multiple years.

Qualitative researchers (e.g., Pickard, 2021; Heath, 2012; Silva et al., 1998) concur with LSAL's findings that adults often have trajectories of participation in adult education programs that extend over multiple years and encompass discrete periods of participation. Previous research has characterized these patterns of participation in terms of interactions between individuals' goals, dispositional characteristics, and situational factors in the external environment (Pickard, 2021; Silva et al., 1998; Yang, 1998). Dispositional characteristics that affect motivation and persistence during learning include students' goals, goal-directed thinking and action based on hope theory, and self-perceptions of competency (Mellard et al., 2013). Situational barriers are life circumstances that impede individuals' ability to participate, such as work schedules, availability of affordable childcare, or transportation (Comings, 2009; Comings et al., 1999; Cross, 1981; Pickard & Belzer, 2020; Sticht et al., 1998). Demographic characteristics including age, gender, prior education, and language status are commonly found to be cross-cutting variables shaping the participation patterns (e.g., Greenberg et al., 2013).

In addition to tracking adults' patterns of participation, the LSAL data enabled careful modeling of skill development over time. A variety of linear growth models compared the

skill development of matched program participants and nonparticipants. Analyses of the models demonstrate that the impact of program participation on skill growth takes place gradually over time, often taking three to five years to fully develop (Reder, 2014, 2019). Further analyses of the LSAL data show reciprocal effects over time between skill growth and skill use in everyday life, providing strong support for practice engagement theory (PET) (Reder, 1994, 2009, 2019; Sheehan-Holt & Smith, 2000; Smith, 1996, 2009).

Purcell-Gates et al. (2002) found that the short-term impacts of adult education programs are primarily on students' engagement in literacy practices rather than on their assessed literacy skills. Given the initial impact of programs on practice engagement, PET predicts that longer-term skill growth will gradually occur. In addition to being rigorously tested in the LSAL study, PET also has empirical support from large-scale cross-sectional studies of national adult populations (Jonas, 2018; Sheehan-Holt & Smith, 2000). It has also been tested longitudinally with a broad, nationally representative population sample in Germany's PIAAC-L study, a multi-year longitudinal extension of Germany's original PIAAC study (Reder et al., 2020). These findings provide further support for a logic model of program impact on skill growth in which the skill development effects take time to fully develop after the onset of participation. It is clear from this research that longitudinal analyses of both program participation and skill gain are needed to better understand and demonstrate the impact of adult education programs on skill development.

Longitudinal Research on Adult Skills Based on Administrative Data

Longitudinal studies that follow individual adults over time are rare and expensive to conduct. Very few include repeated measurement of skills and details of participation in adult education and a range of life outcome measures. For this reason, longitudinal administrative data sets that contain such data could be helpful to adult education researchers. The research reviewed above indicates that although adult education programs do have considerable long-term impact on skill development, much of that impact typically does not show up in the short term. Thus, there is a major misalignment between short-term outcomes that programs are accountable for and the long-term outcomes that programs actually produce. If the current study finds this misalignment in administrative data sets, then states, programs, and advocates of adult foundational education will have a compelling reason to use administrative data longitudinally across program years.

In the United States, most states have developed Statewide Longitudinal Data Systems (SLDSs) that link administrative K-12, postsecondary, and employment data. For almost all states, however, adult education data are not included in these SLDSs. On the other hand, the large national network of adult education programs in the United States receiving federal Title II WIOA[1] funding collect and report standardized administrative data about individual students' demographic characteristics, participation in classes, and assessed skills (Cherewka & Prins, 2022). These student-level records are passed to and aggregated by a designated state agency for annual reporting to the National Reporting System (NRS). The individual student records underlying state NRS reports are potentially very useful for research on adult education student participation patterns and skill development (Rose, 2009).

There have been several state-level studies of student participation and skill development using administrative records collected for NRS reporting. State agencies that have reported on relationships between participation and skill growth include the California Department of Education (2004) and the Connecticut State Department of Education (2009). California examined participation of nearly 500,000 ESL and ESL-Civics students participating in one of the four program years (PYs): 1999–2000, 2000–2001, 2001–2022, or 2002–2003. For almost all combinations of three instructional-hours categories (12–74 hours, 75–120 hours, 121 or more hours) and six initial NRS Educational Functioning Levels, students showed larger CASAS Reading test score gains within a single PY as a function of larger amounts of instructional time. This relationship was observed in each of the four PYs. Connecticut observed learning gains and attendance patterns of 33,578 ESL students participating in the five PYs between 2002–2003 and 2006–2007. Learning gains and attendance were

1 Title II programs, implemented under WIOA legislation starting in 2014, were previously operated under earlier legislation entitled WIA.

measured within a single PY on either matched CASAS Listening tests or matched CASAS Reading tests. Learning gains were positively related to instructional hours in each of the PYs observed. This positive relationship was observed even after controlling for students' prior education.

Young (2007) analyzed the relationship between instructional hours and skill gains measured by BEST Plus tests of English listening and speaking among nearly 6,600 selected adult ESL students in Massachusetts and Illinois over a 14-month period in 2004–2005. She observed a positive relationship between instructional hours and learning gains on these tests.

These studies examined ESL students' participation and skill gains within single PYs, not across multiple PYs. Other adult education students (ABE, ASE) were not part of these studies. Studies using administrative data to explore the relationship between participation and skill gains among multiple types of adult education students (ESL, ABE, and ASE) include Rose (2009), Tighe et al. (2013), and Yin et al. (2022).

Yin et al. (2022) analyzed relationships between students' test score gains and instructional hours while controlling for student, teacher, and program characteristics. Data were collected from one anonymous state from the 2008–2009, 2009–2010, and 2010–2011 PYs. They reported that about 20% of the students participated in multiple PYs. In addition, numerous students who participated in multiple programs or with multiple teachers or in multiple PYs did not have their administrative records linked via common student identifiers. Using three-level hierarchical linear regression models, the authors found significant positive relationships between instructional hours and test score gains (on multiple types of skill tests) while controlling for numerous student, teacher, and program variables. Their three-level models nested students within teachers within programs, so many details of participation patterns in which students had multiple teachers or programs were excluded from the analyses.

Tighe et al. (2013) used hierarchical latent growth models to identify adult education classrooms that had greater or lesser effectiveness in promoting adult students' literacy achievement in two Florida counties. They were able to include students who participated in multiple classrooms over time by using cross-classified random effects latent growth models. These models estimated classroom-level value-added effects on students' literacy achievement.

Rose (2009) analyzed the administrative data collected for the NRS by each of four anonymous states from the 2000–2001, 2001–2002, 2002–2003, and 2003–2004 PYs. In three of the four states, he found numerous students with attendance records in multiple PYs so that longitudinal records of student participation and outcomes were available. In the fourth state, however, students were assigned new identifiers in each PY so that no multi-year longitudinal records of students were available, and thus that state was omitted from the final analyses. He demonstrated that program participation along with educational and economic outcomes were substantially distorted by focusing on only single PY data as the NRS does. He found 22%, 26%, and 28% of students from the three states participated in more than one PY, comparable to the rate reported by Yin et al. (2022). These figures may underestimate multi-year attendance since neither Rose (2009) nor Yin et al. (2022) estimated the extent to which states may have missed aligning the identifiers for some students participating in multiple PYs.

Using data collected for NRS reporting purposes has important limitations that must be overcome to be useful for these research purposes. One important limitation arises because NRS reporting is in terms of single PYs. Within a single PY, states must report unduplicated counts of students served. Students participating in multiple classes or programs within a given PY are de-duplicated by states for reporting purposes. States do not, however, typically de-duplicate students across PYs. Many individual students who participate in multiple PYs may appear as distinct students, effectively masking longer-term patterns of participation and skill development. To better examine these extended patterns of participation and analyze their impact on skill growth, the present study will de-duplicate student records across teachers, programs, and PYs.

Although NRS started reporting periods of participation in PY 2017, these are reported within a single PY only.[2] By de-duplicating student records across PYs, the present

2 The assistance of Stephanie Cronen of the American Institutes for Research (AIR) in understanding the history and requirements of the NRS is gratefully acknowledged.

study will be able to see these longer-term patterns of student participation and skill development within the administrative data collected by programs and states. Another limitation of state-reported NRS data for our research purposes is the so-called "12-hour" rule. Students who do not attend classes for 12 or more hours within a PY are omitted from most NRS reporting. The analyses in the present study include these short episodes of participation.

Research Questions

Using administrative adult education records from one state, the present study will address two major research questions:

- What are the characteristics of student participation patterns when linked across programs and over time?
- What are the characteristics of individual student long-term skill development when linked across programs and over time?

Data and Methods

Data Source and Access

LiteracyPro Systems contracts with numerous states and agencies to utilize LiteracyPro's LACES database for adult education programs' data entry and management and for state and NRS reporting. About 27 states are using LACES for their adult education data. For the purpose of this study, a Memorandum of Understanding (MOU) was developed between LiteracyPro and one state along with a second MOU between LiteracyPro and the author that allowed the author to conduct research using the state's de-identified LACES data.[3] Under the terms of the MOUs, the state is to remain anonymous and the data records accessed are to be de-identified. The MOUs also stipulate that student race/ethnicity is not to be reported.

The present study is based on de-identified LACES data records[4] from all Title II programs operating in the state between July 1, 2007, and June 30, 2019, comprising complete records for the 12 successive PYs 2007 through 2018.[5] The records analyzed contain data about students, registration, attendance, instruction, and assessment. Considerable effort was invested in organizing and cleaning these administrative data records using standard techniques (e.g., Goerge & Lee, 2002).[6]

For the present study, an active student is defined as a student with at least some hours of attendance in a Title II program. Students who register for but never attend a program are not active students and are excluded from the present study. There are 354,712 active students in the analytical data set.

LACES assigns unique internal student ID #s linked to program ID #s and program-assigned student ID #s. LiteracyPro de-duplicates its internal student ID #s within PYs so that single-year NRS reports contain unduplicated counts of students served. LiteracyPro does not typically de-duplicate across PYs, however, so individuals who enroll in multiple PYs may be assigned multiple internal student ID #s and thus appear as distinct students in the data. To view the full longitudinal extent of individual student records, the present study needed to de-duplicate students across PYs.

Prior to de-duplication, an important quality control step was taken to assure that the counts of students served in each PY matched the numbers the state reported to the NRS. The number of students in the analytical database with 12 or more instructional hours in a given PY was compared with the state-reported total number of "Participants" in NRS Table 1. The two numbers were identical for each of the PYs. In addition, the number of students in the analytical database with less than 12 instructional hours in PY 2018 and the total number of "Reportable Individuals" reported in NRS Table 2A for PY 2018, the only PY in the study for which Table 2A is available, were also identical.

3 Neither LiteracyPro nor the author received any compensation for conducting this research.

4 Thanks to David Miller, the founding CEO of LiteracyPro Systems, and the anonymous state's director of adult education for developing these MOUs and data access.

5 Thanks to Jim Rowe and Shannon Stangis of LiteracyPro Systems for assistance accessing and interpreting these data. Errors made, opinions expressed, and recommendations suggested are those of the author and not of LiteracyPro Systems.

6 Stata 17 software was used to manage and analyze all data.

Analytical Methods

Participation Patterns

Student records were de-duplicated (details of which are described in Appendix A). De-duplicated student records were linked across PYs and programs to describe numerous aspects of student-specific participation patterns expanded across time and programs. The basic participation data record contains instructional hours by dates that each student attended a specific class within a specific program under the auspices of a particular agency in the state. Programs were categorized as one of three types: ABE, ASE, or ESL. Instructional hours were specified as being in-person or distance as well as being led by a classroom teacher or a small-group tutor.

These student-specific participation records were analyzed and characterized in terms of:

- first PY of participation
- number of PYs in which participation occurred
- participation in multiple courses, programs, and types of programs
- class format (e.g., teacher-led classroom, tutor-led small group)
- mode of instruction (e.g., in-person, distance/remote)
- total hours of attendance across PYs
- total time span in days between first and last attendance dates
- breaks between periods of participation (i.e., gaps of 90+/180+/365+ days between successive attendance dates)

Students are grouped into cohorts according to the first PY of their participation. There are 12 cohorts of students whose participation started in the 12 PYs 2007–2008 through 2018–2019. The features of their participation patterns will be disaggregated and presented graphically by the first PY of a student's participation.

Skill Gains

Programs measured skill development using many types of skill tests for placement and progress assessment. Student-specific assessment records in the study's database contained assessment date, type, form and level of test administered, scaled test score, and (for NRS-approved tests) the NRS Educational Functioning Level (EFL). The most widely used test types were the Tests of Adult Basic Education® (TABE) 9/10 series, especially the TABE Reading, Applied Math, and Math Computation (Math Comp.) assessments.[7] These assessment instruments were used throughout the 12-year study period.

To measure skill gains validly with these tests, only students having two or more assessments with psychometrically comparable test forms (e.g., TABE 9 Reading & TABE 10 Reading) were included in the analyses. For purposes of this study, a student's skill gain is defined as the difference between the scaled test scores of the first and final psychometrically comparable tests taken by the student.[8] Such measurements of skill gain are considered valid and were included in the analyses only if the final test form used had not been administered to the student within the preceding six months.[9] [10] For example, if a final TABE 10 Reading form had been preceded by a TABE 10 Reading form administered three months earlier, the skill gain would be invalid; if only TABE 9 Reading test(s) had been administered in the six months preceding the final TABE 10 Reading test, the skill gain would be considered valid.

For this study, each valid skill gain is associated with a measurement of both gain days and gain hours. Gain days are defined as the number of calendar days between a student's first and final test dates comprising the given skill gain. Note that the number of gain days can be less than the student's total time span of instruction. Gain hours are

7 More detailed descriptions of these TABE 9/10 assessments is available at https://tabetest.com/PDFs/TABE_9_10_Brochure.pdf

8 Although other methods of modeling skill development, such as linear growth modeling, were considered, those methods have requirements for multiple assessment points and data structure that only a small proportion of the student records would satisfy. Linear growth models, such as those used by Tighe et al. (2013), Reder (2014), and Yin et al. (2022), require at least three observation points per person. For the TABE 9/10 Reading, Applied Math, and Math Comp. skills, only 39.1%, 35.1%, and 33.7%, respectively, of the valid skill gain sequences contained three or more observations per student. It was preferable for the purposes of this study to include as many students as possible in the analyses of skill gain rather than estimating linear growth models for a small fraction of applicable students.

9 This is consistent with the test developer's psychometric specifications for TABE 9/10 (available from www.tabetest.com).

10 Placement tests and practice tests are not included in these analyses.

defined as the number of instructional hours the student attended between the first and final test dates comprising the given skill gain. Note that the number of gain hours can be less than the student's total instructional hours. Further, an individual student may (and often does) have different numbers of gain hours for each of the skill gains measured for that student.

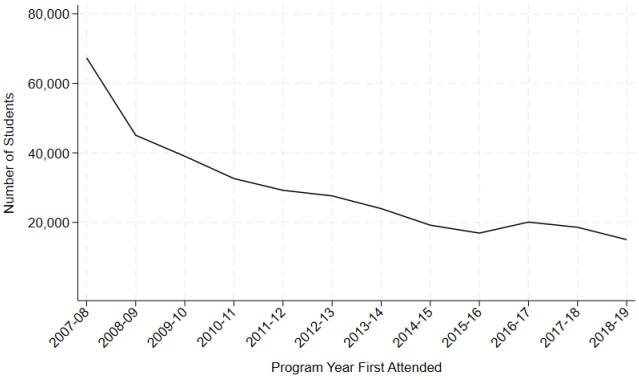
The second research question focuses on the relationship between students' long-term participation in adult education and their skill development. This focus is operationalized by asking, for each given skill, whether average skill gains rise linearly with increasing numbers of gain hours among students who participate in adult education over long periods of time. For the purposes of these analyses, a long-term skill gain is defined as having one year or longer of gain days (i.e., 365 or more gain days). This question is addressed graphically with plots of the average skill gain against the number of gain hours for the skill. Ordinary least squares (OLS) regression models are also fit to the data, predicting skill gain in terms of gain hours while controlling for student characteristics and initial test score. An important issue here is the extent to which such linear relationships, seen in short-term studies reviewed prior, are also evident for students whose skill gains are measured over long time periods. Addressing this question will clarify whether some students' extended time spans of participation in adult education encompass intervals of ongoing skill development rather than, for example, repeated unsuccessful attempts to improve fundamental skills.

Results

Student Cohorts and Characteristics

Discrete cohorts of active students were identified based on the first PY in which they attended a class. Figure 1 displays the number of students first attending in each of the 12 PYs, 2007–2008 through 2018–2019. The number of students shown in Figure 1 for a given PY is generally close to the official number the state reported to the NRS for the PY but differs in two respects. First, students with less than 12 instructional hours in a PY are included in the present study and shown in Figure 1 but are not included in NRS reports.[11] Second, because the present study de-duplicated students across PYs, the number of students shown in Figure 1 for a PY excludes a substantial number who participated in an earlier PY.

FIGURE 1: Students First Attending Instruction in Given Program Years



The steady decline in the cohort size from PY 2007 through PY 2018 reflects the steady decline in NRS-reported participants for both the state and the nation as a whole (Pickard, 2022). Overall, nearly equal numbers of male (49.7%) and female (50.3%) students participated, with the mix quite stable across the 12 PYs (Appendix B, Figure B1).

The ages of incoming adult education students range between 16 and 90, with an average of 31.2 and a median of 27. Female students are older on average (32.8) than male students (29.6). It appears that cohort ages dropped over time during WIA (PYs 2007–2014) and then stabilized during WIOA PYs 2015–2018 (Appendix B, Figure B2).

About one in eight (12.6%) of this state's adult education students are non-native speakers of English, a considerably lower proportion than reported by many other states. The mix of native and non-native English-speaking students is relatively stable over time (Appendix B, Figure B3). Nearly half (47.0%) of incoming adult education students are unemployed, 22.6% are employed, and 30.4% are not in the labor force. A higher percentage of incoming male students (27.6%) is employed than female students (17.6%). This mix of employment status is relatively stable over time (Appendix B, Figure B4).

11 In PY 2018–2019, states reported in NRS Table 2a the number of "Reportable Individuals" with less than 12 instructional hours, different from the "Participants" with 12 or more instructional hours reported in other tables.

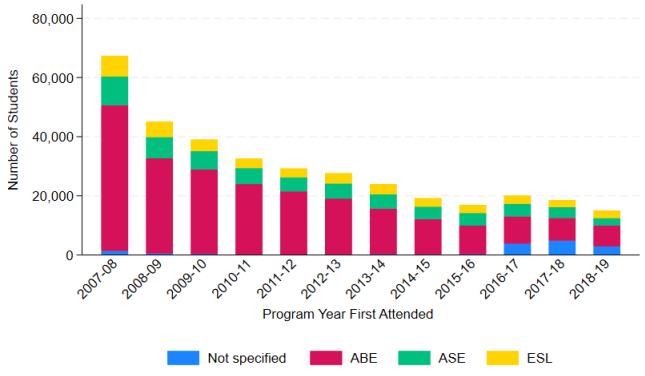
The administrative data do not include the educational background and learning goals of all incoming students. Overall, educational attainment data is available for 58.3% of incoming students. This percentage jumps up suddenly with changes in federal reporting requirements (Appendix B, Figure B5). Students with known prior educational attainment had an average of 10.9 years of prior education, with 57.7% having less than 12 years. Overall, learning goal data are specified for 68.5% of the students, dropping down precipitously with changes in federal reporting requirements (Appendix B, Figure B5).

Participation Patterns

Program Types

Figure 2 displays the number of students initially participating in the three program types (ESL, ABE, ASE) during the PY in which they first received instruction. Overall, about one in eight (12.2% of) adult education students participating in PY 2008 through PY 2019 initially participated in an ESL program, 1 in 3 (68.6%) in an ABE program, and one in five (22.2%) in an ASE program. A relatively small number (7.7%) of students initially participated in multiple types of programs. Note the height of each bar in Figure 2 is the total number of students shown first participating in the given PY in Figure 1. Figure 2 shows similar overall proportions of students having each entry program type. For most PY cohorts, only a small fraction of students had an entry program type that is Not Specified.[12]

FIGURE 2: Number of Students Per Entry Program Type

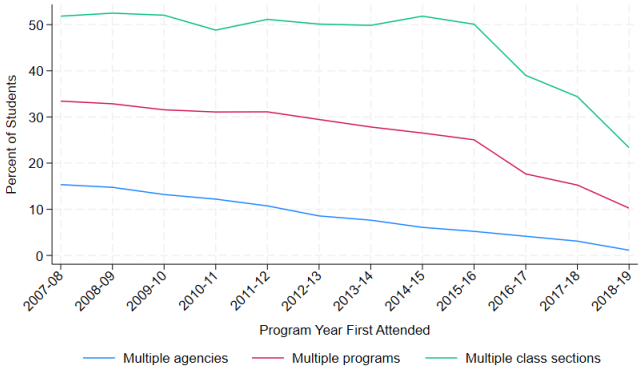


Multiple Instructional Contexts

Many students participated in adult education programs offered by multiple agencies, in multiple programs offered by the same agency, and in multiple class sections within a given program. More than one in four (28.5% of) students participated in multiple programs; about one in three (36.7%) of these multi-program students participated in programs offered by multiple agencies. Among students participating in only a single program, more than one in four (27.9%) participated in multiple class sections of the program over time.

Figure 3 displays the percentages of students participating in adult education offered by multiple agencies, multiple programs, and multiple class sections for each PY cohort. Declining percentages over time of students participating in multiple programs and agencies are evident, as are right-censoring effects over the last few PYs of each curve. The declining percentages over time of multi-program and multi-agency students in part reflect the consolidation of adult education programs within the state across the PYs.

FIGURE 3: Percent of Students by Learning Context



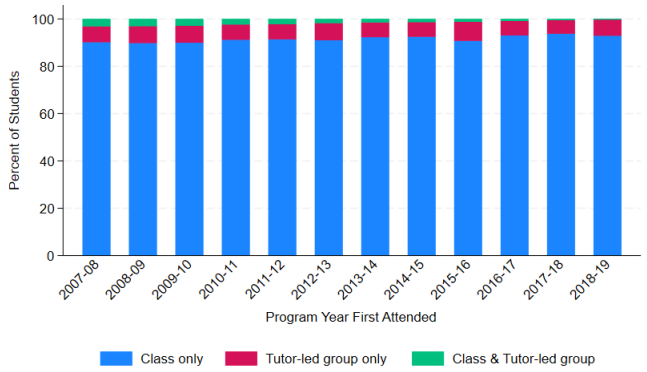
Instructional Format

Figure 4 displays the mix of instructional formats in which students participated, plotted as a function of their initial program year of participation. The preponderance (91.2%) of students participated only in teacher-led classes. A much smaller number (6.7%) of students participated only in tutor-led small groups. An even smaller number (2.1%) of students participated in

12 For unknown reasons, there are a larger number of Not Specified program types in the last few PYs of the study.

both instructional formats within their adult education. This overall mix is fairly stable across the PY cohorts. The mix of formats is roughly equal among male and female students as well as among older and younger students as well as among students with varying amounts of prior education. Non-native speakers of English, however, are much more likely than native speakers to participate in at least some tutor-led groups within their adult education.

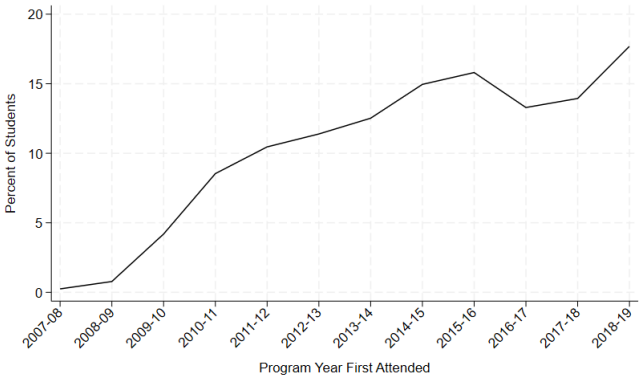
FIGURE 4: Percent of Students Per Instructional Format



Instructional Modality

Figure 5 displays the percentage of adult education students taking some distance education as a function of their initial PY of instruction. Overall, nearly all (99.6%) had some in-person instruction over the course of their adult education, whereas only 9.4% participated in some distance instruction. As Figure 5 shows, distance instruction became more common over time as students, teachers, and programs increasingly used technology. For the PY 2007–2008 cohort, hardly any students took any distance education in their adult education career, whereas by PY 2018–2019, nearly one in five had taken some distance education. Overall, female, native English-speaking, younger, and less educated students were more likely to have participated in at least some distance education.

FIGURE 5: Percent of Students Taking Some Distance Instruction



Amount of Instruction

Overall, students averaged 88.5 total hours of adult education instruction with a median of 37 hours. One in four students attended 15 or less hours, while another one in four students attended 90 or more hours. Female students attend a few more hours on average (91.4) than male students (85.5). Non-native English-speaking students attended more hours on average (111.3) than native English-speaking students (85.2). Students aged 25 and above attended fewer total hours on average (82.0) than students aged under 25 (97.4). Students with 12 or more years of previous education averaged fewer hours (77.4) than students with less than 12 years of prior education (110.4).

Figures 6 and 7 show total instructional hours per student for each PY cohort. Figure 6 shows the mean number of total hours per student whereas Figure 7 illustrates the distribution of total hours per student, including the 10th, 25th, 50th (median), 75th, and 90th percentiles of total hours. The mean total hours per student declines across the PY cohorts, sharply declining over the final four. Because the means shown in Figure 6 are calculated across students with small numbers of hours as well as students with large numbers of hours, it is helpful to interpret these trends by also looking at the distributional information about total hours in Figure 7.

FIGURE 6: Mean Instructional Hours Per Student

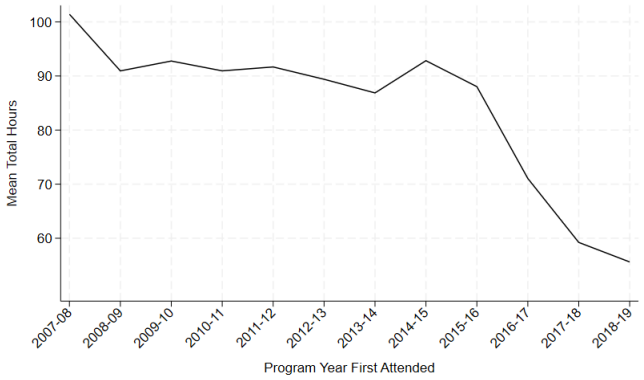
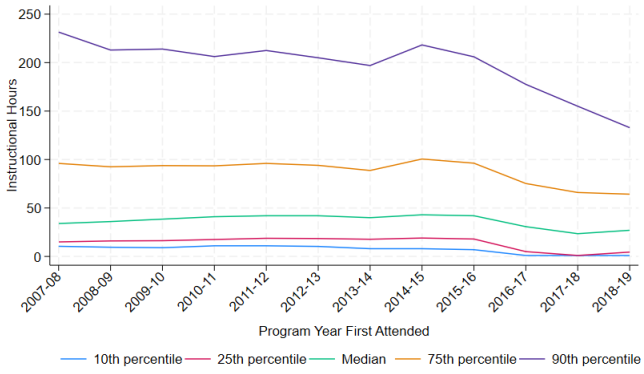


FIGURE 7: Distribution of Total Instructional Hours Per Student



The sharp decline in the mean of total hours across the last few PY cohorts is again evident in the 75th and 90th percentile curves in Figure 7, suggesting that relatively fewer students starting in those last PYs had large numbers of total hours by the end of PY 2018–2019. Since large numbers of instructional hours are likely to have accumulated over multiple PYs, data from student cohorts of the last few PYs in the study does not include these instructional hours that may have occurred after the end of PY 2018–2019. The non-inclusion of these instructional hours in these late cohorts is an example of right-censoring of longitudinal data.

Timing and Duration of Instruction

Two-thirds (67.9%) of students participated during only a single PY. One-third (32.1%) of students participated during two or more PYs. One in eight students (12.1%) participated during three or more PYs. Almost half (47.0%) of these three+ PY students were de-duplicates, suggesting their programs may not have been aware of their long-term participation pathways. This is further explored below in terms of the number of days individual students' instruction spans.

The time span of instruction is defined as the number of days elapsed between the first and last report of a student's attendance in adult education classes.[13] The time span between the start and end of a student's hours of attendance has a mean of 387 days and a median of 63 days. Nearly one in four students (23.5%) has a time span of zero. That is, all of the student's hours are reported within a single attendance report. The median total hours attended by these zero time span students is 12, meaning that half of them were not included in NRS reports under the 12-hour rule.

Many students' have longer time spans: 46.2% have spans of 90 days or more; 35.0% have spans of 180 days or more; 25.1% have spans of 365 days or more. The focus of the present study will be on these students having time spans of instruction of a year or more (i.e., 365 or more days). These students will be designated long-term students. Almost half (48.5%) of the long-term students have time spans of instruction of three years or longer. Almost half (42.2%) of the long-term students are de-duplicates, again suggesting programs may be unaware of many students' longer participation patterns in adult education.

Figures 8 and 9 display the distribution of students' time spans of participation, measured in days, for the cohorts beginning in each PY. The sharp decline of the mean time span seen in Figure 8, coupled with the slight decline evident in the corresponding median spans, suggests that right-censoring is limiting the observation of longer time spans. This interpretation is confirmed by Figure 9, in which steady declines in the time spans observed in the 75th and 90th percentile curves but not in the 10th, 25th, and 50th

13 Programs submitted attendance reports on a daily, weekly, or occasionally longer-term basis.

percentile curves. Female, non-native English-speaking students, older students, and students with less prior education tended to have longer time spans of participation.

FIGURE 8: Time Span of Instruction

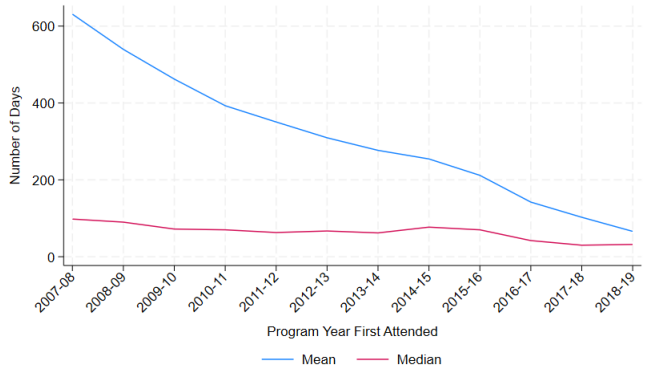


FIGURE 9: Time Span of Instruction

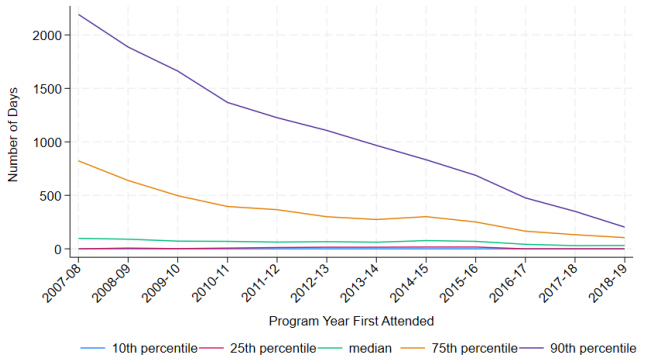
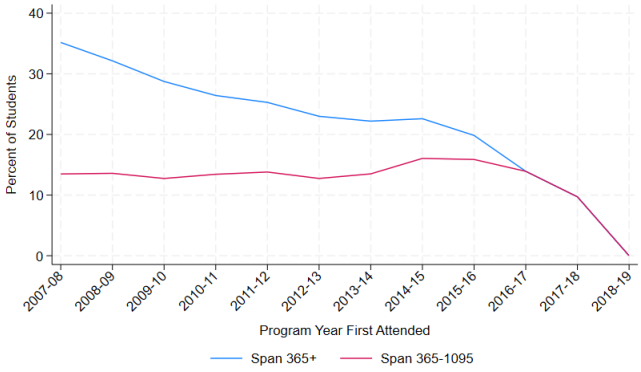


Figure 10 displays changes across the PY cohorts in the prevalence of students participating in adult education over relatively longer time spans. The red line displays the percentage of students having time spans of 365 or more days. Three out of four (75.0%) students with time spans of 365+ days are multi-program students. The steady decline in the observed percentage across PY cohorts could be due to increasing right-censoring of longer time spans. To address this question, the red line in the figure displays the percentage of each PY cohort having time spans between 365–1,095 days (i.e., this differs from the blue line in that time spans longer than three ears are excluded from the calculation). The red line shows no major changes across PYs until the final two PYs (when right censoring takes place), reflecting a steady percentage of incoming adult education students who participated over these relatively longer time spans.

FIGURE 10: Long Time Spans of Instruction



Longer time spans of instruction are widespread among varying types of students. Similar percentages of female and male students, 26.2% and 23.9%, respectively, have time spans of at least a year. The percentage of students with time spans of a year or longer is slightly higher among non-native English speakers (29.1%) than among native English speakers (24.5%). The average age at program entry of students who exhibit these longer time spans is 29.0, younger than the average age (31.9) of students who do not exhibit these longer time spans. The average years of prior education is similar among students exhibiting longer time spans (10.5) and among students not exhibiting them (11.0).

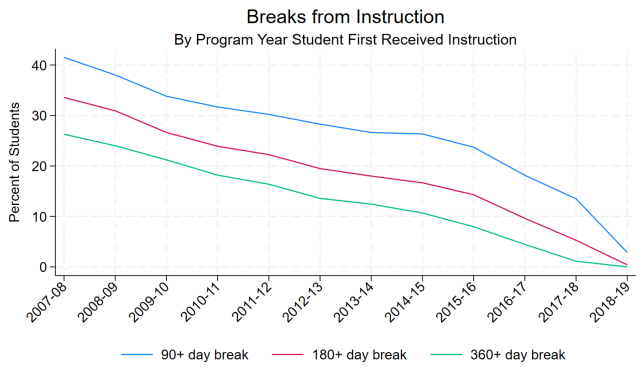
These extended participation trajectories in adult education occur more frequently among students who enter with a specific goal in their records; 29.2% and 16.0% of students with or without a recorded goal, respectively, exhibit time spans of instruction longer than a year. About one in four students (28.9%) with an education goal (e.g., GED® credential, postsecondary transition) have time spans of 365 days or longer. About one in three students (35.4%) with an economic goal (e.g., getting a job or getting a better job) exhibit these extended participation trajectories of 365 days or more. Only one in five (19.9%) of the long-term students ever take a GED test, another indication that long-term participation in adult education may be motivated by a broader set of student goals than those currently emphasized by the programs.[14]

14 The GED was the only high school equivalency in the state during the time period of this study.

Breaks in Participation

Students participating over long time spans often take breaks from participation. That is, they stop participation, pausing for a period of time, and then resuming their adult education. Taking these breaks, sometimes called "stopping out," can occur within a given program or across programs.[15] Figure 11 displays the percentages of students exhibiting breaks of 90 or more days, 180 or more days, and 365 or more days in length. As seen above for the longer time spans of participation, de-duplication makes these longer breaks visible in many more student records. For example, 38.6%, 45.4%, and 50.8% of the students with 90+, 180+, and 365+ day breaks between instruction are de-duplicates, respectively. Right-censoring is again evident in these curves in Figure 11.

FIGURE 11: Breaks From Instruction



Summary of Participation Patterns

The cross-PY, de-duplicated data display longer and more varied participation trajectories than those that can be seen in single PY reports. The longer participation trajectories—often encompassing multiple programs, periods of participation, and breaks from participation—are consistent with research on program retention and student persistence in adult education, as reviewed above. These expanded trajectories of participation in adult education include increased hours, more breaks from and discrete periods of participation, and more program transitions. The expanded participation trajectories in adult education are evident among diverse students, including those who enter with specific education or economic goals and students engaged and students not engaged in high school equivalency testing.

In the expanded participation trajectories, non-native English speakers accumulate more instructional hours than native speakers, consistent with findings of research involving shorter spans of participation (Comings et al., 1999; Greenberg et al., 2013). A new finding is that non-native speakers are more likely to participate in tutor-led groups as opposed to teacher-led classrooms. Another interesting detail of the participation patterns is that younger learners tend to accumulate more instructional hours than older learners. Although this appears to contrast with some previous research that found older learners tend to accumulate more instructional hours than younger learners, the previous research is based on short-term participation. In the current study, this contrast varies between short-term and long-term spans of participation. Within long-term participation spans, older learners tend to accumulate more instructional hours whereas in short-term participation spans, younger learners tend to accumulate more instructional hours.

Given the frequency of these expanded participation trajectories among adult education students, it is important to determine whether skill development occurs over the longer time spans of participation. It is possible that repeated periods of participation do not all contribute to skill development, which might be the case if breaks from instruction, for example, set learning back or reset student learning such that overall skill gains do not occur.

Skill Gains

Analyses of skill gains were conducted separately for each of the three skills examined: TABE 9/10 Reading, Applied Math, and Math Comp. Table B1 (found in Appendix B) displays, for each of these three skills, the number of students with valid skill gains measured, their

15 NRS Table 4, starting in PY 2017, counts 90+ day breaks within a single PY as distinct "Periods of Participation" (POPs). Multiple POPs across PYs, however, are not identified within NRS reports.

mean initial test score, and mean skill gain.[16] In addition, the table displays the mean and median gain hours and gain days associated with the measured skill gains. Finally, the table displays the percentage of these students exhibiting long-term skill development, comprised of at least a year of gain days.

Almost one in three (31.8%) of the 354,712 active students had validly measured gains on one or more of these skills.[17] Less than half (44.5%) of these students with a measured skill gain had skill gains measured on more than one of the skills. Almost two in three (63.3%) of the students with a measured skill gain had a Reading skill gain, whereas more than three in four (76.6%) of the students with a measured skill gain had an Applied Math and/or Math Comp. skill gain measured. Two in five (40.0%) of the students with a measured skill gain had both a Reading and a math skill gain measured.[18]

Analyses of skill gains for students with known levels of prior educational attainment involves much smaller numbers of students because of the aforementioned lack of information about prior education in many students' adult education records. Table B1 in Appendix B summarizes the corresponding skill gain characteristics for students with known levels of prior educational attainment. Note the close similarity of the characteristics of the skill gains shown in Tables 1 and B1. Because the skill gain characteristics of students are similar regardless of whether information exists about their prior education, the subsequent analyses will include all students; separate analyses for students with known prior educational attainment are presented in Appendix B.

TABLE 1: Skill Gain Characteristics for Three TABE 9/10 Skills

	Reading	Applied Math	Math Comp.
Number of students	71,490	51,717	57,988
% female	49%	48%	49%
Mean age	28	28	30
% non-native English speaker	2%	1%	1%
Mean initial test score	532	518	475
Mean skill gain	20	24	31
Mean gain hours	98	100	76
Median gain hours	50	49	44
Mean gain days	713	605	510
Median gain days	372	310	184
% with gain days > 365	51%	46%	38%

The primary focus here on skill development over relatively large time spans calls for analyses of skill gains over sufficiently long intervals of time between the first and final assessments of a given skill, i.e., a sufficiently large number of gain days for the skill being measured. The minimum gain days in the subsequent analyses is 365 days, meaning at least a year between the first and final assessment of a given skill (Reading, Applied Math, or Math Comp.). Table 2 displays some descriptive statistics for skill gains meeting these minimum gain day requirements.

16 Although it is important in analyses of skill gains to use the scaled test scores, NRS reporting collapses scaled test scores into pre-defined discrete EFLs. NRS reports numbers of students entering a program at given EFLs and numbers who advance one or more EFLs while in the program. For example, Appendix B Figure B6 displays the number of students entering programs at the six defined EFLs for TABE 9/10 Reading. Over their extended participation patterns, over half (56.5%) of the students advanced from their initial Reading EFL to a higher one by their final assessment (excluding students who started in the highest EFL).

17 The percentages of non-native speakers among students with these measured TABE 9/10 skill gains are much smaller than the 12.2% percentage of non-native speakers among all active students. This is because almost all of the non-native English-speaking students had their progress measured with BEST tests rather than with TABE tests.

18 A student with validly measured gains on more than one skill does not necessarily have the same number of gain hours or gain days for each of those skills. The alignment of gain hours across skills, for example, depends on the timing of the administration of the first and final tests for specific skills.

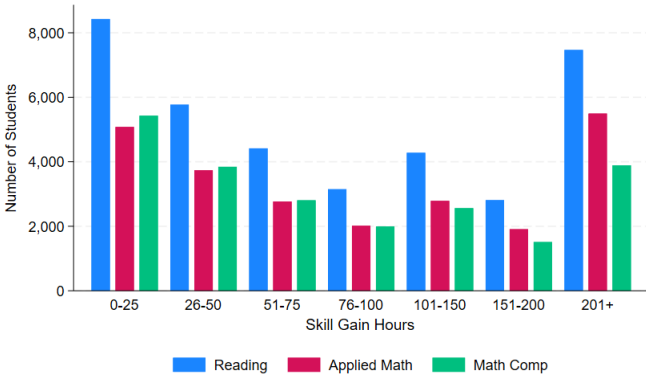
TABLE 2: Skill Gain Characteristics for Three TABE 9/10 Skills of at Least 365 Gain Days

	Reading	Applied Math	Math Comp.
Number of students	36,146	23,651	21,929
% female	49%	50%	49%
Mean age	26	26	28
% non-native English speaker	2%	1%	1%
Mean initial test score	530	512	467
Mean skill gain	18	21	21
Mean gain hours	138	150	122
Median gain hours	72	78	64

In general, characteristics of students and their skill gains are similar regardless of whether we look only at students with skill gains of at least 365 gain days. Comparing Tables 1 and 2, a few small differences are apparent. Students with skill gains measured over at least a year's time tend to be a couple years younger at the time they entered adult education than students having any measured skill gain. Students with the longer measured skill gain periods tend to have lower initial test scores, smaller skill gains, and attend larger numbers of instructional hours within their skill gain intervals. Corresponding descriptive statistics for students having known levels of prior education are displayed in Table B2 in Appendix B.

Figure 12 exhibits the distribution of skill gain hours for students with long intervals of skill gain days. The blue bars display the number of students attending various amounts of instructional hours within their Reading skill gains. The red and green bars display the corresponding data for the Applied Math and Math Comp. skill gains, respectively.[19] For each skill, the distribution has the same general shape, with relatively large numbers of students attending the smallest category of gain hours, large numbers attending the largest category of gain hours, and smaller numbers of students attending intermediate amounts of instruction.[20]

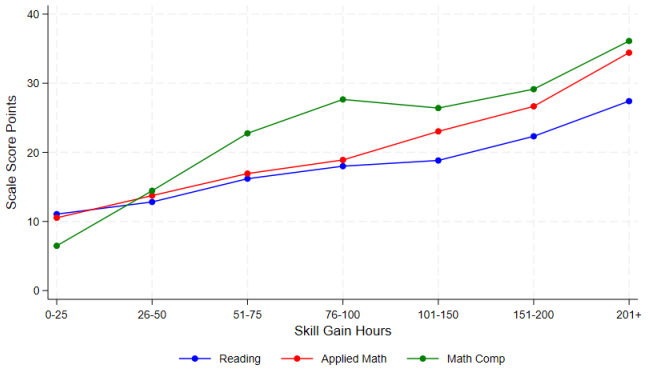
FIGURE 12: Gain Hours for TABE 9/10 Reading, Applied Math, and Math Comp. Skill Gains



Note. Limited to skill gains of at least 365 gain days.

Figure 13 displays the mean skill gains for students in these gain hour categories for the TABE 9/10 skills measured: the blue curve for Reading, the red curve for Applied Math, and the green curve for Math Comp. skills. As before, the focus on long-term skill growth limits these analyses to skill gains comprised of at least a year of gain days. For each of the skills, the average skill gain increases systematically with increasing numbers of instructional hours within the skill gain's measurement interval. The statistical significance of the linear component of this apparent trend over gain hours is explored below with OLS regression models.

FIGURE 13: Skill Gains by Gain Hours for TABE 9/10 Reading, Applied Math, and Math Comp.



Note. Limited to skill gains of at least 365 gain days.

19 Although it might be helpful to distinguish between gain hours of instruction that focus on and gain hours that do not focus on the particular skill in question (e.g., Reading), the administrative data does not contain enough systematic information about instructional content to make this feasible. For all but the final couple PYs, programs were required to pre-select particular skill assessments to use for measuring student progress, so that the very existence of a particular skill gain reflects the program's expectation that the instructional content the student would receive would be relevant to that skill.

20 In Appendix B, Figure B7 displays the corresponding skill gain hours data for students who reported prior levels of education to the NRS.

OLS regression models were estimated separately for each of the three skill gains, predicting skill gains in terms of initial test score, gain hours, and student characteristics (gender, age, and native language status). Results of fitting these regression models to the three skill gains are shown in Table 3. The most important result is the statistically significant, positive coefficient for Gain Hours in each regression equation with other variables controlled, confirming the apparent trend of increasing skill gains across gain hours seen in Figure 13.

TABLE 3: Regression Models of Skill Gains of at Least 365 Gain Days for Three TABE 9/10 Skills

Variables	Reading	Applied Math	Math Comp.
Initial test score	-0.413***	-0.403***	-0.523***
	(0.00398)	(0.00515)	(0.00607)
Gain hours	0.00322**	0.0153***	0.0228***
	(0.00145)	(0.00172)	(0.00234)
Age	-0.549***	-0.506***	-0.150***
	(0.0245)	(0.0329)	(0.0319)
Female	0.459	-3.067***	-2.764***
	(0.557)	(0.694)	(0.786)
Non-native speaker	-3.114	6.755**	7.031*
	(1.943)	(2.941)	(3.602)
Constant	250.9***	239.5***	268.1***
	(2.558)	(2.933)	(3.094)
Observations	36,128	23,640	21,912
R-squared	0.240	0.222	0.266

Note. Standard errors in parentheses.
*** p < .01. ** p < .05. * p < .1.

Table 3 also shows, for each of the three skills, statistically significant larger skill gains for students who enter with lower test scores as well as for younger students. Female students have statistically significant lower skill gains for Applied Math and Math Comp. but statistically equivalent skill gains for Reading. Students who are non-native English speakers have statistically significant larger skill gains for Applied Math and Math Comp. but statistically equivalent skill gains for Reading.

Two additional analyses explore the generalizability of the key result that skill gains, over long periods of instruction (gain days, i.e.), are positively related to the number of instructional hours. The first analysis adds the student's prior education to the regression models of skill gains. The second analysis considers a broader range of skill gains, namely those comprised of at least 90 gain days rather than just those comprised of at least 365 gain days.

In the first analysis, similar results are found when prior education is included in the regression models (albeit with a much smaller number of observations). In Appendix B, Table B2 provides descriptive statistics for the student populations for whom information about prior education is available. Figures B7 and B8 display the distribution of gain hours and the mean skill gains as a function of gain hours, respectively, for the three measured skills. Table B3 shows the results from the OLS regression models for each skill that include prior education attainment as an independent variable. The key finding is replicated; skill gains remain positively related to gain hours even with prior educational attainment statistically controlled along with other student characteristics.

In line with previous research (e.g., Reder et al., 2020), the current study finds age to be negatively related to both literacy and numeracy gains, with younger adults averaging larger gains. This trend is summarized by the statistically significant negative coefficient of age in the multivariate regression models predicting skill gains. New findings here are that non-native speakers have significantly larger long-term gains in numeracy skills (but statistically equivalent gains in literacy), and female students have significantly smaller long-term gains in numeracy (but statistically equivalent gains in literacy).

Although the primary focus here is on basic skill development over long time periods of instruction lasting at least a year, it is important to know whether the patterns of skill growth observed over these longer periods also occur when shorter periods are included as well. This question is examined by replicating the analysis of skill gains measured over at least a year of gain days with a parallel analysis of skill gains measured over 90 days or more. Table B4 in Appendix B presents the descriptive statistics for this analysis. Figures B9 and B10 display the distribution of gain hours and the mean skill gains as a function of gain hours, respectively, for skill gains comprised of at least 90 gain days. Table B5 displays the fit of these data to the regression models predicting skill gains from initial test scores, gain hours, and student

characteristics. Table B5 shows, for Reading, Applied Math, and Math Comp., that the statistically significant positive effects of gain hours on skill gains are replicated for the temporally broadened set of skill gains comprised of 90 gain days or more.

Discussion

Summary

After linking individual student records together across multiple PYs and programs, the present study identified 354,712 unique adult education students who had attended one or more classes in the state during the 12-year period PY 2007–PY 2018. Nearly one in four students (23.5%) had a zero time span of participation, meaning all instructional hours were reported in a single attendance report. Another one in four students (25.0%) participated over a year or longer. Almost half (48.5%) of these long-term students participated over three or more years.

The present study focuses on these long-term individual participation patterns that were frequently observed to encompass multiple programs, periods of participation, and breaks from participation. Although these long-term participation patterns are consistent with research on program retention and student persistence in adult education, they are not well-captured in single-year NRS or state reporting. A large number (42.1%) of these extended participation patterns are not readily identified within program, agency, or state student-record systems, being identified in the present study only through de-duplication of individual student records across PYs and programs.

As found in short-term research (Comings et al., 1999; Greenberg et al., 2013), these longer-term participation patterns show that non-native English speakers accumulate more instructional hours than native speakers. A new finding is that non-native speakers are more likely to participate in tutor-led groups as opposed to teacher-led classrooms. Another interesting detail of the participation patterns is that younger learners tend to accumulate more instructional hours than older learners. Although this appears to contrast with some previous research that found older learners tend to accumulate more instructional hours than younger learners, the previous research is based on short-term participation. In the current study, this contrast varies between short-term and long-term spans of participation. Within long-term participation spans, older learners tend to accumulate more instructional hours whereas in short-term participation spans, younger learners tend to accumulate more instructional hours.

An important research question in the current study is the extent to which skill development is observed over long intervals between the first and final assessments of a foundational skill. It is possible, of course, that with the frequent breaks in attendance and program changes within long periods of participation and assessment, students may not show cumulative skill gains related to the total instructional hours they attended as some previous research has found for shorter intervals (e.g., Condelli et al., 2009). This question was explored in the present study by examining the relationship between measured skill gains and total instructional hours (termed "gain hours") attended between the initial and final assessment of the skill. For each of three skills examined (TABE 9/10 Reading, Applied Math, and Math Comp.), significantly larger skill gains were observed for increasing gain hours over the extended gain intervals. This long-term systematic skill growth over increasing instructional hours is evident both in graphical displays of these relationships and in statistical regression models of skill gains in relation to gain hours.

Implications

The steady growth of basic skills over long-term participation trajectories is not easily identified, reported, or incentivized by an adult education system focused on single program-year accountability. Although largely unrecognized, these long-term trajectories of participation and learning co-exist with the shorter-term "pipeline" skill development trajectories that are emphasized in the current reporting, evaluation, and funding of adult education. Results of the current study demonstrate a major misalignment between the short-term outcomes that programs are accountable for and the long-term outcomes that they actually produce. States, programs, and advocates of adult foundational education can thus benefit from using longitudinally analyzed administrative data across program years. For the same reason, continuous program improvement efforts will likely be more effective using long-term rather than short-term skill gains as criterion measures.

Increased awareness, policy, and programmatic support and funding for the widespread long-term skill development observed in the current study is needed from adult education, government, and employers to better address the nation's skill development needs. In addition to the ongoing advocacy for increased funding for programs supporting relatively short-term focused adult education and skill growth, there is need to better understand and advocate for the role of adult education in supporting lifelong skill development that helps individuals navigate both short-term employment and education goals as well as broader types of lifelong and life-wide learning (Reder, 2020).

There are several ways to increase support for lifelong learning of foundational skills. States can improve their tracking of adult education students across time and programs. Shared access to student-centered records across programs would be helpful. These shared records ideally could include student goals, descriptions of course content taken, skill assessments, and other student outcome measures. In implementing such data systems, of course, due attention must be given to maintaining confidentiality and privacy. It would also help to have better quality standards and more resources to provide training for local data entry and management of student-centered administrative databases. Improvements in these areas will help states strengthen their tracking and evaluation of student participation and learning across time and programs. Better state tracking and awareness of lifelong skill development is essential for improving programmatic support for lifelong learning in adult education.

Longitudinal evaluations of program impact on skill growth and other student outcomes that are not limited to a single PY need to be developed and implemented to follow lifelong skill development. Whether such evaluations should be based on administrative data from all programs and students or on a richer set of measures collected from a sample of programs and students should be carefully considered.

Limitations

Numerous limitations were encountered in working with the state's administrative adult education data to address the research questions of this study. The lack of systematic data about the content of instruction that students attended, students' goals in adult education, their reasons for stopping and re-entering instruction, and their education and employment outcomes limits what can be learned from the administrative data. Other states may have administrative adult education data with fewer or different limitations. Some states' administrative adult education data with which the author is familiar have more systematic information about the content of instruction, for example. Other states may have comprehensive linkages between adult education student records and employment and postsecondary education records.

Although the author expects the principal findings of the study to apply in many other states, caution is warranted in generalizing the findings of this study from the one state whose administrative adult education data was analyzed to the adult education systems in other states. Specific quantitative results will of course vary across states that have demographically different populations of adult education students. One important difference between the state studied and other states is the relatively low percentage of non-native speakers in the state's adult education population. Future research with administrative data from other states would be very helpful to extend the findings of this study.

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Appendix A

De-Duplication of Student Records

The de-identified student records in the analytical database omitted personal identifying information (PII). Several PII fields were included in non-reversible hash-coded format for de-duplication purposes: name and date-of-birth (available for all students) and social security number. The non-reversible hash coding of these fields completely masked these PII fields while allowing them to be matched for de-duplication.[21]

Student records with different internal student ID #s were de-duplicated (i.e., re-assigned to the same internal student ID #) if their hash-coded PII fields matched in one of two ways: their date-of-birth was identical and either (1) their hash-coded SSNs matched (if they had SSNs) or (2) their hash-coded names matched (if they did not have SSNs).[22] Overall, 63,573 (17.9%) of the 354,712 active students in the database were de-duplicated.

De-duplication occurred more often among students who participated in multiple PYs: 36.9% of students were de-duplicated who participated in more than one PY versus 17.7% of students who participated in only a single PY. De-duplication also occurred more often among students who participated in multiple programs: 36.4% of students who participated in multiple programs were de-duplicated versus 6.9% of students who participated only in a single program. The de-duplication rate was much higher (46.1% vs. 15.7%) among individual students who participated in more than one type (ESL, ABE, ASE) of adult education. Students who participate in programs offered by multiple agencies are particularly noteworthy in this regard; all but three of these 41,590 multi-agency students were de-duplicated.

These patterns suggest that student duplication (i.e., the same individual linked to multiple student ID #s within adult education records) occurred more frequently when students participated in multiple PYs and/or multiple programs over time. Nearly half (48.8%) of students who participated both in multiple programs and multiple PYs were de-duplicated.

The overall de-duplication rate declines substantially across PYs (Figure A1), suggesting that the state's tracking of students and linkage of their records across PYs and programs has improved over time. The de-duplication rate among multi-program students has also substantially declined over time (Figure A2), again suggesting improvement in the state's tracking of students across adult education programs.

FIGURE A1: De-Duplication of Students with Various Time Spans of Participation

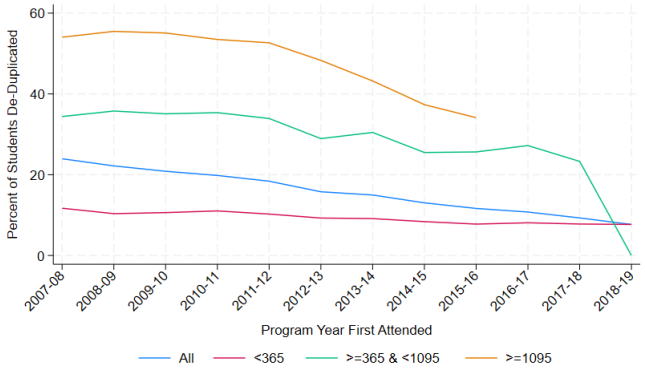
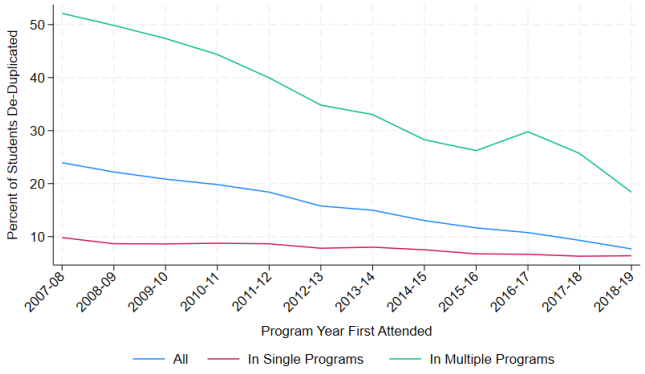


FIGURE A2: De-Duplication of Students in Single or Multiple Programs



These variations in de-duplication rates can help us understand the circumstances in which adult education students' extended participation has not been well tracked by the adult education system and suggest ways to improve tracking and program support for those students.

21 Thanks to Jim Rowe of LiteracyPro Systems for suggesting and facilitating this use of irreversible hash-coding.

22 Prior to de-duplication, 78% of the active student records had SSNs.

Appendix B

Participant Data

FIGURE B1: Gender Mix of Students

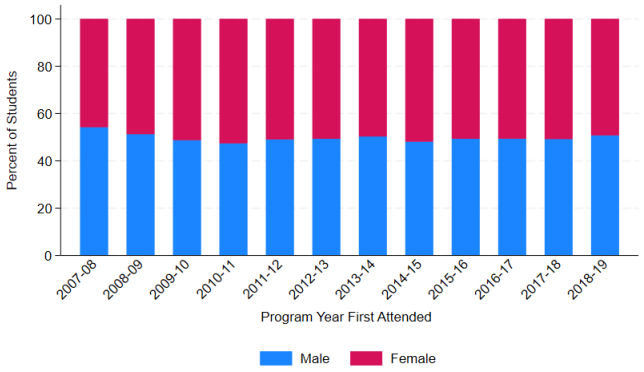


FIGURE B2: Mean and Median Age of Incoming Students

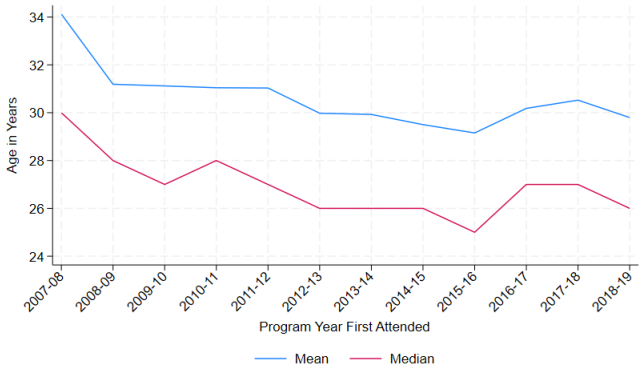


FIGURE B3: Native and Non-Native English-Speaking Students

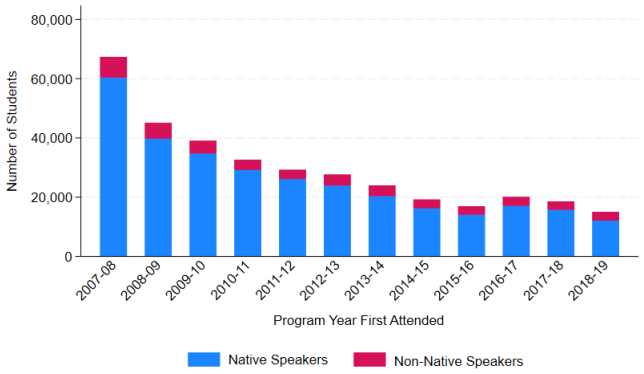


FIGURE B4: Employment Status of Incoming Students

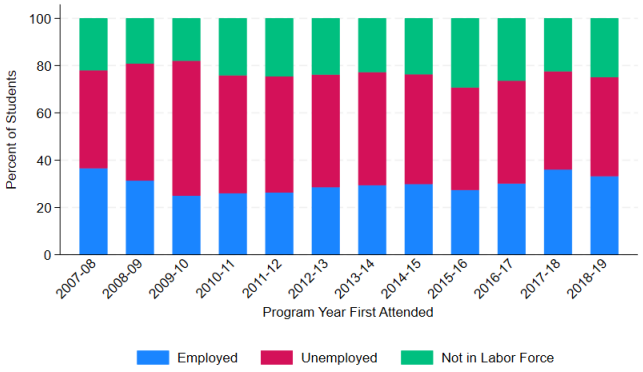


FIGURE B5: Availability of Information About Goals and Prior Education of Incoming Students

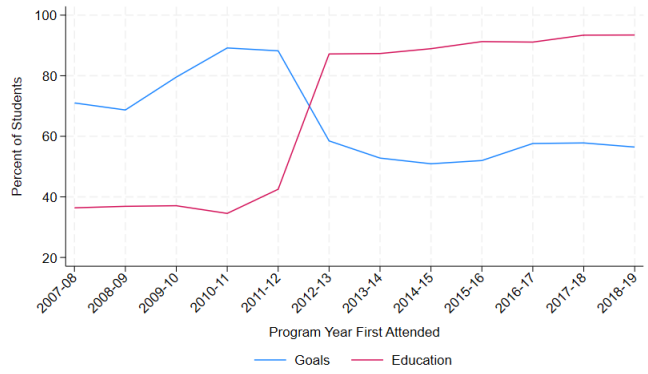


TABLE B1: Skill Gain Characteristics for Three TABE 9/10 Skills

	Reading	Applied Math	Math Comp.
Number of students	44,220	23,548	33,836
% female	51%	50%	51%
Mean age	28	28	30
% non-native English speaker	2%	1%	1%
Mean years of prior education	11	10	11
Mean initial test score	533	519	477
Mean skill gain	20	24	31
Mean gain hours	100	102	82
Median gain hours	51	50	47
Mean gain days	720	587	533
Median gain days	379	305	195
% with gain days > 365	51%	45%	39%

FIGURE B6: Initial Educational Functioning Levels (EFLs) for TABE 9/10 Reading

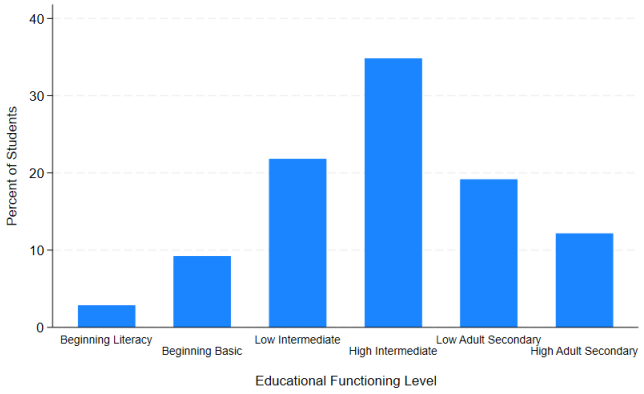
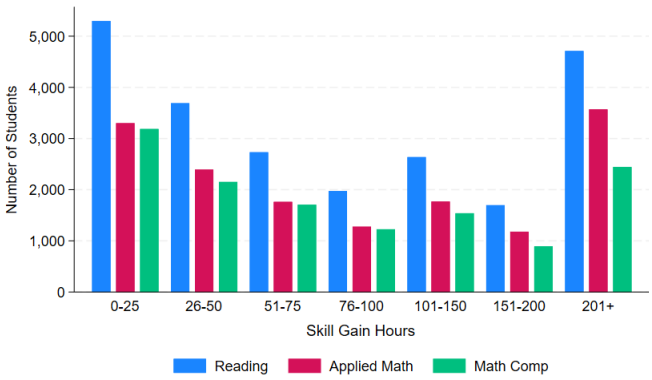


TABLE B2: Skill Gain Characteristics for Three TABE 9/10 Skills Among Students with Known Prior Education

	Reading	Applied Math	Math Comp.
Number of students	22,746	15,252	13,153
% female	54%	54%	54%
Mean age	26	26	28
% non-native English speaker	2%	2%	1%
Mean years of prior education	10	10	10
Mean initial test score	531	513	466
Mean skill gain	18	21	21
Mean gain hours	139	152	127
Median gain hours	72	78	68

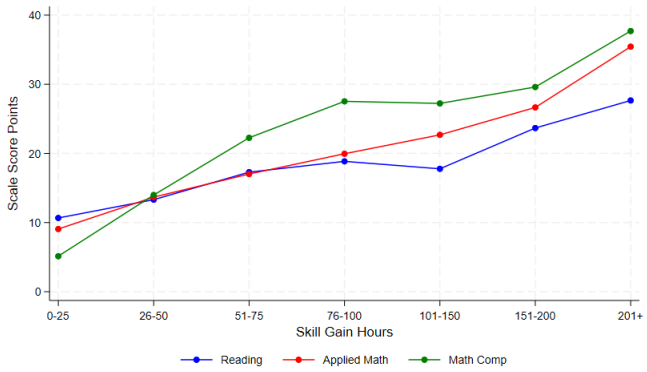
Note. Limited to skill gains of at least 365 days.

FIGURE B7: Gain Hours for TABE 9/10 Reading, Applied Math, and Math Comp.



Note. Limited to students with known levels of prior education and skill gains of at least 365 gain days.

FIGURE B8: Skill Gains by Gain Hours for TABE 9/10 Reading, Applied Math, and Math Comp.



Note. Limited to students with known levels of prior education and skill gains of at least 365 gain days.

TABLE B3: Regression Models of Skill Gains

Variables	Reading	Applied Math	Math Comp
Initial test score	-0.403***	-0.360***	-0.500***
	(0.00498)	(0.00626)	(0.00774)
Gain hours	0.00300*	0.0196***	0.0250***
	(0.00172)	(0.00203)	(0.00285)
Age	-0.515***	-0.478***	-0.161***
	(0.0296)	(0.0385)	(0.0410)
Female	0.473	-2.691***	-2.024**
	(0.679)	(0.833)	(0.993)
Non-native speaker	-4.136*	7.601**	5.721
	(2.232)	(3.260)	(4.275)
Prior education	1.421***	0.474	2.234***
	(0.221)	(0.298)	(0.330)
Constant	230.3***	211.1***	233.4***
	(3.481)	(4.522)	(4.954)
Observations	22,657	15,183	13,093
R-squared	0.235	0.200	0.256

Note. Gains of at least 365 gain days for TABE 9/10 Reading, Applied Math, and Math Comp. among students with known levels of prior education. Standard errors in parentheses.

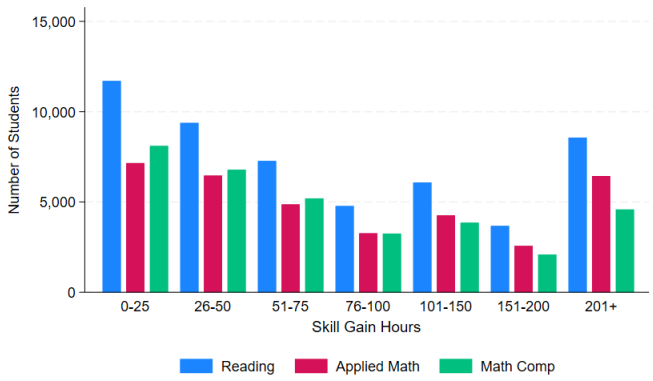
*** p < .01. ** p < .05. * p < .1.

TABLE B4: Skill Gain Characteristics for Three TABE 9/10 Skills

	Reading	Applied Math	Math Comp.
Number of students	51,471	35,022	33,890
% female	49%	50%	49%
Mean age	27	26	29
% non-native English speaker	2%	2%	2%
Mean initial test score	527	513	467
Mean skill gain	18	22	24
Mean gain hours	121	129	105
Median gain hours	65	69	59

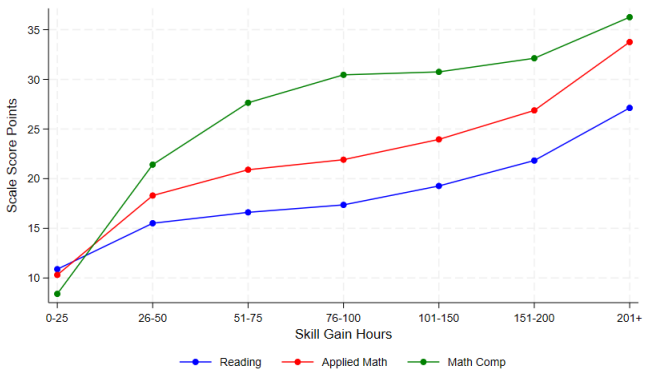
Note. For skill gains of at least 90 gain days.

FIGURE B9: Gain Hours for TABE 9/10 Reading, Applied Math, and Math Comp.



Note. Limited to skill gains of at least 90 gain days.

FIGURE B10: Skill Gains for TABE 9/10 Reading, Applied Math, and Math Comp.



Note. Limited to skill gains of at least 90 gain days.

TABLE B5: Regression Models for TABE 9/10 Reading, Applied Math, and Math Comp.

Variables	Reading	Applied Math	Math Comp
Initial test score	-0.392***	-0.391***	-0.485***
	(0.00325)	(0.00419)	(0.00473)
Gain hours	0.00506***	0.0132***	0.0219***
	(0.00136)	(0.00160)	(0.00217)
Age	-0.448***	-0.382***	-0.121***
	(0.0193)	(0.0256)	(0.0246)
Female	1.107**	-2.186***	-2.809***
	(0.466)	(0.569)	(0.631)
Non-native speaker	-4.383***	5.174**	9.780***
	(1.491)	(2.316)	(2.573)
Constant	236.0***	231.2***	252.6***
	(1.908)	(2.386)	(2.435)
Observations	51,332	34,921	33,747
R-squared	0.227	0.210	0.246

Note. Skill gains of at least 90 gain days. Standard errors in parentheses.
*** p < .01. ** p < .05. * p < .1.

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Forum: Responses to Stephen Reder's Article

(Part 1 of 4)

Engagement Over Time: A Response to Reder's Longitudinal Study of Participation and Skill Growth

Gal Kaldes, Adult Literacy Research Center, Georgia State University

Reder (2026) makes an important contribution by leveraging longitudinal state administrative data to examine adult literacy participation and skill development across multiple years and providers. In a field where persistence is often framed primarily in terms of barriers and short-term engagement, the study highlights a more asset-oriented dimension of adult education. Although not explicitly framed in those terms, the findings reveal that a meaningful subset of learners sustain participation over extended periods and accumulate measurable gains.

The contribution also reflects an important distinction in how participation is conceptualized and measured. Earlier longitudinal work, including the Longitudinal Study of Adult Learning (LSAL), examined participation as a lived and contextualized process embedded in learners' goals, motivations, and everyday practices (Reder, 2012). In contrast, state administrative systems operationalize participation through enrollment episodes and instructional hours within an accountability framework. Participation is therefore represented as institutional exposure rather than lived experience. The present study works within this institutional definition, extending longitudinal analysis into the administrative data context. In this sense, administrative data records provide the institutional footprint of engagement over time.

A key strength of the study is the de-duplication of student records across program years. Because state systems typically report unduplicated participation within single years, multi-year trajectories remain hidden. This step does more than improve data accuracy; it fundamentally alters what can be observed. When records are linked across years, patterns of multi-year participation, re-entry after breaks, and movement across programs become visible. For example, a learner who attends briefly in one year, re-enrolls two years later, and accumulates additional instructional hours would appear in single-year reports as separate short-term participants. After de-duplication, that same pattern emerges as an extended participation trajectory with interruptions rather than fragmented episodes.

Furthermore, Reder's use of reconstructed data reinforces the importance of longitudinal linkage. In the present analyses, when student records are connected across program years, persistence appears more substantial and more varied than single-year reports suggest. About one-quarter of students exhibit participation spanning a year or longer, with wide variation in accumulated instructional exposure and common patterns of breaks and discrete periods of participation. The distribution of instructional hours further underscores this heterogeneity, with some students engaging briefly while others accumulate substantial exposure over time. Age differences across short- and long-term spans also suggest distinct patterns of engagement. Overall, these results indicate that participation in adult education is not uniformly episodic but instead reflects diverse trajectories that become visible only through longitudinal reconstruction.

In parallel with these descriptive trajectory analyses, Reder evaluates whether instructional exposure is associated with skill growth using predictive models that relate gain hours to assessed skill gains over extended intervals. Although total hours of instruction provide a useful summary of exposure, they do not preserve the timing, spacing, or continuity of participation that distinguish

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sustained engagement from intermittent participation or concentrated bursts of instruction. As a result, similar totals can reflect quite different participation processes, even when those totals are useful for estimating average relationships with skill growth.

A common way researchers address temporal dynamics in longitudinal data is by modeling repeated observations as nested within individuals across time. Reder's analyses does not apply such a nesting specification, and imposing one may not adequately capture the structure of participation observed in these data. In particular, a nesting structure applied uniformly across years may fail to represent the mobility that characterizes adult education participation. As reflected in Reder's descriptive analyses, students move across programs, experience interruptions, and engage at varying durations and intensities.

Therefore, future quantitative work could move beyond both cumulative totals and fixed nesting assumptions. Two extensions are especially important. First, participation can be modeled as a process unfolding over time rather than as a single accumulated total. Such approaches would allow participation trajectories—capturing the timing, continuity, and interruptions in engagement—to be modeled as predictors of skill development over time. Researchers could then examine how learning unfolds during sustained participation, how growth shifts after interruptions, and whether gains accelerate or slow over time. This perspective attends not only to how much exposure occurs, but to how learning progresses relative to timing and continuity. Second, analytic models could explicitly account for students' movement across programs and instructional contexts. Approaches that allow learners to be associated with more than one instructional setting over time can better represent this mobility and clarify whether differences in students' skill gains are primarily linked to individual persistence, program characteristics, instructional environments, or their interaction.

Expanding the analytic lens in this way does not eliminate the inherent limits of administrative records. Reder appropriately acknowledges that state administrative data do not capture learners' motivations, instructional content, classroom interactions, or the lived experience of engagement. They reflect institutional exposure rather than personal meaning-making. As discussed earlier, this represents a conceptual shift in how participation is defined.

Yet precisely because engagement is operationalized in this institutional way, it becomes even more important to examine the longitudinal structure embedded in these records. If participation is defined through attendance, enrollment episodes, and instructional hours, then patterns of accumulation, interruption, re-entry, and cross-program movement become central to the analysis. The limitations of construct dimensionality heighten the importance of temporal dimensionality.

Importantly, this quantitative infrastructure need not stand in opposition to interview-based research. Instead, the two approaches can be mutually informative. When attendance patterns are examined as longitudinal trajectories, they provide a structural context for interpreting individual narratives. For example, a learner may describe how their skills improved during sustained participation, or how they continued to make progress even after a short break from classes. Another learner might explain that after a lengthy period away they felt they had to relearn material they once understood. Rather than situating a learner's experience only within total hours of exposure, researchers can locate interview accounts within predictive models that link trajectories of instructional participation with changes in skill development over time. In this way, quantitative trajectory models clarify whether individual accounts reflect broader patterns of participation and learning or more exceptional experiences.

Taken together, Reder illustrates how longitudinal administrative data can reshape how participation is understood in adult education. By revealing sustained and varied engagement trajectories, it invites more refined modeling approaches and closer dialogue with qualitative research traditions. In doing so, it moves the field toward a more comprehensive understanding of persistence, development, and institutional context over time.

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http://doi.org/10.35847/JKobrin.8.2.32

Forum: Responses to Stephen Reder's Article

(Part 2 of 4)

Distance Education and Equity in Adult Education: Opportunities and Unanswered Questions

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As a scholar of technology in adult education (AE), I reflect on emerging questions about distance education in light of the findings of Reder (2026). While almost no learners in Reder's study used distance education in the 2007–2008 cohort, by 2018–2019, nearly 20% had participated in this format even as overall AE enrollment declined by more than two-thirds (Reder, 2026). This pattern reflects national and international trends following COVID-19. A large European study of nonformal programs reported that nearly half (47.8%) were conducted online between 2022 and 2025 (Karger et al., 2024). At the same time, Reder's findings may not fully reflect broader pre-pandemic U.S. trends. NRS data from 2016–2019 show less than 4% of learners enrolled nationally (though reporting discrepancies may account for some of the difference), with learners performing as well as or better than those learning primarily in person (Belzer et al., 2022; Vanek, 2022). As distance education becomes more central to program delivery in AE, its relationship to what Reder and others have found related to longer-term participation trajectories and skill development deserves closer examination.

Distance education has existed for decades in AE. Modalities continue to expand with available technologies and now include live, synchronous instruction online; asynchronous online instruction where learners complete activities independently; and hybrid approaches where some aspect of learning occurs in person (Cherewka et al., 2024). Distance education is defined through the NRS dataset used by Reder as a "formal learning activity where students and instructors are separated by geography, time, or both for the majority of the instructional period" (National Reporting System for Adult Education, 2025, p. 48). According to Cherewka et al. (2024), this reporting criteria has remained the same since the early days of distance education in the mid 2000s. Further, reporting on distance education at the state level is optional. If states require local agencies to report distance education, they must provide more specific guidance based on the above definition. In practice, this has produced wide variation in how states and programs interpret key terms such as *hybrid* or "the majority of the instructional period," complicating efforts to compare findings or identify best practices.

Much has been written about the affordances and challenges of distance education in AE, and Reder (2026) provides some new perspectives. First, Reder's findings highlight the nuances related to understanding who may (or may not) participate in distance education. Reder notes individuals who participate in distance education are more likely to be "female, native English-speaking, younger, and less educated" (2026, p. 13). The digital divide, which refers to gaps in technology access and skills, has been cited as a challenge related to distance education in AE (Belzer et al., 2022; Kobrin, 2024)

However, adult digital literacy is highly situational and complex, based on a range of factors such as an adults' values, needs, goals, and resources. For example, individuals who are less educated have been found to have lower digital skills according to the Program for the International Assessment of Adult Competencies (PIAAC), which might suggest they would participate in distance education less often (Mamedova et al., 2018). These same individuals are more likely to be smartphone-dependent (Gelles-Watnick, 2024), raising the possibility that they can participate in mobile-based distance education while struggling with computer- or tablet-based testing formats like the PIAAC.

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Such findings complicate simplistic assumptions about who can and cannot engage online.

Despite the digital divide, it has been widely recognized that distance education is more convenient for many adult learners, who often juggle multiple jobs, have childcare responsibilities, and struggle with the cost of transportation (Rosen & Vanek, 2017). Regarding individuals who were female, as Reder highlights, I wondered if distance education may reflect an opportunity for women with childcare responsibilities. Reder's findings regarding learners whose participation unfolds across multiple programs and time periods also introduce an additional dimension: flexibility not only within programs, but across them. For example, when my colleagues and I worked at the Office of Adult Education in Philadelphia, I implemented citywide asynchronous modules accessible across programs using a shared Learning Management System. Learners appreciated being able to pause and resume courses as needed, and being able to easily save their progress was appreciated by the providers. While challenges such as forgotten passwords and uneven access persisted, the model reflected the lived realities of adult learners' mobility. Distance education can be well-suited for learning over time, as previous coursework and topics can be automatically saved, making it easy to track progression and review.

As Reder (2020) has noted, adult learning should not only be lifelong, but also life-wide, encompassing a broad range of topics geared at civic, cultural, economic, and social participation. Based on my own research, low-income adults who lack basic reading and digital skills are using platforms like YouTube for diverse goals from home improvement projects, to learning about global cultures, to following their favorite performers. Given its reliance on videos, images, and other multimedia (with adults as not only consumers but potentially producers), distance education seems primed for content that integrates these broader goals and interests.

However, the absence of a shared understanding of distance education in AE makes identifying best practices for lifelong and life-wide participation challenging. As noted above, based on NRS data, we know that distance education is at least, if not more, effective than in-person learning. Important gaps in understanding remain. We should be wary of tendencies in AE to view technology platforms as a panacea that will address huge resource disparities in our field, which Vanek and Harris refer to as the "cool tools problem" (2020, p. 5). Distance education, like in-person instruction, is only as effective as its design and alignment with the needs of the population served. Robust research on adult learning and teaching, including andragogy, self-directed learning, culturally responsive instruction, etc., can guide promising approaches, but gaining large-scale investment might be difficult in the absence of much knowledge of what is happening already. I strongly agree with Cherewka et al. (2024) that the lack of alignment on different instructional modalities nationally makes any large-scale research on effectiveness challenging.

As distance education continues to expand, the field must not only develop shared understandings across states and programs, but also critically examine how specific distance education models can support long-term participation trajectories in light of Reder's findings.

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Forum: Responses to Stephen Reder's Article

(Part 3 of 4)

Performance vs. Learning: My Takeaways from Lifelong Learning in Adult Education

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Reder (2026) offers an important reminder that the benefits of adult education extend beyond our immediate interactions with a student. As a state staff member responsible for WIOA Title II reporting, I am acutely aware of how limiting some primary performance measures are at capturing adult education's full long-term impact. There are several conclusions that both confirmed experiences with my state's system and expanded my understanding of the issues and solutions.

I can attest to the difficulties states and local programs face in assigning unique identifiers for students across program years and providers. No matter how many data checks and processes we create, it is a constant effort to maintain clean longitudinal data on student progress. Seeing this data from another state is eye-opening, with almost half of students who participated in both multiple programs and multiple program years needing to be de-duplicated to demonstrate learning progress.

The point on the need to improve data systems and their ability to track students across providers and program years is critical for reasons beyond just accurate reporting. Dr. Reder points out that appropriately shared records increase our ability to serve students' needs. For instance, as we continue to prioritize contextualized learning alongside skills training through workplace literacy and integrated education and training, there could be more continuity in an individual's learning pathway. A student is unlikely to know that they previously attended classes with another WIOA funded provider in the state. There would be great benefit to knowing that the student previously worked toward a particular career pathway by obtaining introductory credentials, specialized instruction, or micro credentials.

Another important lesson is in the results identifying that students with longer, measurable skill gain periods have lower initial test gains and longer gain periods. Present National Reporting System (NRS) performance metrics likely favor students who learn and progress quickly, possibly due to their previous years of schooling or how recently they were enrolled. While these measures are obviously important for accountability purposes, they may disincentivize supporting students who were already left behind in the K-12 system due to a slower learning pace or an unidentified learning disability. We often hear from our providers about the difficulty in balancing these short-term performance targets with their charge to serve all students at every level. The measurable skills gain rate as currently defined would imply that, in many places, less than half of students make no progress at all. This 12-year longitudinal study suggests otherwise that many of those students without NRS "measurable skills gains" are demonstrating long-term improvements in their educational functioning level.

Dr. Reder outlines the implications of this in his research. The shorter-term "pipeline" skill development metrics are so established in many WIOA Title II funded adult education programs that they likely impact the student's experience and ability to learn. Recruitment and testing may be prioritized around arbitrary reporting deadlines rather than times that are more responsive to student needs. The analysis using gain days and gain hours, independent of program years or providers, offers a helpful assessment of adult education's impact independent of the strict guidelines for reporting a measurable skill gain.

While not the focus of the research, it further identifies an issue with retention in adult education, finding that a

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significant number of students had a zero-time span of participation and less than 12 total instructional hours. Adult education students have a uniquely high number of outside responsibilities, as well as significant time and resource constraints. State policies for student attendance and scheduling could be more conducive to long-term students with frequent breaks in attendance, considering these students are still able to make gains in the long run.

While I'm conscious of the large data gaps, I would be interested in further research on the student goals element. For instance, how many of the short time span students stopped out because they quickly met their educational or career goal? If this occurred prior to a post-testing period, measuring testing gains would not be relevant or possible. It was particularly interesting to me that only one in five long-term students ever take a GED® test. States and local programs have varying policies and practices that dictate when it is recommended for a student to move to testing on the GED, which could impact the timing of a long-term student's first GED attempt.

I would also be interested in the long-term skill gains of students who begin as English language learners and transition into ABE or ASE. For many of the same reasons laid out in the research, the NRS reporting structure gives us very little visibility into the long-term learning pathways of students who test out of ESL and start in ABE. In states with larger proportions of ESL participation, these students could be some of the students with the longest participation periods.

With the large body of evidence surrounding education and literacy's effect on our social and economic well-being, Dr. Reder's research offers an important perspective on the impact of adult education. Many states understandably prioritize shorter term and measurable educational progress, and there is work to be done continuing to quantify and communicate the unique long-term education gains of adult education students.

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Forum: Responses to Stephen Reder's Article

(Part 4 of 4)

Supporting Lifelong Learning while Addressing Basic-Need Barriers: A Practitioner Researcher Lens

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Author Note

It is a sincere privilege, especially as a long-time adult education (AE) practitioner and researcher, to have the opportunity to respond to Stephen Reder's most recent longitudinal study. The study's finding that adult learners' skill growth is systemically related to long-term instructional hours over time and across programs is important for many reasons; for me, however, as well as for others in the AE space, this finding is particularly important because it is such an unsurprising one for us. This, I believe, is what makes it so powerful.

As an experienced AE practitioner turned researcher, I've come to deeply value research, such as Reder's, because it unearths insights that adult educators—either intuitively or through hard-won experience—can see, allowing these insights to become visible outside the AE space. By sharing longitudinal participation patterns and skill growth of half a million adult learners in one state, Reder's study reveals many such insights, such as the vital understanding that AE supports lifelong and life-wide learning.

I believe that practitioners drawn to the AE field often share an awareness that educational trajectories, especially in adulthood, are less linear and more circuitous than traditional educational schemas; they also realize that this circuitousness is not necessarily wasted educational time. While learners may at one point stop-out of their programs, these same learners will also step back in, eventually making meaningful educational progress. For example, I've seen learners who, over extended periods of time, stop out and come back later; while they may remain within the same skill range for several periods of participation, there comes a point where they make skill-range leaps, moving from a linear point A to G on an educational trajectory. In stopping-out to when they step in again, AE learners can find themselves stepping backward into a slingshot.

Similarly, Reder—in both his current study as well as in previous studies (Reder, 2008)—provides evidence that the impacts of program participation take place gradually over time, often taking three to five years to fully develop. This evidence, Reder explains, provides strong support for practice engagement theory (PET), which posits that there is a reciprocal relationship between skill growth and skill use in everyday life over time. Unfortunately, as Reder points out, because only short-term metrics are used to measure AE effectiveness, the effects of PET are difficult to identify and report on, discouraging AE research from "conceptualizing program participation and skill development as part of lifelong learning" (Reder, 2026, p. 6).

Like Reder, I also believe that the AE field suffers by not recognizing this type of learning—learning that is not easily assessed in a one-year program time span using only standardized assessments. By not doing this, the field misses out on conveying AE's potential to provide adults with deep and meaningful learning experiences. Despite historical and current tensions around the purpose of AE programs (Prins, 2020), some form of learning is still taking place, whether learners are enrolled in Adult Basic Education (ABE) or higher-level certification programs. And this learning can foster engagement in practices outside the classroom, reinforcing and building upon programmatic learning over time, resulting in an education "that serves as the social practice of human

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development, potent with possibilities for awakening the efforts that mark us as human" (Allen, 2016, p. 50). This, I believe, is worth a better understanding.

However, in addition to better understanding the learning reciprocity that happens within extended periods of participation, I also believe it is imperative to better understand and address the barriers that can cause constant disruptive patterns of participation.

I first began questioning Maslow's Hierarchy of Needs when I was a beginning AE instructor. I replaced the Pyramid's hierarchical lines with the same circuitousness I had mapped onto an adult learner's traditional linear educational trajectory schema. It went something like this: AE learners need their basic needs met in order to attend AE programs, yet many learners do not have their basic needs met, so they need to attend programs so they can position themselves to meet their basic needs.

During the last decade of my AE career, I have been working with the Academy of Hope (AoH) Adult Public Charter School in the District of Columbia. The District is rare in that it is home to over 10% of adult charter schools in the nation (Simpson Baird, 2020). As one of the nation's largest adult public charter schools, AoH operates within a governance model that allows for instructional innovation while maintaining accountability for outcomes. This flexibility enables AoH to offer an array of AE services, such as beginning literacy and numeracy, Integrated Education and Training (IET), high-level credentialing, and postsecondary preparation.

In addition, AoH is also able to provide critical wraparound support. After years of experience in the AE field, AoH recognized that education alone could not sufficiently address the inequitable societal and systemic barriers facing many learners. AoH also realized that adults could not wait for these barriers to be completely addressed before successfully participating in AE programs.

Through various funding sources, AoH has been able to provide student support specialists who work with at-risk stop-out learners, providing both short- and long-term resources. For example, AoH recently started a small Emergency Fund Program to help students at dire risk of losing housing or having utilities disconnected. While emergency assistance addresses immediate crises, its strategic purpose is long-term persistence. Even brief stabilization can extend a learner's enrollment trajectory, increasing cumulative instructional hours, skill growth, and, ultimately, lifelong learning.

AoH is beginning to work with national research organizations to help us use our own program data to both better understand how barriers, such as housing instability and food insecurity, may affect periods of participation, as well as how our interventions may be helping to address these barriers to support longer periods of participation. However, to do this well, we are contending with the same data collection challenges that Reder discusses in his closing. Like many AE institutions, AoH faces structural constraints in collecting longitudinal outcome data beyond compliance requirements. I join Reder in urging the field to invest in data systems that extend beyond short-term compliance reporting to truly better understand lifelong learning.

I end with thanking Stephen Reder for this study. It has not only re-inspired my own resolve to meet the challenges of collecting robust programmatic research data; it has also reminded me of the importance of persevering toward the building of a lifelong and life-wide learning AE research agenda.

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Report from the Field

Multimodal Professional Development: Empowering Educators with Digital Literacy Competencies

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Abstract

This paper presents reflections from the developers of a professional development program designed to address critical gaps in digital literacy training for educators. Drawing from program evaluation results and their experiences developing and facilitating the program, the authors highlight strategies emphasizing accessibility, hands-on engagement, and practical application. Delivered through five interactive webinars, the program incorporated globally recognized frameworks, equipping educators with tools to align digital competencies with instructional and workforce readiness goals. Participating educators engaged in practical activities, including lesson planning and assessment, to immediately apply their learning. Guided by learner experience design (LXD) principles, program developers prioritized relevance, engagement, and flexibility through multimodal resources such as blogs, podcasts, and an online learning community. Their reflections focus on key design decisions, challenges encountered, and lessons learned, offering insights for future professional development initiatives to empower educators.

Keywords: digital literacy, professional development, competencies

Professional development remains a cornerstone of effective learning, particularly in the rapidly evolving technological landscape. However, many educators need help accessing professional development opportunities that equip them with the tools to integrate digital literacy into their teaching. Effective professional development is typically ongoing, content-focused, and aligned with educators' needs (Escamilla et al., 2023). This contrasts with traditional "one-shot" workshops, often lacking follow-up or context-specific relevance (Guskey, 2002; Sainz & Wang, 2022).

For educators, fostering digital skills is critical to preparing learners for success in a technology-driven world. The webinar program "Training ABE/GED Instructors and Practitioners to Integrate Digital Literacy Competencies into Their Teaching," funded by the Arthur (Jack) Payne Crabtree Memorial Fund under the auspices of the American Association for Adult and Continuing Education (AAACE), sought to bridge these gaps. This program not only addressed the critical need for accessible, relevant, and actionable professional development but also introduced innovative strategies for engaging educators in meaningful learning experiences.

This paper presents reflections from the webinar developers, drawing on the formative and summative evaluations and their experiences designing and facilitating the program. We share lessons learned about effective design strategies, challenges encountered, and insights gained from implementing the program in real-world adult education contexts. These practitioner-based reflections offer a grounded perspective on how digital literacy professional development can be made more accessible, relevant, and impactful for literacy educators.

Professional Development Gaps

Despite the increasing emphasis on technology in education, many educators need more training to integrate digital literacy effectively into their instructional practices. This gap is particularly pronounced for educators working with adult learners, who face significant barriers such as limited access to technology or limited foundational digital skills. Research by Vanek (2017) highlights the challenges adult learners encounter in technology-rich environments, making it even more imperative for educators to be proficient in teaching digital competencies. Moreover, the U.S. Department of Education's LINCS (2023) initiative has identified a critical need for professional development that addresses these challenges. With such training, educators can avoid perpetuating the digital divide disproportionately affecting marginalized adult learners.

Our Approach: Hands-On Engagement and Innovative Support

To address these challenges, we employed a hands-on, interactive approach to professional development while incorporating innovative strategies for engagement and support. We offered five webinars during which participating educators (hereafter referred to as educators) engaged in activities emphasizing the practical application of digital literacy competencies. These sessions combined foundational knowledge with real-world instructional strategies, such as designing competency-based lesson plans and using assessment tools to measure learners' progress. By incorporating structured frameworks, we ensured educators could immediately apply what they learned in their classrooms.

The program's relevance was a critical factor in its effectiveness, as it directly addressed the pressing challenges educators face in integrating digital literacy into their teaching. We ensured the program content was informative and practical by focusing on skills and strategies educators could apply to their unique contexts. The webinars included case studies and real-life scenarios that resonated with the professional experiences of the educators, making the training immediately applicable.

Accessibility was a central feature of the program. Recognizing the diverse schedules of educators, we offered the webinars in live and recorded formats, which allowed educators to engage with the content at their convenience, significantly increasing participation and impact. The program also leveraged the Adult Learning Exchange Virtual Community (SCOC Consulting, 2026) to provide additional support. This online platform, discussed in more detail later, features curated resources, including blog posts and podcasts that reinforced the learning objectives of the webinars. The integration of these resources extended the program's reach and fostered a supportive learning community among educators.

TABLE 1: Webinar Title and Description

Webinar Title	Description
1. Foundational Knowledge of Digital Literacy for ABE/GED Instructors and Practitioners	Introduced key definitions, perspectives, and significance of digital literacy for adult learners. Explored the evolving role of educators in technology-rich environments and laid groundwork for competency development.
2. Digital Literacy Competencies for ABE/GED Teaching	Presented four digital literacy frameworks—DigComp 2.2 (Vuorikari et al., 2022), the College and Career Readiness Standards for Adult Education (CCRS) (Pimentel, 2013), the UNESCO Digital Literacy Global Framework (Law et al., 2018), and the Digital Literacy Framework for Adult Learners (Maryland Department of Labor, 2021)—and demonstrated their classroom application.
3. Digital Literacy Competencies for Instructional Practice	Focused on designing curriculum-aligned instructional activities using digital competencies. Explored lesson-planning approaches grounded in the competency-based frameworks.
4. Digital Literacy Skills for ABE/GED Learners' Entry and Participation in the Workplace	Addressed workplace readiness and the digital skills needed for employment. Explored strategies for aligning instruction with the Workforce Innovation and Opportunity Act (WIOA) (U.S. Department of Labor, 2014) priorities.
5. Assessment Strategies for Determining ABE/GED Learners' Acquisition of Digital Literacy Skills	Examined formative and summative approaches to assessing learners' digital literacy. Provided tools for evaluating learning progress and identifying instructional next steps.

Webinar Topics: Bridging Knowledge and Practice

The webinar series addressed the multifaceted needs of educators seeking to integrate digital literacy into their instructional practices. Each of the five sessions focused on a specific aspect of digital literacy, progressing from foundational concepts to applied strategies. An average of 50 educators registered for each webinar, representing various roles (i.e., instructors, program directors) and instructional settings (i.e., higher education, adult literacy). By combining theoretical frameworks, practical tools, and interactive engagement, the webinars offered educators a structured and scaffolded professional development experience. Table 1 summarizes each webinar's focus, demonstrating how the program bridged knowledge with classroom application.

This sequence of webinars equipped educators with a well-rounded understanding of digital literacy and actionable strategies for instruction. Integrating national and global frameworks and tools such as Northstar Digital Literacy and GCF Learn Free enabled educators to align their teaching with educational and workforce readiness goals. By linking knowledge to practice, the webinar series fostered the development of digital literacy instruction that is relevant, accessible, and responsive to learners' needs.

Multimodal Approach for Sustained Learning

In this program, we introduced an innovative feature by using a multimodal approach that integrated various content formats—text (blog posts), audio (podcasts), and live/recorded video (webinars)—to support diverse learning preferences and reinforce key concepts. These resources, accessible via the Information Literacy category of the Adult Learning Exchange Virtual Community (SCOC Consulting, 2026), were explicitly curated to align with the webinar topics, allowing educators to delve deeper into key concepts at their convenience. The blog posts provided insights into practical strategies, instructional techniques, and case studies. At the same time, the podcast episodes featured expert discussions and interviews that contextualized digital literacy within the broader scope of adult education. This multimodal approach enriched the educators' understanding and addressed diverse learning preferences by offering visual, written, and auditory formats. These resources acted as a bridge between the live sessions and educators' ongoing professional development, allowing them to revisit and apply the knowledge long after the webinars concluded. By leveraging these digital platforms, the program demonstrated a forward-thinking strategy for creating a sustained and dynamic learning environment.

Guiding Design Principles: Focus on Learner Experience

The professional development program was grounded in learner experience design (LXD) principles**,** as Conceição and Howles (2021) articulated. LXD emphasizes intentional, participant-centered learning environments integrating learner needs, relevant content, and interactive engagement. These principles informed our choices around structure, delivery, pacing, and resource integration to ensure the program was responsive to the realities of adult educators.

A core tenet of LXD is centering the learner's context. We identified educators' time constraints, instructional challenges, and digital skill levels. In line with adult learning principles, highlighting the importance of self-direction and relevance in adult education (Merriam & Bierema, 2014), we offered live and recorded webinar options and asynchronous blogs and podcasts. This flexible format allowed educators to access content on their terms, promoting autonomy and increased participation (Conceição & Howles, 2021).

To reduce barriers to engagement, we prioritized a clear and coherent structure. Each session had specific learning objectives and a logical progression built on previous content. Educators moved from foundational knowledge of digital literacy frameworks to more advanced applications like curriculum design and assessment strategies. For example, we presented five occupational case scenarios in lesson plans relating job requirements to digital competencies based on a literacy framework. This approach supports effective adult learning by providing scaffolding and reinforcing continuity, helping educators connect theory to practice (Merriam & Bierema, 2014).

Interactive elements were embedded throughout the program to encourage reflection, collaboration, and dialogue. These included real-time polls and peer discussions. This design reflects the principles of social learning and constructivism, which suggest that learning is deepened through shared meaning-making (Vella, 2002). Educators also had access to the Adult Learning Exchange Virtual Community, which extended learning beyond the webinars and supported sustained professional networking.

In alignment with LXD, we designed for multimodal engagement by incorporating a range of formats—visual, auditory, and experiential. Podcasts and blog posts allowed educators to revisit key concepts differently, enhancing retention and offering flexibility in how content was consumed (Conceição & Howles, 2021). These diverse materials supported educators with varying learning preferences and levels of comfort with digital platforms.

The program emphasized authentic application by giving educators multiple opportunities to use what they learned in real-world contexts. Activities included designing lesson plans with digital literacy frameworks, exploring tools like Northstar Digital Literacy, and engaging in workplace-related instructional planning. This hands-on focus aligns with research on effective professional development, consistently highlighting the importance of job-embedded, practice-oriented learning (Sainz & Wang, 2022).

Assessment and feedback were integrated to support educators' reflection. Formative assessments, including polls, helped educators track their learning during sessions, while end-of-session surveys offered a space for deeper feedback. This continuous feedback loop is central to learner-centered design and ensures the professional development remains adaptive to educators' needs (Conceição & Howles, 2021).

By drawing on LXD and adult learning principles, the program created an informative and empowering professional development experience. Educators were supported in developing skills, building confidence, and translating new knowledge into instructional practices that support digital equity.

Program Evaluation

Designing and implementing this professional development program offered important insights into the opportunities and challenges of supporting educators in building digital literacy competencies, as documented through the formative and summative evaluations required for the Crabtree grant. The formative evaluation revealed strong participant engagement and appreciation for the content's relevance to ABE instruction. Educators valued integrating digital literacy into existing curricula, the practical application of instructional frameworks, and the usefulness of strategies for supporting learner persistence and addressing real-world challenges. They reported increased confidence in teaching digital skills, designing competency-based instruction, and assessing learner progress. While some noted a need for a slower pace, the overall feedback was positive, with interest in future sessions focused on differentiated instruction, plain language, and digital communication.

The summative evaluation confirmed that participants found the series valuable, informative, and professionally enriching. They highlighted the content's engaging facilitation, practical strategies, and immediate applicability, particularly its connection to workforce readiness and peer collaboration. Educators also appreciated the flexibility of recorded sessions, reinforcing learning and accommodating scheduling needs.

Lessons Learned

As program developers, we reflect on several design-related lessons that informed our approach's effectiveness and areas for growth. A key lesson learned was the importance of flexible design to meet the diverse needs of adult educators. Offering live and recorded webinar sessions allowed educators to engage with the content according to their schedules and time zones, increasing accessibility. However, this flexibility introduced a design challenge: creating a cohesive learning experience across synchronous and asynchronous formats. Educators who relied on recordings often missed opportunities for peer interaction, limiting their engagement with the program's collaborative aspects. In future iterations, we plan to integrate structured, asynchronous discussion prompts and peer exchanges to extend the community experience to all educators.

Another important takeaway was the value of practical, hands-on activities embedded within each session. Educators responded positively to activities such as designing digital literacy lesson plans and applying assessment tools, describing them as immediately applicable. While this application-based design strengthened relevance, we encountered a challenge in managing pacing and cognitive load. Some sessions attempted to cover too much content quickly, leaving little room for reflection or deeper exploration. Future program design will strategically space sessions and incorporate follow-up assignments or asynchronous extensions to support reflection and practice.

Our multimodal approach was another effective design element that supported different learning preferences and reinforced core content. However, integrating these resources also posed navigation and access challenges for some educators, particularly those with limited digital skills or restricted access to specific platforms (e.g., institutional firewalls blocking podcast access). These challenges highlighted the need for clearer instructions, simplified access points, and alternative formats such as transcripts and printable summaries to ensure universal accessibility.

We also learned that while the program's learner-centered design promoted relevance and autonomy, it required a more differentiated structure to accommodate educators' varying levels of digital fluency. Some educators desired more advanced content, while others needed foundational support. Designing for this range within a single program was difficult. Future iterations may benefit from offering tiered pathways or optional breakout sessions tailored to different experience levels.

Lastly, collaborative elements like discussions and the Adult Learning Exchange Virtual Community supported professional dialogue and peer learning. However, sustaining engagement in the online community beyond the live sessions proved difficult without built-in structures or ongoing facilitation. This revealed the need to design for continuity, possibly by including post-program activities, discussion prompts, or a facilitator's presence to maintain momentum and deepen connections.

These lessons underscore the importance of designing flexible, inclusive, practically grounded professional development responsive to educators' varied experiences. By addressing the design-related challenges encountered, such as pacing, access, digital fluency variation, and asynchronous engagement, future programs can better support educators as they build the skills needed to integrate digital literacy into adult learning contexts.

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Report from the Field

Retention Through Texting

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Like many programs, at Lewis and Clark Community College (LCCC) Adult Education program, we struggle to retain learners. LCCC offers an Adult Education program that serves the riverbend region of Southern Illinois. Our main campus is roughly 30 minutes north of St. Louis, Missouri. We offer free, multi-level Adult Basic and Adult Secondary Education (ABE/ASE) non-credit classes that can be attended in person or via Zoom. In fiscal year 2024 (FY24), we served 429 adults who attended class for at least 12 hours. While we have an ESL program, the majority of our learners are adults between the ages of 16 and 24 who are enrolled in our high school equivalency (HSE) program. We have noticed that learners who make it past the first 12 hours of participation are more likely to stay enrolled. In this paper, I describe an action research project that I conducted to explore a more systematic approach retaining students in the early days of their program participation.

In FY23, about 18.5% of our learners never made it to 12 attendance hours. Even though 81.5% of our learners completed 12 or more attendance hours, nearly half did not earn the required 40 attendance hours to take the post-test in reading and math using the CASAS GOALS. In all, 57.4% of learners who enrolled in our program stopped out before they had a chance to achieve a Measurable Skill Gain (MSG). We are not alone in facing this challenge. An Illinois Community College Board Retention Specialist reported that an analysis of FY20 and FY21 enrollment data indicated that 40–50% of learners in the state leave their programs before reaching 12 attendance hours.

At LCCC, there are two types of staff who are most likely to reach out to learners with poor attendance: pathway advocates and class coordinators. Advocates do initial intake and contact learners periodically through their enrollment. Coordinators often teach the classes they coordinate and are responsible for overseeing day-to-day class operations. Because coordinators record attendance, they are the staff members most likely to become quickly aware of a drop off in participation. However, we do not have a standardized approach to contacting learners who start missing classes. Keeping track of whose attendance is lacking and when, and then reaching out to each learner individually, can be a challenging task for anyone. This is especially true when coordinators are part-time employees. A solution is necessary that will enable educators to contact new learners regularly without it being burdensome.

Guiding Research: "Teacher Immediacy"

In his study on learner retention, Quigley (1998) observed that helping learners stay past the first three weeks of enrollment is crucial to their longer-term retention. As a way to address this, he draws on the work of Christophel and Gorham (1995, as cited in Quigley, 1998), who identified the importance of "teacher immediacy," in which the teacher works quickly and explicitly to develop a relationship with learners. The term also implies that learners have the space and time to communicate their own personal learning needs to their teacher and receive the support and help they need. Quigley found that teacher immediacy plays a critical role in retention. While it might not be equally important for all learners, it is especially crucial for learners "who probably have the highest chance of dropping out in the first few critical weeks by virtue of the dispositional barriers they must overcome" (Quigley, 1998, p. 9). Quigley's study largely focused on barriers as they relate to motivation. Using a three-step interview process, Quigley and his team attempted to ascertain factors that may lead to a learner

becoming unmotivated and ultimately separating from the program. Among the factors that were identified were "skepticism, hostility, hesitancy, and uncertainty" (Quigley, 1998, p. 9). Quigley attempted to link these behaviors to a learner's prior educational experiences. He then sought to use teacher immediacy as a way to mitigate the impact of negative past experiences on a learner's future education. Surprisingly, he found that the means by which teacher immediacy was established was less important than simply receiving some kind of targeted intervention aimed at developing teacher immediacy. Despite using a variety of interventions—counselor support, small class sizes, and one-on-one tutoring—Quigley determined that learners who received any of the interventions were more likely to remain in their programs. The priority is to immediately provide support for learners with potential barriers from the start, especially during the first few weeks of class.

Despite its age, Quigley's research correlates with more recent research. Fong (2017) and his team found "motivation and self-perception to be the strongest predictors of achievement and persistence for community college students" (as cited by Schneider, 2022, p. 31). Schneider, in his article that evaluates community college retention efforts, concludes that community colleges need to be cultivating "institutional attachment" through "embedded retention and early intervention" (2022, p. 33). Schneider observes that "community college students make their strongest connection in the classroom," and that, because of this reality, educators are on the front lines for creating and sustaining these connections (2022, p. 35). The implication here is that educators are building relationships with their learners and that these relationships play a critical role in student perseverance.

Establishing Teacher Immediacy Through Texting

Admittedly, Quigley's research is dated. It is striking, however, that despite the nearly 30-year gap, Quigley's observations still seem timely. This inspired me to develop an innovation that would not only bolster retention but also be sustainable. I decided to try fostering teacher immediacy through texting and conducted an action research project to understand the impact of this effort. Although Quigley identified specific learners upon enrollment for special attention during their first three weeks, for simplicity I texted all learners in week one and then focused on those showing attendance difficulties during the next two weeks. Retention rates were then evaluated for the learners who were texted and compared with learner data from a previous semester.

In choosing this innovation, I recognized that one major change since Quigley conducted his research is the potential of technology in developing teacher immediacy. In my experience, learners prefer texting to phone calls or emails. Phone calls may go unanswered, especially if learners do not recognize the caller number. In a text, however, I am able to identify myself, thus making a prompt response more likely. While this is also true of emails, learners who were interviewed during this project found texting to be more convenient and personal.

Some studies have concluded that individualized texting to learners can contribute to their academic progress (Alamprese et al., 2022). Academic progress is less likely if learners are not retained in programs. The first step is to improve attendance. My approach was to establish teacher immediacy by texting learners. In this way, I could build personal connection, offer support, and answer questions using a convenient and sustainable strategy.

Action Research Procedure

Based on Quigley's research and the affordances of texting, my plan was for learners to receive interventional texts from me when they missed three or four classes in a row, and again if they are dropped from the class. The hope of this proposed strategy would be to foster teacher immediacy during the first three weeks of a learner's enrollment in class. I anticipated that this would increase learner retention rates and course completions. Because our program already had a shared Google Voice (GV) account to call or text learners, I had a texting tool at my disposal.

GV has several advantages. Teachers do not need to use their personal phone numbers to keep in touch with learners. It also keeps our text and call history in one place, accessible to our entire staff. Moreover, GV can be used via a computer or phone app, so it is easy to access.

Unlike Quigley, who focused on learners with potential barriers, I first texted all new learners in one of my classes

that meets four mornings per week. Texts were sent during the first three weeks of our Spring B (March–May 2024) and Summer A (May–June 2024) semesters. Although I taught as part of a team during these two semesters, I took responsibility for texting learners during this action research project.

At the end of the first week of class, I sent learners the first text: "Hi Chris, this is William at Lewis & Clark. Thanks for joining our class! How was your first week?" My hope was that they would view this text as a personal invitation to start a conversation with me and feel encouraged to share any needs or questions they had. Then, if the learner missed a few classes in a row, they would receive another text: "Hi Chris, this is William at Lewis & Clark. How are things going? Is there anything we can do to help you?" And finally, if a learner had been dropped from the class, having missed it at least six times in a row, I once again encouraged them to return to class: "Hi Chris, this is William at Lewis & Clark. We miss you in class! Is there something our program can do to meet your needs better?"

After three weeks, I invited learners to discuss, either in person or over the phone, their experience of being texted. I asked whether they found the texts helpful and motivating. The goal of these interviews was to determine to what extent these texts played a role in developing teacher immediacy and supporting retention.

Results

The learners in this study can be organized into three different categories: those who did not respond; those who responded, and the texts helped them; and those who responded, but the texts did not help them.

A large percentage of the learners who were texted did not respond. In Spring B, 40% of the learners did not respond; in Summer A, almost 62% of learners did not respond. Of those who did respond, I tracked if and when they dropped from the class. In Spring B, about 17% of responders dropped in the first three weeks. 50% completed the eight-week class. In Summer A, early drops were similar, but completions improved significantly: 20% of responders dropped in the first three weeks, and 80% completed the class. For context, I compared this data to learners from the previous semester who did not receive texts. 10% of learners dropped in the first three weeks during Spring A, before the intervention was implemented. 60% of Spring A learners completed the class.

The retention data are inconclusive, but learner interviews told a different story. Every learner who participated in the interviews spoke positively about their text exchanges. For example, JM, with whom I had had an ongoing texting conversation, missed five straight classes during Spring B. After this string of absences, I reached out again, letting him know he was missed in class. He responded positively, indicating that he had "just been busy." I encouraged him to return to class, indicating that we have multiple learning options such as evening and Zoom classes. The very next day he returned to class. In an interview, he reported that our text conversations motivated him to return. "It made me feel good," JM said, "knowing that you guys care. … I'm just glad that you text me to check in." Although I never asked what kept him away, it seems clear that texting brought him back to the program. Importantly, he was one of many learners who indicated that it was important that they heard from their teacher, as opposed to another staff member.

Despite this positive feedback, I was surprised and a bit disappointed by the low response rate that the text messages received. Evidence from student interviews was clear: those who responded to these texts appreciated the outreach. And yet, large percentages of our students did not respond. What could explain this apparent contradiction? It is important to note that lack of responses does not necessarily imply that the texts were unhelpful. For instance, interviews revealed that some learners do not always have their own phones and thus texts may not reach their intended recipients. For example, CR explained that when he first enrolled, he provided his grandmother's number because he did not have a phone at the time. Another learner, KW, was sharing a number with a guardian.

Among those who responded to our texts, not all learners completed. For instance, in Spring B, three learners dropped before the end of class, with only one doing so during the first three weeks. They had various reasons for dropping. For instance, one learner reported childcare and scheduling issues. On multiple occasions, another learner shared via text that her work hours would not allow her to attend class. One positive, however, was that she felt comfortable regularly updating me on her work

schedule. This gave me hope that, if her schedule changed, she would return to the program. For another learner, the class was not a good fit for him because he only needed math assistance to complete his GED, which he could get using an asynchronous online learning platform the program offers. Another learner for whom texting was ineffective, SJ, pre-tested at NRS Level 6 in reading and math. She stopped attending because she did not need our classes to pass her GED tests. These learners' situations could not be addressed through teacher immediacy and make it clear that retention need not always be the goal. This makes it important to distinguish between learners who found getting texts helpful and those who do not need them. Some learners may already have the skills and motivation that teacher immediacy could otherwise foster; text messages may not alter their academic trajectory. For others, however, texting with their teacher may be a source of advocacy and support that they might not otherwise have in their educational journeys.

Based on interviews with learners, it seems that texting does help establish teacher immediacy. Our learners appreciated that they received individualized attention via texting. I think this would be especially helpful for programs that have larger class sizes where it is easier for learners to fall through the cracks. This potential problem can be addressed when learners receive personal communication from their teachers. Although my experience suggests texting might not work for all learners, if the hope is to build teacher immediacy, texting can be an effective strategy that is faster and more convenient than phone calls or emails.

Texting as a Sustainable Source of Teacher Immediacy

Beyond effectiveness, programs that want to adopt an approach similar to mine must develop a systematic plan that determines the logistics of sending these text messages. Many questions must be addressed, including: Who does the texting? What platform is used? When are learners texted? Which learners should receive texts? What content will be included in the text messages? There is no one correct answer to these questions, but once they are answered, procedures can be developed and implemented and then evaluated to engage in continuous improvement. However, as these procedures are implemented, it is vital that programs not create undue responsibilities on their instructional staff. In this study, it was clear that a shared texting account made texting easier.

Lessons Learned and Next Steps

Even though the quantitative data demonstrated inconsistent results, I believe that a longer-term study could demonstrate effectiveness. Even though it may not be a silver bullet that fully solves retention challenges, it is a relatively small-scale intervention that might be just what some learners need to help them stay on track in reaching their goals.

The importance of providing retention support interventions for new learners in the first three weeks of class is well documented. However, this begs the question: are the first three weeks of class a vulnerable time for all learners, or do potential barriers make some learners particularly vulnerable? For my research, I started by texting all new learners to see how doing so would affect our retention rates. This strategy also provided a baseline of data with which to compare future studies. Nevertheless, it is clear from my research that some learners did not benefit from these text messages. For some, this was due to having fewer barriers. Others never received the texts. And some had barriers that could not be addressed through teacher immediacy. Moving forward, I would like to target our text messaging toward learners who need help the most. However, determining who needs such intervention can be challenging. Quigley did extensive screening to identify learner barriers, but his methods seem impractical and unsustainable for most programs.

One approach would be to develop a system for identifying learners' barriers to perseverance. Our department already collects data during our intake process that may offer insight. For instance, new learners are given the opportunity to share personal academic challenges and resource insecurities. With such information, a list of potential barriers could be drafted. Based on these markers, learners with certain barriers could be flagged to receive text messages. Then, I could compare the data, seeing if our retention rates increase. If not, perhaps the list of barriers would need to be modified.

With that said, there is a chance that our indicators may not adequately identify all of our learners who may need additional support. If we only text learners who identify as having potential barriers, we might miss some learners who

would genuinely benefit from additional communication. Thus, a potential solution would be to start the process by simply observing and acting on the first signs of poor retention. Perhaps a text should explicitly acknowledge that the learner may be having difficulty attending class, and then ask what can be done to help.

No one single intervention can be effective for all learners. For example, when attempting to foster teacher immediacy through texting, we must be mindful that one intervention may not reach all learners and thus consider the importance of a range of strategies to reach them. If it is financial barriers, for instance, that prevent these learners from sending and receiving texts, these same barriers might put them at greater risk for stopping out of class.

Overall, more study is needed to determine the efficacy of alleviating learner barriers through texting. Retention-oriented texting appears promising as one way to foster teacher immediacy, particularly in the first few weeks of a class. From my experience, texting learners seems to be low-cost with respect to expense and time commitments. Furthermore, learners responded more favorably to texting than other forms of contact. However, future studies may gain insight by considering other variables, such as the specific content and frequency of teacher-learner texts and specific learner circumstances.

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Report from the Field

Strategies and Tools for Learning High Frequency and Domain-Specific Vocabulary for Adult English Language Learners

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Abstract

The goal of the project described here was to expose advanced English language learners (ELLs) to a variety of strategies and tools for learning high frequency and domain-specific vocabulary in order to facilitate recall and retention while contributing to the overall language acquisition process. With self-confidence as a driving factor in developing productive language skills, the correlation between self-confidence and improvement of language skills was also considered.

Key words: action research, vocabulary acquisition, language skills, learning strategies, learner autonomy

Preparing adult English language learners (ELLs) to enter the workforce or enroll in postsecondary education means not only building their language skills but also teaching them strategies that enable them to continue developing language skills independently. At the foundation of language lies the development of vocabulary. This paper describes an action research project I conducted that aimed to expedite students' vocabulary acquisition by systematically presenting and practicing high frequency and job-specific vocabulary while raising awareness of learning strategies and tools that promote the development of learner autonomy.

Context of the Project

The words we teach, the way we teach them, and the tools that students find useful for learning will vary depending on context, level, and individual student needs and preferences. Because successful learners use a wide variety of learning strategies, instruction should reflect this (Chacón-Beltrán, 2018). The action research project I implemented with advanced level learners participating in an Integrated Education and Training (IET) program at a community college in Pennsylvania attempted to accomplish this. The 192-hour Pharmacy Technician IET program, the focus of this project, entailed 64 hours of workplace preparation, 64 hours of job training, and 64 hours of adult basic education (ABE). This course was co-taught by a job trainer and me, an ESL instructor. I worked with a cohort of 10 students twice a week for a total of six hours focusing on language learning. To

participate, students had to test at NRS level 5 or 6 as measured by the CASAS STEPS test. Most students started learning English less than five years prior to starting the class (90%), and all have lived in the U.S. for under five years. While 80% used some or a lot of English at work, 70% did not use it at home. All of the students completed high school, with 30% having completed a technical degree or some college and 20% having completed postsecondary. The majority of the students in the cohort were native Spanish speakers (70%), followed by Ukrainian, Japanese, and Pashto.

This intervention was designed to reflect student goals of expanding their vocabulary base and communication skills while supporting my goal of adding structure and consistency to my lesson plans. Additionally, I recognized the need to develop learner autonomy and support self-confidence. This paper describes new practices I adopted to improve my teaching while addressing learners' needs.

Selection of Vocabulary

Many language practitioners advocate teaching from the Academic Word List (School of Linguistics and Applied Language Studies, n.d.). However, considering not all students expect to transition to postsecondary education, I believe the New General Service List (NGSL) provides a more practical and useful reference. The NGSL 1.2 is a 2,800 word list of the most high-frequency words in the English language based on corpus linguistics research (Browne, 2024). Although the native speaker knows an average of 25,000–30,000 words, these 2,800 words cover 92% of words used in most English texts. Essentially, learning these 2,800 words is a shortcut to understanding written and spoken text.

For my eight-week project, I narrowed this list down by selecting words based on relevancy to the Pharmacy Technician course materials and analysis of data collected from vocabulary self-evaluations of previous advanced level students. In addition to high frequency words, I also selected domain-specific pharmacy words. These were selected based on frequency in textbooks, class materials, and lecture content as well as relevancy to daily life. Researchers in language acquisition recommend teaching anywhere from 8–20 words per week (Rossiter et al., 2016; Sedita, 2023). Considering the advanced level of my students, I determined that 14 vocabulary words per week would be a manageable cognitive load.

Vocabulary Learning Process

Over my teaching career, I have observed that many students are neither cognizant of how they learn nor aware of techniques to improve their learning strategies. For example, learning new vocabulary requires repeated exposure and use of new words. Schmitt (2008) and Webb (2007) indicate that learners need 8–10 exposures to learn the meaning of new words (as cited in Rossiter et al., 2016). While teachers may know this, many students may be unaware of the importance of repetition. Additionally, by developing students' awareness and interest in words, we can increase word consciousness and thereby facilitate learning (Khamesipour, 2015). My intention in this project was to develop this consciousness.

Research further reveals that an explicit strategy approach to instruction enhances learners' awareness of learning strategies, provides opportunities to select and practice these strategies, and promotes feedback and reflection on them (Dörnyei, 2006, as cited by Raoofi et al., 2014). One effective approach for teaching vocabulary is for students to directly learn words by definition or example prior to other learning tasks (Khamesipour, 2015). Several studies link the development of understanding vocabulary with meaningful opportunities to interact with a new word, practice words in multiple contexts, analyze word parts and meanings, and internalize the words within their multiple contexts and relevant application (Beck, McKeown & Kucan, Larrotta, Marzano, Nisbet cited by Madrigal-Hopes et al., 2014). The challenge for teachers is how to effectively build such techniques into daily practice.

Instructional Process

Building from the work of Madrigal-Hopes et al. (2014) and Chacón-Beltrán (2018), I developed a scaffolded, structured, and systematic approach to teaching vocabulary. To introduce the project, I presented Charles Browne's "Power of Words" Tedx Talks (2016) with the purpose of familiarizing students with the NGSL. Next, I

led a conversation about vocabulary-learning experiences and strategies. Students then completed an 84-word vocabulary self-evaluation pretest in which they indicated their level of understanding of words by selecting "I know very well," "I think I know," or "I don't know." Students also completed a survey on demographic information, language usage and practice trends, and prior exposure to learning strategies and technology tools.

Every week during the six-week practice, I taught 14 new words: seven domain-specific and seven high frequency words (Table 1). On Day 1, I presented new vocabulary, definitions, and pronunciation via a digital flashcard tool called Quizlet (https://quizlet.com/). Students were also encouraged to use this tool to study outside of class. One or two additional digital learning tools were explored each week to promote self-directed learning skills and learner autonomy. Tools were selected with the purpose of expanding on students' familiarity and use (GoogleTranslate, Quizlet, GoogleSheets), exposing them to the value of generative AI (PiAI and ChatGPT), improving on word and sentence analysis skills (Vocab Attack), and enhancing translation and usage accuracy (WordReference).

TABLE 1: Sample Vocabulary Words

Sample NGSL words	Sample domain-specific words
disease, average, lack, perhaps, although, aim, raise, wage	swallow, ointment, sweat, needle, syringe, bruise, batch, accurate

On Day 2, I used various practice strategies to promote the development of language skills, including fill-in-the-blank sentences and paragraphs, traditional dictations, running dictations, sentence-writing, conversation questions, dialogue reading and writing, audio recording, and games such as Quizlet Live and WordWall. At the end of Day 2, students completed a self-evaluation identifying words as "easy" (likely to be retained) or "not easy" (requiring additional review). Additionally, formative assessments were administered during weeks 3 and 6 to measure vocabulary acquisition and effectiveness of learning strategies. Class discussions were conducted throughout the study to understand students' practices outside of the classroom and to gauge preferences for in-class activities.

To conclude the project, I administered an 84-word vocabulary self-evaluation post test and a post-survey on change in confidence, overall language improvement, vocabulary improvement, and usefulness of learning tools and strategies. The CASAS STEPS post test was also conducted by the ESL program to measure Educational Functioning Level (EFL) gains.

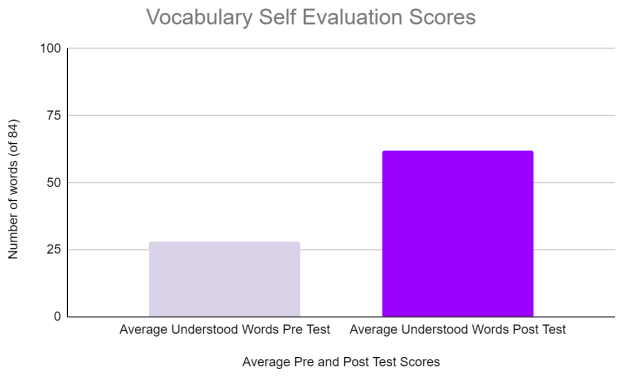
Outcomes

Throughout the project, students appeared engaged and interested in the learning process. They indicated that explicit vocabulary practice felt embedded and contributed to the practice of other language skill areas.

Impact on English and Vocabulary Skills and Understanding

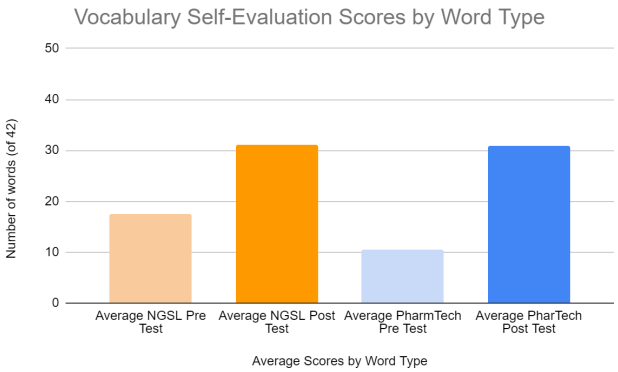
Overall, students showed remarkable improvement in their vocabulary (Figure 1). Students indicated, on average, that they learned 34 words over the six-week project with average pre test scores of 33% (28/84 words) and average post test scores of 74% (62/84 words).

FIGURE 1: Vocabulary Self-Evaluation Scores



Considering word type, students started the project with a lower base in domain-specific vocabulary and learned more of those than general vocabulary (Figure 2). Considering the focus of the class is on developing work skills for students to be employed as Pharmacy Technicians, this increase is not surprising. These results indicate that the use of a variety of learning strategies and tools were effective in fostering understanding of new vocabulary.

FIGURE 2: Vocabulary Self Evaluation by Word Type



Formative Assessment Data

Two 14-question formative assessments were conducted to validate students' recall and use. These quizzes included fill-in-the-blank sentences, word-definition matching, and sentence writing. Students scored an average of 80% on both formative assessments, confirming a solid overall understanding of the new vocabulary.

Impact on Standardized Assessment

While vocabulary recognition increased, CASAS scores remained flat. Half of the vocabulary consisted of pharmacy-specific terms; therefore, it seems natural that practicing these words would not have an impact on scores. The second half of the vocabulary, however, was composed of high frequency words that could appear on the CASAS test given it draws on both the Academic Word List and the NGSL. However, considering there was no specific analysis of the test content prior to the intervention, nor was the intervention designed with the goal of improving CASAS scores, it is not surprising that CASAS gains were not impacted.

Analysis of Study Habits, Tools, and Strategies

The pre-survey indicated that 70% of students study English outside of class, but the majority do so less than one hour per week. Most students recognize the need to practice more in order to meet their postsecondary or employment goals. However, juggling work, school, and family commitments are a challenge. Post-survey results indicated that 67% of students felt that how they practice vocabulary had changed. 100% indicated an increased awareness of strategies and tools for learning new vocabulary. Of the tools explored, the majority of students had been exposed to Quizlet in previous classes and Google Translate through personal use. Some students had familiarity with ChatGPT but not for vocabulary acquisition purposes. As to the utility of the tools, 30% of students found Quizlet to be the most useful while 20% chose WordReference.com. Students indicated that the variety of learning strategies I implemented were useful, including "Vocabulary Attack," writing sentences, fill-in the blank sentences, playing games, working on a project in a team, and dictations.

Impact on Confidence

On average, participants' pre-intervention survey indicated a confidence score in listening of 3.3 and reading of 3.3 out of 5. Participants post-survey indicated a confidence score in listening of 3.8 and reading of 4.3. This increase may imply that the vocabulary instruction positively affected confidence in receptive skills. Productive skill growth and increased confidence were additionally observed through short presentations and role plays. I believe the measurable successes in vocabulary acquisition positively impacted this growth in confidence. However, considering the students receive instruction in a range of English skills, it is difficult to determine whether this outcome is specifically linked to vocabulary instruction. Yet, the results are promising.

Next Steps

Overall, the vocabulary-learning strategies project provided a systematic instructional approach with students showing increased awareness of learning strategies, growth in vocabulary, and higher levels of self-confidence. Looking to the future, there are several implications for practice:

1. Despite their awareness of the value of learning new vocabulary, participants do not practice vocabulary or English in general outside of class as much as they believe they should. Therefore, organizational tools should be explored, and instruction should guide students in developing time management strategies that promote practice outside of the classroom.
2. Informal interviews indicated participants use Siri and Alexa to refine their speaking skills. It would be beneficial to learn more about students' existing practices and utilize tools that students are already familiar with since they have already experienced the effectiveness of these tools.

3. Opportunities could be created in the classroom for students to engage in peer learning by sharing their best practices. As the dissemination of innovation is a gradual process, utilizing student voices to generate buy-in to effective tools and techniques could be a useful instructional strategy.
4. Build more time for additional review activities such as games, role plays, or longer writing assignments at the midpoint and end of the project prior to assessments to further promote recall, use, and retention.

Conclusion

This exploration into vocabulary acquisition and learning strategies demonstrates that structured practice and the development of learner autonomy lead not only to improved vocabulary knowledge but also contribute to learner confidence. Educators can support advanced level ELLs in a myriad of ways both inside and outside the classroom. First, by creating a customized vocabulary list including both domain-specific words and high frequency words to support language development across contexts. Additionally, it is fundamental to provide a range of in-class and independent practice activities that reinforce vocabulary while appealing to different learning styles and encompassing a range of language skills. Finally, conducting periodic assessments is important to measure recall and retention of vocabulary. In conclusion, building on these foundational vocabulary skills while developing learning strategies contributes positively to overall learner confidence and continual growth as they transition out of the program and reach toward their goals.

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Research Digest

Themes in Developing and Studying Interventions in Adult Foundational Education

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Artificial intelligence tools were used in the preparation of this manuscript. Claude (Anthropic), Consensus, and Scite.AI were used to support initial identification and thematic synthesis of relevant literature. Microsoft Copilot and Grammarly were used to suggest edits to the text. All AI-assisted content was reviewed, verified, and revised by the authors, and final decisions regarding content and interpretation remain solely our own.

To support the effectiveness of adult education, federal policy encourages the use of evidence-based strategies (Workforce Innovation and Opportunity Act, 2014). Limitations of the research base make it difficult, however, for policymakers and providers to identify which programmatic and instructional approaches reliably improve learner outcomes (Borradaile et al., 2021). This knowledge gap is persistent and well-documented (e.g., see Comings & Soricone, 2007; Kruidenier et al., 2010), indicating a clear need to prioritize support for additional research and consider approaches to maximizing the usefulness of any research conducted.

One recent initiative seeking to expand the research base on effective approaches to adult education is the CREATE Adult Skills Network.[1] The goal of CREATE is to build and share knowledge on technology-enabled instruction and assessment for adult learners using a collaborative approach that includes the end users of research. CREATE also intends to spur a growing research base in adult education by engaging and supporting up-and-coming researchers and those currently working in adjacent fields or relevant methodologies. To this end, we are producing a handbook to inform researchers on major themes in developing instructional interventions and studying their effectiveness in the adult foundational skills context. The handbook will also provide examples of challenges and strategies in doing research in this context, as shared by members of the CREATE network.

This digest describes the themes highlighted in the upcoming handbook and shares examples of associated guidance. The themes are organized by topic:

- Establishing and sustaining effective partnerships
- Designing the intervention
- Implementing the intervention
- Considering the context in study design, methods, and analyses
- Communicating effectively about research progress and findings

Establishing and Sustaining Effective Partnerships

Strong partnerships are the foundation of effective development research in adult foundational education (AFE). Building trust and alignment with states, programs, and other stakeholders is critical for launching projects,

1 The work of the CREATE Adult Skills Network is supported by the Institute of Education Sciences at the U.S. Department of Education through award R305N210014 to the American Institutes for Research (AIR). The work of the Network member projects is supported by the Institute of Education Sciences (IES) under separate grants. The opinions expressed are those of the authors and do not represent the views of IES or the U.S. Department of Education. More information about CREATE is available at https://createadultskills.org/

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sustaining buy-in, and ensuring that research remains relevant and grounded in practice (Adam et al., 2022; Tseng & Bednarek, 2019). Selecting partners whose goals align with the intervention helps establish the conditions for meaningful and productive collaboration.

Sustaining buy-in requires ongoing, collaborative engagement throughout the research process. Involving partners in co-developing theories of change, shaping research questions, interpreting findings, and sharing results promotes feasibility, relevance, and shared ownership of the work (Alamprese, 2025; Soricone, 2025; Coburn et al., 2013).

Designing the Intervention

To create adaptable instruction that supports both effective implementation and long-term impact, it is important to consider the needs of the setting, potential barriers, and how to plan for sustainability (Roschelle & Penuel, 2006; Damschroder et al., 2009). Given the variability that defines adult education contexts, researchers must design for heterogeneity rather than ideal conditions. This includes systematically documenting implementation and adaptation and anticipating challenges early, like high variability and mobility. In addition, educator capacity is a central dimension in AFE, where instructors' preparation, digital readiness, and access to professional learning vary widely. These differences shape how interventions are taken up, adapted, and sustained over time (Vanek & Harris, 2020; Belzer et al., 2022). Implementation research consistently shows that interventions are more feasible when they align with local capacity, organizational routines, and available supports, rather than assuming uniform conditions across settings (Durlak & DuPre, 2008).

Planning for sustainability begins at the design stage rather than after implementation has begun. Research emphasizes the importance of iterative testing; co-designing with practitioners; and identifying user needs, contextual constraints, and likely points of breakdown through data collection across development, pilot, and refinement phases (ISO, 2019; Roschelle & Penuel, 2006; Penuel et al., 2011; McKenney & Reeves, 2018). In addition, it is important to make decisions about infrastructure, ownership, and long-term support early in the design process (Coburn, 2003; Fixsen et al., 2005; Century & Cassata, 2016). In the context of rapid technological change, sustainability also depends on adaptability. Research on technology-based educational innovations indicates that interventions dependent on rigid or proprietary tools without plans for updates or partnerships are especially vulnerable over time. In contrast, designing for flexibility, leveraging widely supported or open-access technologies, and building educator capacity can extend longevity across changing conditions (Dede et al., 2009; Wiley & Hilton III, 2018; Dede & Richards, 2020). Continued funding, institutional commitment, and professional visibility further function as enabling conditions that support promising interventions beyond the initial project period (Coburn et al., 2012).

Implementing the Intervention

Implementation is an iterative process that requires flexibility and responsiveness. The iterative process must be based on participant experiences, balance fidelity with adaptation, and keep sustainability in mind if the goal is to ensure that interventions remain usable and meaningful. As with the design phase, identification of user needs, contextual constraints, and likely points of breakdown are essential to recognize quickly so that interventions are feasible in practice rather than retrofitted after problems emerge. Consequently, ongoing structures for communication and feedback support are critical for activities, such as shared problem-solving and responsive support in helping educators integrate new tools and approaches under variable conditions (Vanek & Harris, 2020; Bryk et al., 2015). Clear onboarding, accessible guidance, tailored technical assistance, and responsive support are particularly important during early use (Fixsen et al., 2005; Hill et al., 2023; Tondeur et al., 2016).

Monitoring how educators and learners interact with an intervention and making adjustments help ensure that implementation reflects participant needs rather than researcher assumptions. This attention is especially important because, as noted previously, there is so much variety in the adult education classroom. Learners have various levels of access to digital tools, and teachers play a variety of roles, have diverse prior experience with technology, and work anywhere from a few hours per week to full time (Nguyen & Cacicio, 2025). Studies of AFE

practice and professional learning document how these variations shape uptake, adaptation, and persistence, underscoring the need for implementation approaches that remain responsive over time (Belzer et al., 2022; Vanek & Harris, 2020).

Long-term viability depends on clarifying which aspects of an intervention are intended to endure: the pedagogical approaches, technological components, or implementation routines. When such decisions are paired with plans for maintenance, ownership, and ongoing professional learning, sustainability is more likely (Penuel et al., 2011; Penuel et al., 2015). In technology-mediated contexts, sustainability also depends on adaptability. Interventions reliant on rigid or proprietary tools without plans for updates or integration are especially vulnerable over time, whereas designing for flexibility—leveraging widely supported or open-access technologies—and building educator capacity can extend usefulness across changing instructional and institutional conditions (Dede et al., 2009; Wiley & Hilton III, 2018; Dede & Richards, 2020). Continued funding, institutional commitment, and professional visibility further support promising interventions beyond initial pilot or grant-funded phases (Coburn et al., 2012).

Considering the Context in Study Design, Methods, and Analyses

AFE contexts are complex, diverse, and fluid (Severson-Irby & Rolander, 2022; Reder, 2012). Attention to methodological fit, learner heterogeneity and mobility, and contextual factors—combined with the use of flexible design, analysis, and measurement strategies—can produce policy-relevant evidence under real-world conditions (Clark-Stallkamp & Lockee, 2024; Severson-Irby & Rolander, 2022; Rickles et al., 2018; Connolly et al., 2018). In AFE, causal intervention study designs, such as randomized controlled trials (RCTs), are not always practical due to difficulties implementing randomization, high attrition, and the complexity of interventions that must be adapted to heterogeneous learner needs—conditions that are especially pronounced among vulnerable learners (Odom, 2021). Given these constraints, researchers may consider alternative approaches—such as regression discontinuity, instrumental variables, matching, or comparative interrupted time series—that can support credible causal inference when RCTs are infeasible (Steiner et al., 2017; Cook et al., 2008). However, their successful use depends on strong design assumptions (e.g., well-defined comparison groups and valid matching rules) that may be challenging to achieve in complex, fluid learning environments (Gopalan et al., 2020). For example, identifying a nonexperimental comparison group can be particularly difficult in the context of AFE given its widespread heterogeneity. While little guidance on the topic currently exists within the field, the topic has been addressed to some extent in adjacent fields such as career and technical education (e.g., Ross et al., 2021).

Variation is the norm in AFE, as programs serve learners with widely differing goals, life circumstances, and learning trajectories across diverse instructional settings (Severson-Irby & Rolander, 2022; Reder, 2012). To address this variation, some suggest that researchers should treat context and participant characteristics as integral components of interventions, explicitly theorizing and measuring variation rather than attempting to control it away (Conaway et al., 2024). Others emphasize the usefulness of intervention research that leverage specialized experimental designs that allow for more adaptation of the intervention (Hedges, 2017) or mixed methods designs aligned to specific populations and instructional environments, integrating qualitative evidence about local conditions with quantitative analyses to support interpretation and adaptation across diverse settings (Shannon-Baker, 2022; St. Clair, 2023). It is also beneficial to model heterogeneous effects directly—through interaction terms, subgroup analyses, and person-centered or longitudinal approaches—even when effects vary across learners and sites, because such analyses better inform differential impact and potential intervention scaling decisions (Schudde, 2018; Reder, 2012).

Learner mobility can affect every aspect of research—design, methods, and analysis—often leading to attrition. For the design, researchers must incorporate empirically derived attrition estimates into power calculations rather than using generic assumptions and oversampling high-mobility populations (Rickles et al., 2018; Henneberger et al., 2023; Kupzyk, 2011). Studies can also plan to accommodate high mobility by recruiting larger samples and building in assumptions around "connected episodes" of participation—allowing adults to "stop out" and re-enter programs (Clark-Stallkamp & Lockee, 2024; Comings

& Soricone, 2007). Methodologically, successful retention requires comprehensive contact information collection at baseline, implementation of tracking databases from study inception, use of multiple contact methods, and sustained community engagement (Ferris et al., 2021; Lynn, 2025; Condelli et al., 2010). Finally, for analyses, appropriate approaches include systematic attrition analyses to understand data missingness patterns, multiple imputation that accounts for data structure (e.g., multilevel, longitudinal), and validation of mobility estimates against external sources (Eisner et al., 2019; Grund, et al., 2018; Kristman et al., 2005).

Measuring outcomes in AFE requires balancing ambition with feasibility (Clark-Stallkamp & Lockee, 2024). To test the real impacts of an intervention on improving learners' lives, studies will ideally measure outcomes beyond short-term test gains to include longer-term and life-wide impacts—for example, tracking whether programs lead to improved employment, earnings, or real-life literacy practices over time (Reder, 2020; Spurling et al., 2008). At the same time, practical constraints compel researchers to leverage existing administrative data to increase study feasibility and sample sizes that allow for the range of analyses described above. Administrative data also offers promise for long-term tracking but requires substantial partnership investment (Bigelow et al., 2021) and is often challenging to work with for research purposes (Yin et al., 2015). To be successful, researchers should establish administrative data partnerships during initial study design, plan for imperfect matches when mobile populations may have inconsistent identifying information, and have a plan for dealing with common administrative data challenges (Bigelow et al., 2021; Yin et al., 2015).

Another consideration in measuring adult learner outcomes is to attend to factors like learners' reading levels and English proficiency to ensure that measurement instruments are feasible and appropriate to administer. For example, standardized tests developed for K-12 or general populations often do not function as expected for adults with foundational skill needs, and studies may instead use simplified instruments, tests normed on similar populations, oral assessments, or native-language translations to ensure valid results (Talwar et al., 2021; Sabatini et al., 2011; Condelli et al., 2006, 2010; Hollenbeck, 2005). For the least literate adults, specialized tools using hands-on materials and oral administration demonstrate that meaningful assessment is possible even when participants cannot read questions themselves (Kutner et al., 2007).

Communicating Effectively About Research Progress and Findings

Communicating about the research should begin during the development and implementation phase, not after the final report; such communication is strengthened through the strategic use of multiple channels and formats (Stein & Daniels, 2017). Practitioner briefs, webinars, blogs, toolkits, professional learning sessions, and open-access resources help reduce barriers to access, reinforce key messages over time, and support different forms of research use. Network-based communication activities, which leverage existing professional relationships, further support diffusion beyond traditional academic venues. In AFE, where professional learning often occurs informally and across distributed networks, using diverse channels extends the reach of research and supports field-building while aligning with guidance that emphasizes accessibility, relevance, and practical utility for end users.

Conclusion and Next Steps for the CREATE Adult Skills Network

The themes in this digest point to the importance of working closely with practitioners and other partners, designing AFE research that reflects real-world conditions, and paying careful attention to how interventions are implemented and sustained over time. This approach not only strengthens the quality of the evidence but also makes it more likely that findings will be used to improve teaching, guide policy decisions, and expand opportunities for adult learners. In addition, interventions are more likely to persist when considerations of infrastructure, ownership, and long-term support are addressed early and revisited over time, rather than treated as post hoc concerns (Coburn, 2003; Fixsen et al., 2005; Century & Cassata, 2016). The CREATE handbook will continue the work of expanding on these major themes and will provide examples of challenges and strategies from the network teams' real-world experiences in working with technology-enabled adult education instruction.

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Building Vocabulary with Learning Chocolate

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Abstract

As adult education continues to embrace digital tools, vocabulary acquisition remains a foundational challenge for English language learners balancing education with work and life responsibilities. The challenge for educators is to harness technology in ways that make vocabulary learning engaging, multimodal, and immediately applicable. Learning Chocolate, a free web-based vocabulary-learning platform, is emerging as a practical resource for adult educators seeking to support vocabulary development through interactive, multimedia-rich exercises. This column examines the platform's features, its alignment with adult learning theory and best practices, and its potential benefits and challenges in adult education settings.

What is Learning Chocolate?

Learning Chocolate (learningchocolate.com) is a free web-based vocabulary-learning platform designed to help users memorize vocabulary in English (both U.S. and UK), Japanese, Chinese (Mandarin), German, and Spanish through pictures, sounds, and interactive games. Originally created for language learners of all ages, the platform uses a multimedia approach, pairing each vocabulary word with a visual image and an audio pronunciation to make the process of acquiring new words engaging and memorable. As the platform's creators describe, the goal is to make learning vocabulary "as fun as enjoying a piece of chocolate" (Learning Chocolate, n.d.).

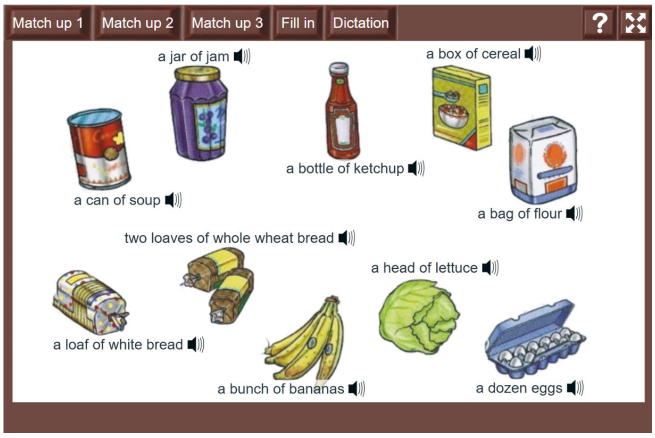
The platform organizes its content into a wide range of thematic vocabulary categories, including topics such as animals, food, clothing, jobs, community, transportation, school, nature, and more. Each category contains individual word sets that present vocabulary items alongside corresponding images and audio recordings. After reviewing the vocabulary, learners can practice through five interactive games that reinforce word-meaning associations, spelling, and listening comprehension. This multimodal approach combining text, images, and audio aligns with contemporary research emphasizing that learners develop a deeper understanding from integrated multimedia sources (Haque et al., 2024). Evidence-based multimedia design and interactive tools are increasingly recognized as essential for engaging diverse learner populations across educational settings.

Features

Learning Chocolate offers a robust set of features tailored for vocabulary development and practice, making it well-suited for language learners at varying proficiency levels.

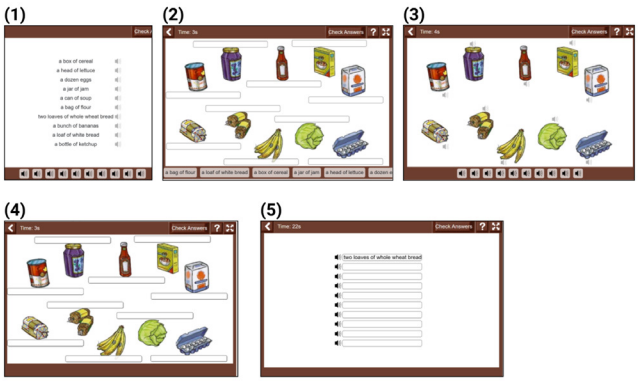
- **Vocabulary review with multimedia support:** Each word set presents vocabulary items with a corresponding image and a clickable audio icon for pronunciation (Figure 1). Learners see a picture, read the word, and click the sound icon to hear the word aloud, allowing them to engage with vocabulary through visual, textual, and auditory channels simultaneously.

FIGURE 1: Word Set Example



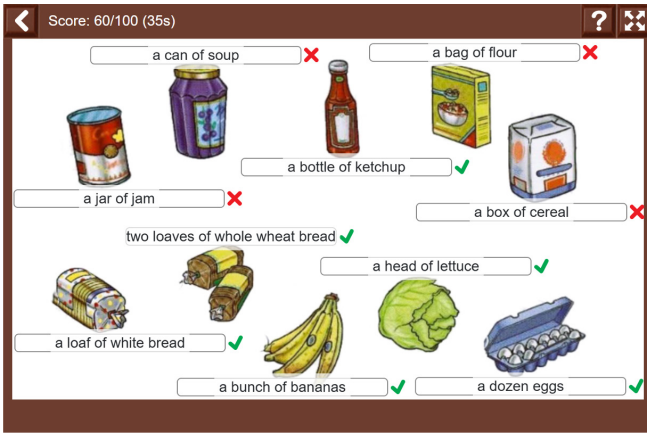
- **Five interactive games per word set:** After reviewing vocabulary, learners can play up to five games to reinforce their memory (Figure 2). The first three are matching games: (1) Match Up 1: matching audio to the correct written word; (2) Match Up 2: matching written words to the correct picture; (3) Match Up 3: matching audio to the correct picture. The fourth game is a fill-in exercise, where learners type the vocabulary word that corresponds to each image. The fifth is a dictation exercise, requiring learners to listen to audio and spell the word they hear. This progress moves from recognition to production, supporting deeper vocabulary processing.

FIGURE 2: Interactive Games



- **Immediate feedback and scoring:** Upon completing each game, learners can click "Check Answers" to see which responses are correct (marked with a checkmark) and which are incorrect (marked with an x), along with their overall score and time to completion (Figure 3). This instant feedback loop supports formative self-assessment, allowing learners to identify areas needing further practice.

FIGURE 3: Feedback and Scoring



- **Extensive thematic categories:** The platform organizes vocabulary into over 100 categories, ranging from foundational topics like numbers, days, and colors to more advanced sets such as medical jobs and money (Figure 4). Categories include areas directly relevant to adult learners, such as daily routines, community, jobs, food, and celebrations.

FIGURE 4: Thematic Categories



- **Multilingual interface:** Users can change the display language to Spanish, Mandarin, or Japanese, among others, making the platform accessible to learners from a variety of linguistic backgrounds (Figure 5). This feature allows learners to see vocabulary translations in their native language while studying target-language words, supporting comprehension scaffolding for beginners.

FIGURE 5: Display Languages



- **User-contributed content:** The platform allows registered users to create and contribute new word sets using an online tool, expanding the available content library. Contributed word sets are reviewed by an editing board before being published, and the platform employs voiceover talent to record real human voices for the most popular sets (Learning Chocolate, n.d.).
- **Free and accessible:** Learning Chocolate is entirely free to use, requiring no account creation for basic access to vocabulary review and games. This lowers the barrier to entry for adult learners and programs with limited funding, though the site does include advertisements.

How Learning Chocolate Addresses Teaching Challenges in Adult Education

Teaching adult learners requires respect for their autonomy, life experience, and practical learning needs (Galani, 2025). Adult learners bring diverse backgrounds, prior knowledge, and motivations to their education, and they often balance multiple responsibilities, including work, family, and community involvement. Learning Chocolate directly addresses these distinctive challenges through features and design principles grounded in adult learning theory and contemporary research.

A major challenge for adult learners is finding time to engage in educational activities. Learning Chocolate's fully asynchronous design allows learners to participate according to their own schedules (Galani, 2025). Whether studying during a lunch break, after work, or in the early morning, adult learners can engage with vocabulary at moments that fit their lives, supporting mastery-oriented learning rather than completion-driven approaches.

Beyond vocabulary mastery, digital literacy has become a foundational skill for employment, social engagement, and access to essential services (Iskakova, 2024). Learning Chocolate provides a meaningful, supportive environment where adult learners can develop confidence and agency with technology. By practicing navigation and digital interaction through vocabulary learning, adults develop transferable digital competencies essential for lifelong learning in an information-rich world.

Maintaining motivation across diverse learner backgrounds and proficiency levels presents an ongoing challenge. Research on gamified learning platforms such as Kahoot! demonstrates that game elements, such as points, badges, and progress visualization, significantly increase student motivation and foster active participation (Özdemir, 2026). For adult learners, these features combat the fatigue and disengagement that can arise from traditional, non-interactive learning approaches, particularly when vocabulary acquisition requires sustained practice.

Real-Life Applications of Learning Chocolate

Learning Chocolate finds practical applications across a broad range of adult education settings, supporting foundational language skills and real-world vocabulary development. In an ESL beginning literacy class, Learning Chocolate can serve as a low-barrier visual and audio scaffold for core "survival English" themes. For example, learners might work with a "community places" or "food" set, first listening and repeating key words as a whole group, then moving to computers or tablets to complete a single matching game at their own pace. Afterward, they bring printed screenshots or hand-copied word-picture pairs back to the table to build a simple picture dictionary page together, reinforcing print awareness while keeping the cognitive load manageable. In an ESL intermediate class, the same theme can go deeper: learners complete Fill-In or Dictation for a selected set, then immediately use the new vocabulary in a jigsaw information-gap task (e.g., asking classmates about their routines, workplace tasks, weekend plans) so that the digital practice flows naturally into communicative use.

For ABE and GED contexts, Learning Chocolate can anchor targeted vocabulary work tied to reading passages or math word problems. In an ABE reading lesson on community health, learners might warm up with an "at the clinic" or "emergency services" word set, then annotate a short health brochure, highlighting where those same words appear in authentic text and discussing meaning in context. In a math or financial literacy lesson, a "monthly budget" or broader "money" word set can precede a graph or table-analysis task. Learners first secure the language of income, expenses, and banking, then use that vocabulary to interpret charts, explain trends orally, and write short constructed responses that mirror high school equivalency test prompts.

In workplace preparation classes, Learning Chocolate's jobs, workplace safety, and money categories lend themselves to scenario-based practice that connects directly to learners' employment goals. A lesson for a health care or food-service pathway might begin with a job or industry-specific word set, move into a short role play (e.g., calling in sick, reporting a problem to a supervisor, explaining a task to a co-worker), and end with the learners writing a brief "day in the life" paragraph using at least five target words.

In a citizenship class, civic and government-related word sets can be used to pre-teach key terms that appear in naturalization questions. Learners first build recognition and pronunciation through the games, then transition into oral Q&A drills, partner quizzing, and short written explanations (for example, describing a national symbol or explaining the purpose of a branch of government) so that vocabulary practice and civics content reinforce one another.

Benefits of Using Learning Chocolate

Learning Chocolate offers several advantages that make it a valuable resource for adult education programs.

- Free and accessible: The platform is entirely free, with no subscription or account required for basic use. This is particularly important for adult education programs that often operate with limited technology budgets and for learners who may lack resources for paid software.
- Enhanced engagement through interactive design: Learning Chocolate transforms vocabulary learning from passive memorization into active, interactive engagement. The platform serves multiple activity types: matching, games, audio practice, and flashcard review. They maintain cognitive engagement and sustain attention, which are essential for adult learners managing cognitive load alongside work and personal responsibilities (Haque et al., 2024). Studies on game-based learning reveal that interactive, gamified approaches significantly increase student engagement, motivation, and task persistence compared to non-gamified alternatives (Özdemir, 2026).
- Improved vocabulary retention: Research on digital game-based vocabulary learning demonstrates that interactive, gamified approaches produce high vocabulary retention compared to traditional memorization (Vnuko & Klimova, 2023). Learning Chocolate's multiple activity types, combined with gamification elements and immediate feedback, creates conditions that strengthen long-term memory encoding. Tenth-grade ESL learners who used digital flashcards in English vocabulary acquisition report improved vocabulary recall, more

confident language use, and greater ability to apply newly learned vocabulary in real-world contexts (Damanik et al., 2025).

- Supports self-directed learning: Adult learners benefit from tools that support self-direction, metacognitive awareness, and independent learning (Bowles, 2024). Learners can independently choose topics, set their own pace, and revisit material as needed, supporting learner autonomy and self-regulation.
- Accessible and equitable learning: Learning Chocolate is a free platform that has minimal technical requirements, making it accessible to a wide range of users. This accessibility is especially important for adult learners who may have limited resources, lower educational backgrounds, or who come from under-resourced communities. By providing quality vocabulary instruction without financial or technological barriers, Learning Chocolate helps promote educational equity and supports inclusive, lifelong learning opportunities for all adults.
- Develops digital competencies: In addition to mastering vocabulary, engaging with Learning Chocolate enhances digital literacy and technological skills that are crucial for both employment and civic participation. Adult learners gain practical abilities in navigating the platform, such as clicking, dragging, and exploring various topics related to digital skills. These competencies can be transferred to other educational, professional, and personal contexts.

Versatile classroom integration: Teachers can use Learning Chocolate in multiple instructional formats: on interactive whiteboards for whole-class instruction, in computer labs for individual practice, or as homework for asynchronous learning. The platform's simplicity and low technical requirements make it adaptable across diverse adult education settings.

Challenges of Using Learning Chocolate

While Learning Chocolate offers significant benefits, educators and learners using the platform must navigate real challenges that impact its adoption and effectiveness.

- Advertisements: The site includes advertisements, which can be distracting and potentially confusing for adult learners with limited digital literacy. Ads may obscure content or lead to accidental clicks, particularly for learners unfamiliar with distinguishing advertisements from educational content. Instructors should proactively guide learners on identifying and ignoring ads and may consider using ad-blocking tools on classroom devices when possible.
- Limited depth of vocabulary instruction: Learning Chocolate focuses primarily on word-level vocabulary (individual words paired with images and audio) and does not provide contextual sentence use, collocations, or extended discourse. To compensate, instructors should supplement platform use with activities that require learners to use new vocabulary in sentences, conversations, and real-world scenarios.
- Teacher preparation and integration effort: While Learning Chocolate is simple to use, effectively integrating it into a curriculum still requires teacher planning: selecting appropriate word sets, aligning vocabulary with instructional goals, and designing follow-up activities that extend beyond the platform. Professional development and collaborative planning among educators can help reduce the preparation burden and ensure meaningful integration.
- Digital access and infrastructure limitations: Despite technological advancement, many adult learners face barriers, including unreliable internet connectivity, lack of access to devices, or limited digital support at home. Rural adult learners, those in under-resourced communities, and economically disadvantaged individuals may struggle to access Learning Chocolate consistently. To address this challenge, adult education programs can partner with public libraries, community centers, or workplaces to provide device access and reliable internet connectivity. Instructors might also create printable vocabulary materials or develop offline-compatible activities as supplementary resources.

Varying digital literacy and technology anxiety: Not all adult learners possess equivalent digital competence or comfort with online platforms. Some adults may find platform navigation or technical troubleshooting

intimidating or overwhelming. Technology anxiety can reduce motivation and lead to platform abandonment before learners benefit from vocabulary instruction. Institutions can address this by providing step-by-step digital onboarding, in-person or virtual orientation sessions, and peer mentoring or "tech buddy" systems that normalize technology learning and provide ongoing support.

Conclusion

Learning Chocolate represents a powerful resource for adult educators striving to foster vocabulary development, engagement, and digital literacy in increasingly diverse learning environments. By transforming vocabulary learning from passive memorization into interactive, gamified, and self-paced practice, the platform directly addresses challenges endemic to adult education while supporting best practices grounded in contemporary research. The synthesis of research on digital game-based vocabulary learning, adult learning theory, and technology-enhanced instruction demonstrates that Learning Chocolate is well-aligned with andragogical or adult learning theory principles and contemporary pedagogy (Galani, 2025).

As adult education advances further into the digital age, platforms like Learning Chocolate help break down traditional barriers to equitable, lifelong vocabulary development, yet successful adoption requires attention to digital infrastructure, instructor preparation, and the diverse needs of adult learners balancing multiple responsibilities. Instructors implementing Learning Chocolate should approach the platform strategically, combining its interactive vocabulary instruction with robust teacher support, intentional curriculum design, and attention to the affective dimensions of adult learning.

By leveraging Learning Chocolate's interactive features within carefully designed pedagogical contexts, educators can create meaningful vocabulary learning experiences that sustain adult learner engagement, build confidence and digital competence, and foster the linguistic skills essential for personal growth, professional success, and lifelong learning in our increasingly interconnected, information-rich world.

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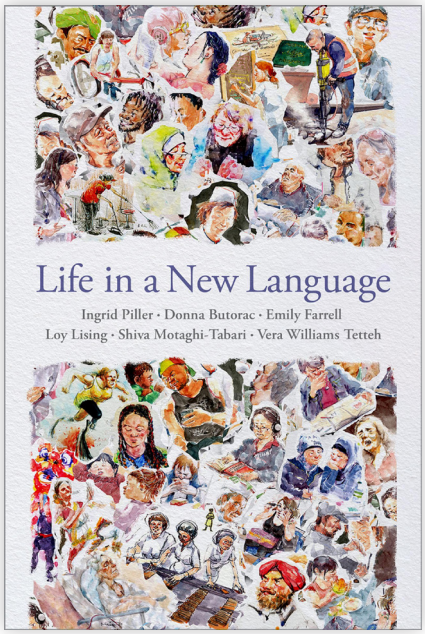
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Book Review

Review of *Life in a New Language*

Reviewed by Lindsay McHolme

For migrants and refugees, language is a factor that influences integrating into a new society as a citizen, a worker, or a parent. *Life in a New Language* by Piller et al. (2024) describes this process for migrant language learners as keeping "their head above water," a metaphor that comes from participant Goudarz, an Iranian engineer and migrant who compares learning English pre- and post-migration to swimming in calm waters versus treading water in a raging river. The authors offer this book to migrant- and refugee-receiving countries as "a plea to help smooth the turbulent waters so that new migrants do not sink or fall back right at the start" (Piller et al., 2024, p. 12).



Meant broadly for researchers, university students, policy makers, and service providers, the stories represented in this book are extracted from several ethnographic studies conducted between the years 2000 and 2020 in collaboration with multiple institutions and individuals. Participants include 130 non-English-speaking background (NESB) adult migrants and refugees who arrived in Australia from 34 different countries between 1970 and 2013. The authors are critical sociolinguists who, like their participants, are all "migrant speakers" and "settlers on Indigenous land," hailing from Africa, Eastern and Western Asia, and Eastern and Western Europe.

The stories in this book illuminate the nuanced ways language is contested and leveraged for NESB migrants and refugees in Australia. Chapters 1 and 2 argue that adult language learning in Australia is historically complex and that migrants from NESBs face structural and ideological barriers in meeting their goals. Chapters 3 and 4 deal with obtaining, retaining, and advancing employment as a migrant or refugee in Australia. Chapter 5 discusses the complexities of migrant parenting and the friction between heritage language maintenance and learning English quickly and fluently. Chapters 6 and 7 explore the ways migrants and refugees experience Australia differently based on their intersectional identities as they relate to language. As the conclusion, Chapter 8 advocates for open science in both quantitative research and qualitative studies, like the ones represented in this book, to make information available for policy makers, the media, and public debate. A final section called "How to Use This Book in Teaching" includes a bulleted summary of key ideas, discussion questions, and further reading suggestions.

Through storytelling, *Life in a New Language* humanizes the nuanced language learning experiences of NESB migrants and refugees, thereby making a compelling case that "the responsibility for change [...] lies within the receiving society" (Piller et al., 2024, p. 118). It suggests that receiving countries like Australia have a

Piller, I., Butorac, D., Farrell, E., Lising, L., Motaghi-Tabari, S., & Williams Tetteh, V. (2024). *Life in a New Language*. Oxford University Press. 194 pages. $99 (hardcover). ISBN: 9780190084288

responsibility to build infrastructure for migrants to access safe, welcoming communities and resources. Part of the suggested change in infrastructure would be to systemically embrace multilingualism as an asset and shift the sole responsibility of meaning making from the NESB migrant or refugee to the English dominant society.

This critical stance is underscored by scholarship in the areas of culturally and linguistically sustaining pedagogy (Paris & Alim, 2017), the raciolinguistic perspective (Flores & Rosa, 2015), and translanguaging theory (García & Wei, 2014), all of which argue for asset-based language education and policy that honor linguistic diversity and epistemic freedom. Given that much of this critical work is directed toward an academic audience, the storytelling tone of *Life in a New Language* creates possibilities for speaking to new audiences beyond academia. For example, the book opens with a whimsical Spanish language epigraph by Antonio Machado (1917) and establishes a narrative tone with the title of the acknowledgments page, "The Story of This Book" (Piller et al., 2024, p. ix). The authors also introduce their participants as storytellers rather than as numbers in a study by listing pseudonyms and explaining how participant voice is represented in the text so as not to essentialize the speaker(s).

The narrative approach affords complex representations of NESB migrants and refugees living between cultures, languages, and identities, much like Anzaldúa's (1987) concept of the borderlands, "the coming together of two self-consistent but habitually incompatible frames of reference" (p. 100). Piller et al. (2024) explain that Iranian families, for instance, struggle to create family language policies that simultaneously promote maintaining the Persian language and obtaining English language fluency as quickly as possible. The book also chronicles stories of individuals like Jutta from Austria who assimilates into Australia quickly and happily while others like Isabella from South Sudan mourn their layered identities in their home countries, as they experience being positioned as low literate in Australia.

Overall, *Life in a New Language* is an excellent resource for adult educators and researchers, especially in English-dominant countries like the United States, because it provides nuanced and accessible insight into the systemic turbulent waters NESB migrants and refugees must navigate as they integrate into society. The stories in this book describe the problematic colonial history that has influenced Australian language policy throughout the years, excluding migrants and refugees from vital resources and education. This book might inspire adult educators living in countries with similar political histories, like the U.S., to examine the language policies that have systematically oppressed migrants and refugees and to act by embracing multilingualism in their classrooms and communities.

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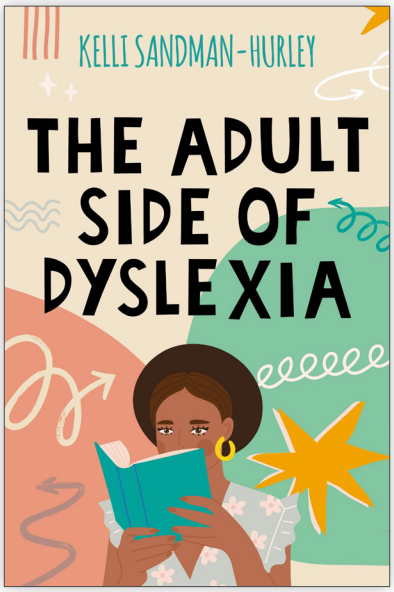
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Book Review

Review of *The Adult Side of Dyslexia*

Reviewed by Sarah E. Miller, Department of Psychology, Georgia, State University

In *The Adult Side of Dyslexia,* Sandman-Hurley (2022) presents an interview-driven resource aimed at providing a platform for dyslexic adults to speak about their experiences in their own words. Since adults with dyslexia may enroll in adult literacy services, it is crucial for adult educators to be aware of their unique needs. The book uses raw excerpts from diverse interviews to provide qualitative insights into the lived dyslexic experience, illustrating that the impacts of dyslexia do not end with the advent of adulthood. The book then uses the experiences shared in the interviews to inform recommendations for multiple relevant audiences: parents, educators, researchers, and, importantly, dyslexic adults.



Primarily, Sandman-Hurley advocates the importance of understanding dyslexia in a way that goes beyond a dry, technical definition, which often overlooks dyslexia's true impact. Rather than letting topic experts wax eloquent about the various neurobiological nuances of dyslexia, Sandman-Hurley hands the figurative microphone to the true experts—adults with dyslexia—to share their own story, in their own words. The book comprises eight chapters: seven chapters represent key themes from all the interviews, and the final chapter proposes recommendations for dyslexic adults and advocates alike. Each interview-focused chapter skillfully interweaves interview excerpts exploring provocative topics with informational boxes, summaries, and myth-debunking sections to make the reading more approachable.

The book achieves its goal of adding the voice of dyslexic adults to the conversation about dyslexia through meticulously incorporating quotes from dyslexic adults to introduce each chapter and guide the discussion of overarching themes. The interviews that create the backbone for this novel resource were conducted with dyslexic adults from diverse age groups, backgrounds, and life experiences. Thus, some of the interview questions are answered with various excerpts that exhibit a range of perspectives, whereas others are answered with an impactful quote that succinctly summarizes a widely shared experience. Through these reflections, the book naturally builds an implicit narrative in the reader's mind that facilitates a deeper understanding of dyslexia and heightens empathy for dyslexic adults. Each excerpt gives voice to a real, human experience that enlightens educators and resonates with other dyslexic adults, highlighting experiences that are overlooked in technical literature and evoking empathy from the reader. The excerpts exhibit a broad range of experiences that are, at times, unified, giving unmistakable clarity to understanding the unmet needs of dyslexic adults, such as community, accommodations in the workplace, and tools for self-advocacy.

Each recommendation is actionable and focused primarily on highlighting the stories of dyslexic adults to facilitate change. At the same time, each group of recommendations is tailored to a specific role, thereby

Sandman-Hurley, K. (2022). *The Adult Side of Dyslexia.* Jessica Kingsley Publishers. 128 pages. $21.95 (paperback). ISBN: 1787754758

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explicitly providing guidance for common struggles faced by dyslexic adults themselves, as well as parents, educators, researchers, and other advocates. For example, parents are called to ask questions about possible interventions, educators are called to acknowledge and advocate for the experiences of those with dyslexia, and adults with dyslexia are called to share their story. Importantly, researchers are called to embrace qualitative research to humanize dyslexia in a way that quantitative research has not achieved. Though Sandman-Hurley acknowledges the importance of early assessment for dyslexia, qualitative studies like these could provide valuable insights for assessing dyslexia in adulthood. Beyond these recommendations, the chapter provides tips and tricks for teaching self-advocacy to individuals with dyslexia. It also highlights evidence-based accommodations for dyslexia, using quotes from the interviews to reemphasize the radical effects appropriate (or inappropriate) accommodations can have on dyslexic adults. The recommendations are supplemented by a curated list of resources, including podcasts and websites.

One more subtle strength of this book is its design. The paradox of writing a book for adults with dyslexia is that many face challenges with literacy (as is detailed throughout the interviews). This presents an intrinsic challenge to disseminating information to the target audience. However, Sandman-Hurley handles this challenge with grace, designing the book in an accessible way to make it more approachable for dyslexic adults, including dyslexia-friendly fonts and visual cues. Section summaries decrease the load for dyslexic adults who want to glean the information without reading the entire book. These design choices make the book approachable, digestible, and accessible to a wide range of audiences.

Though the qualitative nature of this book provides a much-needed perspective, connections to previous research—both qualitative and quantitative—are relatively lacking. The informational boxes present general definitions to clarify terms, but connecting interview findings (e.g., low self-esteem) with research that corroborates its impact (e.g., Filippello et al., 2019) is minimal. There are key opportunities in each chapter to integrate previous research (e.g., learning, adult education, literacy, motivation, and self-esteem) to deepen the synthesis of the qualitative findings with well-established quantitative results. Such a synthesis would provide a firm evidence base to fuel recommendations that reach beyond dyslexic adults and target policymakers. Currently, the book's recommendations are focused locally, toward those directly interested in or affected by dyslexia. However, providing broader recommendations founded in a well-established evidence base that target policymakers, school boards, and administrators could be an invaluable aid to implement standards aimed at providing resources to dyslexic adults in the education system and the workplace. Pairing this information with the instructions for practicing self-advocacy and the list of useful accommodations that the book already provides would create a more complete picture of the necessary next steps to aid adults with dyslexia.

The Adult Side of Dyslexia is an intentionally crafted book full of qualitative insights that can inform adult literacy and education. This resource creates a platform to share the most vital—and, unfortunately, overlooked—aspect of dyslexia: real experiences. By interweaving poignant stories with informed recommendations and vetted resources, this book contributes a multitude of individualized perspectives to create a broader understanding of dyslexia and its impacts for both those who experience dyslexia and those who work with and advocate for dyslexic adults.

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In Memoriam



The *Adult Literacy Education* journal honors the memory of Peter Waite, who passed away on March 20, 2026 after a brief battle with lymphoma. He was a lifelong advocate for adult literacy and worked tirelessly for more than four decades to support learners and programs around the world. During his time as National Director at ProLiteracy, he was integral in the creation of this journal.

We invite you to share letters of appreciation or recognition with us by emailing ALEjournal@proliteracy.org. The memories will be gathered and published collectively in the next issue of the *Adult Literacy Education* journal.