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The journal's mission is to publish research on adult basic and secondary education and transitions to college and career programs. It informs practitioners, researchers, policy makers, and funders about best practices in adult literacy, numeracy, and English language education in publicly funded, community and volunteer-based programs in a wide range of contexts. Each issue will consist of research articles focused on a particular theme plus other content of interest to readers (e.g., resource reviews, opinion pieces, and debates and discussions on timely topics of interest to the field).

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Research Article

The Case for Collaboration: Aligning ES(O)L and Developmental Literacy to Increase Adult Immigrant Students' College Access and Preparation

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Abstract

Adult English language instruction is the fastest growing segment of U.S. adult basic education population. Supporting adult emergent multilingual students through English as a Second Language or English for Speakers of Other Languages classes, referred to here as ES(O)L, and developmental literacy programs presents a "wicked problem" for many community colleges. This article compares literacy standards and instruction across adult ES(O)L and developmental literacy contexts in six Texas community college systems. Colleges held loosely shared organizational goals but lacked sufficient leadership, structure, and time for goal enactment. Through a systems theory lens, the article explores colleges' potential to become learning organizations supporting adult multilingual students' college transition.

Keywords: English as a Second Language, English for Speakers of Other Languages, developmental education, systems theory, standards alignment

Adult English language learners are among the fastest growing segment of U.S. adult education, particularly in community colleges, where this population is typically comprised of older adult students (Janis, 2013). Unlike second generation immigrants or Generation 1.5 students who attend U.S. K-12 schools, adult-arrival immigrants frequently begin formal education in adult education English as a Second Language (ESL) and English for Speakers of Other Languages (ESOL) programs. With regard to adult education, in many states, the label "ESL" primarily refers to Title II-funded adult basic education programs, i.e., programs providing basic literacy and mathematics instruction to students aged 16 and over. While "ESL" focuses on basic language and communicative skills, "ESOL" designates student tuition-funded, advanced non-credit bearing college courses that support students' academic language proficiency for college-level reading and writing tasks similar to developmental literacy programs. However, these naming conventions

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are by no means standard across colleges or states. Therefore, to avoid confusion, I note the following about my terminology: to reflect the range of labels for the type of academic preparatory English language acquisition classes that are the focus of this article, I use "ES(O)L" as a blanket term to refer to the programs and classes examined in this study. However, when discussing existing scholarship, my use of "ESL" or "ESOL" reflects the literature cited. Finally, I refer to the students enrolled in both types of classes as multilingual adult students. For these students, streamlining linguistic and academic support is a matter of equity and offers a unique opportunity for innovative adult education programming and instruction.

Like other adult learners (Merriam & Baumgartner, 2020), multilingual adult students often possess vast life experiences and motivations to learn. Many hope to earn a college degree to increase their economic stability, to support children learning in American schools, and to participate in their communities (Almon, 2015), but they can experience multiple barriers including lengthy preparatory coursework to achieve college-level English language proficiency. Complex course sequences, challenges with providing and filling advanced ESL sections, and lack of alignment between adult ESL and ESOL (when the two exist as separate programs for adult basic education and college academic preparation) and other college-preparatory programs can make it difficult for colleges to support even the most ambitious and committed multilingual adult students in their transition into college (Suh, 2018; Tucker, 2006).

In this article, I examine alignment between ES(O)L and developmental literacy at six Texas adult education sites. Although these sites varied in their terminology, I use "developmental literacy" to refer to the first English course into which students enter as they transition from ES(O)L into college English courses, such as first-year composition, which are not designed with the primary purpose of supporting multilingual students' language acquisition. I explore how ES(O)L instructional practices align with college-level academic expectations and outline ways adult educators can collaborate with college faculty to support their multilingual adult students. After highlighting challenges facing adult ES(O)L and developmental literacy programs, I explore innovative collaboration of faculty at one college that held shared organizational goals but insufficient leadership, structure, and time to enact these goals. I conclude by discussing the potential for colleges to function as learning organizations (Senge et al., 2012) that can effectively support multilingual adult students across programs.

These operational definitions guided the study:

- Alignment: shared instructional practices and learning outcomes between two discrete college programs
- Developmental literacy: Within the larger umbrella of developmental education, these preparatory courses offer integrated reading and writing skills for students who are considered under-prepared for college; the majority of such programs were designed for monolingual English-speaking students and do not attend to issues of language acquisition; earned credits in these programs are non-transferable and not applied to matriculation
- English as a Second Language/English for Speakers of Other Languages, also referred to as ES(O)L: Classes offering English language instruction for emergent multilingual students; earned credits are non-transferable and not applied to matriculation; instructional focus is on supporting the acquisition of an additional language; colleges often offer multiple leveled classes ranging from pre-print

skills to advanced language support; this study examined advanced classes at each research site

- Instructional alignment: Teaching practices related to specified instructional standards; documented/observed through document analysis, observation, or instructor self-reporting
- Learning organization: An organization that constantly evolves to solve problems, clarify and deepen its shared institutional vision, and apply mental models (Roth & Senge, 1996; Senge, 1990)
- Transition: Exit from pre-college preparatory courses, such as ES(O)L, and enrollment in financial aid-eligible courses leading to transfer, degree, or diploma

Lack of Alignment Within a Complex System: A Targeted Literature Review

Nationwide, multilingual adult students requiring English language or academic support begin in one of two pathways at most community colleges: some advanced ES(O)L courses that are designed to prepare multilingual adult students academically for college are housed within adult basic education while developmental literacy, as a type of developmental education, falls under the college's degree and diploma-granting division although these developmental courses are not eligible for graduation requirements. Some colleges attempt to regulate students' pathway based on first language or previous formal education, but many multilingual adult students transition from one pathway to another based on personal preference rather than institutional policy, and students have expressed frustration over having to navigate complex course sequences (Suh, 2018). Indeed, course naming conventions between ESL, ESOL, and developmental literacy can further compound students' complicated transition from ES(O)L to degree programs. Students' reasons for self-selecting out of an ES(O)L program can vary, including dissatisfaction with the course sequence, financial incentives (developmental courses are eligible for financial aid), or the desire to identify as college students (Suh, 2016).

Although advanced ES(O)L and developmental literacy classes can share the goal of college preparation for college, they have distinct pedagogical traditions, exist in separate divisions, receive different funding streams, and are subject to different state standards and reporting bodies (Boylan, 2004; Kibler et al., 2011; Shapiro, 2012). English language learning courses focused on academic language proficiency may share several language objectives with developmental literacy programs. These programs offer reading, writing, and learning support strategies for incoming college students whose standardized test scores or other measures suggest that they would benefit from additional support to be successful in college. Recently, however, developmental education reforms have sought to align developmental courses to college-credit courses through corequisite models that shift to more advanced applications of critical thinking and writing (Kalamkarian, 2020) which may further distance them from academic preparatory ES(O)L instruction and student learning outcomes. Misaligned student learning objectives or instructional practices can produce inequitable academic and linguistic preparation for these multilingual adult students. This misalignment can occur, for example, when adult education classes do not provide the same rigorous instruction in writing for academic purposes as developmental literacy courses paired with first year composition. Such misalignment is especially concerning since some multilingual adult students may rely on these courses to prepare them for academic English if a college-preparatory ES(O)L program is not available to them. As a result, adult educators teaching the

most advanced ES(O)L courses may need to revise their instructional approaches and assignments to prepare ES(O)L students for college transition.

Alignment between ES(O)L and developmental literacy programming offers a unique opportunity to explore the innovative potential of the nation's community colleges for supporting multilingual adult students seeking a postsecondary certificate or degree. The benefits of aligning ES(O)L and developmental literacy are numerous. Alignment saves time and money as students enter degree courses more quickly. Unlike in ES(O)L, students enrolled in developmental literacy courses can receive financial aid in Texas. Additionally, reducing the required course sequence can increase student retention (Ganga et al., 2018). Despite these potential benefits, scholars and practitioners note a gap in knowledge about curricular alignment between ESL or ESOL and developmental courses (Fernandez et al., 2017; Gil, 2013; Suh et al., 2020). In an examination of the factors students attributed to their successful completion of ESL, Almon (2015) concluded that adult ESL programs should provide more explicit information about college curriculum and procedures. Jeffcoat et al. (2014) found strong alignment between learning outcomes in developmental and college-level courses; however, the researchers only examined alignment between basic writing and college-level courses and between adult basic education ESL courses within the ESL sequence. They did not compare across ESL to developmental literacy or first-year composition courses.

In one of the few studies to examine ESL and college faculty expectations for students, Johnson and Parrish (2010) found the greatest alignment in their instructional emphasis on "understanding and following written directions" (p. 624). However, less than half of college faculty felt using a dictionary or reference book was important—a skill which all of the ESL instructors reported teaching (Johnson & Parrish, 2010). Other areas of misalignment included aspects of writing and revising essays, of which less than one-third college faculty described as important but 87-91% of adult ESL faculty reported teaching. Fernandez et al. (2017) argue, "Academic and professional writing needs to be more of a focus in adult ESL classes. Types of writing taught and assigned need to reflect the types of assignments that learners encounter in community college" (p. 14). These studies examine writing instruction; however, less scholarship has examined alignment between adult basic education ESL and academic ESOL or between these programs and developmental literacy instruction, which also includes a specific focus on reading.

Further complicating this challenge, the faculty most frequently teaching adult ES(O)L and developmental literacy are often part-time or contingent instructors with limited access to institutional knowledge or authority relevant to working in and across programs with distinct but overlapping mandates and oversight (Williams, 2018). Significant institutional knowledge is disseminated through professional development, but even when invited, adjunct involvement is low—often due to teaching schedule conflicts (Reilly, 2017). When unable to access even the limited professional development opportunities offered to full-time faculty, adjuncts risk being "doubly excluded" and feeling less valued by or less committed to their institutions (Johnston & Schade, 2017, p. 15). Inclusion in conversations about institutional goals and organizational practices is a basic necessity for engaging in organizational development.

Competition for institutional resources and students represent another set of challenges to aligning adult basic education ESL and academic preparation ESOL as well as

developmental literacy programs. Supporting multilingual adult students seeking a college degree by transitioning from ES(O)L into developmental literacy illustrates the traits of a "wicked problem"—one that is persistent and only partially understood because of the interconnected nature of their complex and evolving elements (Rittel & Webber, 1973, p. 136). Systems theory (Senge, 1990) has been applied to explore wicked problems and institutional vision, structure, and development (Dechant & Dechant, 2010; Reynolds et al., 2006). Innovation occurs through individuals' reciprocal action and reflection within larger institutional responses to environmental complexity (Senge, 1990). For organizations to accomplish their goals, they must support learning individuals and infuse the organization with those learning practices.

Although navigating overlapping and competing systems for transitioning students from adult ES(O)L into college can present a wicked problem, the potential benefits of collaboration and the overlap through alignment between ES(O)L and developmental literacy invite institutional innovation. According to Senge's (1990) systems theory, faculty can reciprocally engage in instructional alignment and collective reflection to support students' transition. The present study asks: What efforts towards instructional alignment between ES(O)L and developmental literacy exist to support adult multilingual students' transition out of ES(O)L in Texas community colleges? What evidence exists of Texas community colleges functioning as learning organizations that facilitate student transition?

Methodology

This qualitative study examines alignment between ES(O)L and developmental literacy classes at five community colleges and one community literacy program, which provided pre-developmental literacy support, from geographically distinct areas of Texas (Table 1). Texas has a substantial multilingual adult student population (Cashiola & Potter, 2021) and significant state oversight of developmental literacy curriculum which ensured a degree of uniformity across programs and made it an ideal state in which to study alignment.

Theoretical Framework

The present study applies a systems theory lens (Senge et al., 2012) to ES(O)L-developmental literacy alignment. Systems theory illuminates organizational responses to environmental complexity (i.e., attending to a variety of objectives simultaneously; Lawrence & Lorsch, 1967) and organizational adaptions to meet individual and institutional objectives (Belinfanti & Stout, 2018). Systems theory can illustrate how individuals contribute to collective goals through personal thinking and mastery, team learning, and shared visioning. These are the core individual characteristics of a "learning organization" (Senge, 2006, p. 4). System theory can also uncover how institution-level visioning and processes produce institution-wide change. In learning organizations, individuals develop personal and collective capacities for system change.

There are multiple indicators of change capacity, or adaptability to meet organizational objectives. For instance, the organization must respond to environmental complexity and manage resulting organizational complexity (i.e., the number and interconnections of organizational elements; Schneider et al., 2017). Complexity can be internal (i.e., specialization) or collaborative (i.e., between multiple organizations). Leadership skills including strategic planning, team development, and cultural competence are essential for managing college system complexity (White &

Weathersby, 2005). Developing organizational complexity also requires investment from the learning organization and its individual members (Belinfanti & Stout, 2017). Members must possess agency and access to resources for change. Ability to articulate organizational goals reflects reflexive thinking, another change capacity indicator. Senge et al. (2012) apply systems theory to envision school systems change; systems theory can also illuminate the challenges community colleges face in supporting the nation's growing adult multilingual population seeking to transition.

Data Collection

In Texas, ESL refers to free Title II-funded adult education classes while ESOL is a tuition-based academic program preparing students for degree. However, like in many states, not all Texas community colleges or programs offer both ESL and ESOL; thus, many students depend upon ESL programs focused on basic language acquisition support or workforce readiness for academic language preparation. In this study, sites were selected based on their reputation for high-quality ES(O)L programming, regardless of whether or not a site offered academic language classes focused on college preparation (i.e., English for Academic Purposes, Intensive English programs, etc.). Five sites were housed within community colleges and one within a community literacy program. The community literacy site was included because it offered the most advanced ESL classes available in the community college's service district. As previously noted, for clarity across sites, I refer to the study's English language acquisition courses and programs as ES(O)L to acknowledge the shared focus on English language acquisition despite the varied naming conventions and programmatic structures that existed at the different colleges. However, I specify between ESL and ESOL in my discussion of Gulf College to emphasize the existence of both programs at the college and to illustrate how the college worked within this complex, wicked context to support multilingual adult students' transition into college. Finally, in keeping with the state of Texas' English as a Second Language Content Standards for multilingual adult students, I refer to the standards guiding language acquisition instruction as Texas ESL Standards (see Table 3).

Data collection included observations in 12 ES(O)L classrooms, six developmental literacy classrooms, and four literacy study centers which offered tutoring in reading, writing, and some additional disciplinary subjects. Importantly, Gulf College's six developmental literacy classes were coded by the institution as College Composition based on state mandates for corequisite courses. However, because faculty assessed the students as being underprepared for traditional composition learning objectives, instructors modified the class to focus on developmental literacy support through metacognitive (Paulson & Mason-Egan, 2007; Pressley, 2002) and affective instruction (Paulson & Armstrong, 2010).

Observations were recorded in a structured observation protocol (Creswell & Creswell, 1994) targeting classroom practices, instructor language, and assignments. The protocol included comparison of observations with state standards and alignment between six developmental literacy and ES(O)L instruction. My research team and I conducted 23 interviews and seven focus groups with faculty and administrators. Interviews and focus groups followed a semi-structured protocol to maximize responsiveness to emerging themes (Kallio et al., 2016). Over 71 hours of observation and interview/focus group data were collected (Tables 1 and 2). Relevant documents including syllabi and instructional material were also collected for triangulation.

TABLE 1: Data Collection by Site

Institution	Number of Observations *(Total Time Length)*	Number of Faculty Interviews *(Total Time Length)*	Number of Focus Groups *(Total Time Length)*
BAJA COLLEGE	4 (720 min)	6 (280 min)	1 (31 min)
BORDERLAND COLLEGE	– (canceled due to Covid)	3 (134 min)	1 (61 min)
COMMUNITY SUPPORT	4 (660 min)	4 (183 min)	1 (49 min)
GULF COLLEGE	6 (339 min)	—	2 (116 min)
PANHANDLE COMMUNITY COLLEGE	5 (780 min)	5 (226 min)	2 (90 min)
STAR COLLEGE	2 (455 min)	6 (172 min)	—
TOTAL	24 (2954 min)	23 (995 min)	7 (347 min)
GRAND TOTAL			71 hrs 36 min

TABLE 2: Faculty Discipline and Institution

Institution Institution	Participant Participant	Institutional Role (Discipline, If Applicable) Institutional Role (Discipline, If Applicable)
BAJA COLLEGE		
	Esther	Administrator, Developmental Education
	Jane	Administrator, Adult Basic Education including ES(O)L
	Lee	Adjunct, ES(O)L
	Renee	Adjunct, ES(O)L
	Rhonda	Adjunct, ES(O)L
BORDERLAND COLLEGE		
	Diana	Full Time, ES(O)L
	Dr. Dora	Administrator, ES(O)L
	Jimmy	Adjunct, ES(O)L
	Monica	Full Time, ES(O)L
	Raquel	Administrator, ES(O)L
	Yolanda	Full Time, ES(O)L and Developmental Literacy
	Zach	Full Time, Developmental Literacy

Institution	Participant	Institutional Role (Discipline, If Applicable)
COMMUNITY SUPPORT		
	Dawn	Adjunct, ES(O)L
	Eileen	Adjunct, ES(O)L
	Ellen	Administrator, ES(O)L
	Karen	Adjunct, ES(O)L
	Rose	Adjunct, ES(O)L
	Tracy	Adjunct, ES(O)L
GULF COLLEGE		
	Amal	Adjunct, ES(O)L
	Natalie	Full Time, Developmental Literacy
	Nina	Full Time, ES(O)L
	Regina	Full Time/Administrator, Developmental Literacy
	Valerie	Full Time/Administrator
PANHANDLE COLLEGE		
	Amanda	Full Time, Developmental Literacy
	Amy	Full Time, ES(O)L
	Dr. Lopez	Full Time, Psychology (corequisite with Developmental Literacy)
	Heather	Adjunct, ES(O)L
	Jacob	Tutor, Developmental Literacy
	Jennifer	Full Time, Developmental Literacy
	Karen	Full Time/Administrator, Developmental Literacy chair, formerly ES(O)L Chair
	Lois	Tutor, Developmental Literacy
	Lora	Administrator, ES(O)L
	Melissa	Full Time, Developmental Literacy
	Scott	Administrator, ES(O)L
	Sonia	Advisor, ES(O)L Program
STAR COLLEGE		
	Donna	Adjunct, ES(O)L
	Dr. Jeni	Full Time, ES(O)L
	Julie	Administrator, Developmental Literacy
	Shannon	Full Time, Developmental Literacy
	Sofía	Administrator, Student Success Lab
	Tammy	Adjunct, ES(O)L

Data Analysis

I applied reiterative thematic analysis (Clark & Braun, 2014) to observational and interview data. *A priori* codes derived from Texas Adult English as a Second Language Standards and College and Career Readiness Standards related to the language domain of reading (Table 3). Standards had similar language, but concepts not shared across both sets of standards were separately identified (i.e., the instructions, "You're going to need paraphrase skills: you can use the headings that you created" were coded as Paraphrase [ES(O)L]).

After selecting observation vignettes and participant language to conceptualize dominant themes, the data were recoded through constant comparison (Glaser & Strauss, 1967). This confirmed the fit of coded segments to evolving understanding of instructional alignment and program collaboration. I applied systems theory analysis (Senge et al., 2012), incorporating organizations' *guiding ideas*, *innovations in infrastructure*, and *relevant theories, methods, and tools*. Three graduate assistants supported coding validity checks. At least two researchers examined data during each phase, discussing coding discrepancies until resolution.

Finally, institutional narratives captured alignment between instruction and interdepartmental awareness of instruction and standards. Narratives highlighted examples of and potential for innovation and existing misalignment due to decision makers' divergent perspectives.

TABLE 3: Alignment of Reading Standards Language

Overlapping Area	Texas ESL Standards Language	College and Career Readiness Language
Focus on Genre, Purpose	Read, comprehend, and use increasingly complex print and digital texts for a variety of purposes Identify and evaluate an author's purpose and arguments	Compare and analyze how features of genre are used across texts Use effective reading strategies to determine a written work's purpose and intended audience
Focus on Identifying Ideas, Hypotheses, Author's Purpose	Identify the central ideas or hypothesis and supporting details	Identify explicit and implicit textual information including main ideas and author's purpose Use text features to form an overview of content and to locate information
Focus on Evaluating Purpose, Arguments for Evidence	Evaluate print and digital texts using criteria to determine…reliability and credibility Read to critically analyze information and make connections to interpret authors' purpose and viewpoints	Analyze and evaluate implicit and explicit arguments in a variety of texts for the quality and coherence of evidence
Focus on Inferring Meaning, Intent, Values	Identify, analyze, and evaluate an author's implicit and explicit assumptions	Make evidence-based inferences about a text's meaning, intent, and values
Implementing Strategies	Implement a variety of reading comprehension strategies (e.g., predicting, inferring, comparing, and contrasting) and know when they are appropriate to use	Use effective reading strategies to determine a written work's purpose and intended audience
Focus on Inferring Meaning, Intent, Values	Paraphrase accurately and summarize information from texts	Apply a variety of strategies to determine the meanings of unfamiliar words and phrases

Findings and Discussion

I contextualize the findings with relevant literature to amplify the voices of ES(O)L and developmental literacy faculty serving transitioning students. To answer the first research question, I examine instructional alignment between adult ES(O)L and developmental literacy across research sites. To answer the second question, I introduce Gulf College as a narrative summary of one college faculty's efforts to align ES(O)L and developmental literacy instruction. I then return to the collective data to illustrate colleges' loosely articulated alignment goals and the limited resources available for their achievement. I also point out shared opportunities for innovation through additional collaboration.

Instructional Alignment: Loosely Overlapping Standards and Goals

The most advanced levels of English language instruction for multilingual adult students can serve a similar function as developmental literacy courses in preparing students for college. The state of Texas has two sets of related but distinct standards for ESL and developmental education (Table 3). This study examined alignment between these standards and alignment between standards and instructional practice for evidence of shared system goals.

The thematic analysis of instructional alignment between the ES(O)L and developmental literacy programs across the sites uncovered limited instructional alignment efforts; however, there was evidence of instructional adherence to relevant standards which themselves had substantial overlap. Instructional practices corresponded to every focus area, suggesting basic alignment between ES(O)L and developmental literacy at each site (Table 4); however, the majority of observed alignment occurred by happenstance rather than intentional efforts to support multilingual adult students' transition.

TABLE 4: Reading Standards Implementation in ES(O)L and Developmental Literacy Courses

Instructional Foci by Reading Standard	Instructional Examples
Focus on Genre, Purpose (28)	
ES(O)L Instructional Examples (19)	Instructor asked students to describe a picture and predict why the author was writing the piece (ES[O]L Observation)
Credit-level Instructional Examples (9)	"Having them understand different forms and information" (Developmental Literacy Instructor Interview)
Focus on Vocabulary, Grammar Knowledge (93)	
ES(O)L Instructional Examples (65)	"Instructor went through the difficult words with students, helped them come to their own definitions regarding their personal experiences – i.e., students' understanding of the word 'rattled' via their knowledge of rattlesnakes and their experience of the physical effects of fear or anxiety. Instructor would frequently question students' knowledge of a word, getting them to think more deeply about the definition." (ES[O]L Observation)
Credit-level Instructional Examples (28)	"He is 'curt' That might be a new word for you. So curt means he doesn't really want to discuss it with you, he just wants to tell you and go on"(Developmental Literacy Observation)

Focus on Identifying Ideas, Hypotheses, Author's Purpose (33)	
ES(O)L Instructional Examples (20)	Class collectively brainstormed the main idea after reading a passage together (ES[O]L Observation)
Credit-level Instructional Examples (13)	"I have readers' notebooks.... It's an opportunity to talk about genre, audience, purpose" (Developmental Literacy Instructor Interview)
Focus on Evaluating Purpose, Arguments for Evidence (20)	
ES(O)L Instructional Examples (10)	"We open the textbook and discuss the purposes and reasons for another type of essay, and what they might look like, look at some examples, go through, judge those, and learn how to critique those" (ES[O]L Instructor Interview)
Credit-level Instructional Examples (10)	Instructor asked comprehension questions building to a main idea for the reading (Developmental Literacy Observation)
Focus on Understanding Information/Ideas in Writing (31)	
ES(O)L Instructional Examples (25)	Instructor provides detailed step-by-step instruction on how to write a summary (ES[O]L Observation)
Credit-level Examples (8)	Highlighting important details and marking in the margin (ES[O]L Observation)
Focus on Inferring Meaning, Intent, Values (11)	
ES(O)L Instructional Examples (9)	Instructor offered explicit instruction in annotation and summary leading to essay outlining (ES[O]L Observation)
Credit-level Instructional Examples (2)	Instructor expects students to "be able to make inferences" (Developmental Literacy Observation)

Observed ES(O)L instruction targeted foundational aspects of reading skills (Table 4). For example, one Panhandle ES(O)L class focused on identifying ideas, i.e., finding and paraphrasing the main idea from short portions of text. In the developmental literacy class, however, students held a detailed discussion moving from identifying ideas to inferring character motivations in a short story. Throughout, the instructor demonstrated applying basic reading skills to complex literacy tasks. Differences in instructional genre and purpose similarly illustrated increasing task complexity in developmental literacy. While ES(O)L students predicted author's purpose based on a single image or aspect of the text, developmental instructors expected students to understand "different forms and information," applying predictive skills to multiple genres and text types.

Vocabulary development also exemplified overlapping standards and differing levels of instructional explicitness. ES(O)L instruction embedded more frequent, richer vocabulary support. In a Baja ES(O)L class, the instructor, Renee, paused mid text-to-text connection to ask students about unknown vocabulary in what appeared to be a well-established classroom routine. Developmental literacy vocabulary instruction was similarly integrated into other literacy tasks, but some developmental instructors also believed students would simply absorb vocabulary through extensive reading. Shannon, a developmental instructor, expected students to passively acquire vocabulary in context while annotating philosophy and anthropology texts. Although some of variation in expectation may be attributed to individual instructor training or pedagogy, their perspectives were representative of a general division between ES(O)L and developmental literacy instructors.

This focus on disciplinary literacy tasks was another notable area of alignment. Across the colleges, instructors discussed and were observed

referencing literacy tasks in other college classes. Like Shannon's introduction to college-level texts in the developmental course, Karen introduced information students currently enrolled in ES(O)L would encounter after transitioning, "So if they go to college, [they know] what a syllabus is, how to read it, how to interpret that information." Shannon similarly explained rubrics. In interviews and classroom observations, ES(O)L and developmental instructors alike recognized students' interest in college and drew connections to coursework. This shared instructional emphasis on preparation for future postsecondary education aligned with both the Texas College and Career Readiness Standards (developmental literacy) and adult English as a Second Language Standards.

Potential as Learning Organizations

Instructional alignment between adult ES(O)L and developmental literacy requires support from individual faculty who view themselves as part of a larger system with common goals. However, even when faculty collaborated across programmatic silos, the study uncovered no evidence of the large-scale, institutional commitment of a learning organization (Senge et al., 2012). In answering the second research question, I introduce the narrative case of Gulf Campus. Through a systems lens, I then contextualize my analysis of the data across all sites summarizing study-wide evidence of limited engagement and highlighting potential for developing learning organizations.

Gulf Campus: A Collaborative Model

Gulf College is a medium-sized campus on the outskirts of a large metropolis. During fall of 2018, Gulf enrolled 12,550 degree-seeking students, over 70% of whom identified as racial minorities. At Gulf College, multilingual students seeking English language acquisition instruction could enroll in either Title II-funded ESL classes or a non-funded, more advanced ESOL sequence focused on workforce readiness. However, because many of the students enrolled in ESL and ESOL classes were interested in college graduation, administrators created a corequisite pairing of the advanced ESOL class and first-year composition. Gulf was the study's only site to include composition. Such a pairing allowed students to take the college literacy course while still enrolling in an ESOL support class. Modeled after the Community College of Baltimore County's Accelerated Learning Program (ALP; Adams et al., 2009), this corequisite program enrolled student cohorts in both Gulf's most advanced level of ESOL and a class focused on developmental literacy skills. Although the developmental class held a composition prefix, instructors realized that the students would not yet be successful in a traditional composition course and modified the class to include traditional developmental literacy class scaffolds and supports (Paulson & Mason-Egan, 2007) and align with developmental literacy objectives (Paulson & Armstrong, 2010). Four instructors taught in the two sections of the corequisite pairing per term. The program had just experienced instructor turnover: Amal, an adjunct, was hired to teach one of the advanced ESOL classes shortly after the term began.

Gulf faculty described several benefits of their collaboration that reflected the emergence of a learning organization (Senge, 2006). Valerie and Regina, the chairs of ESL and developmental literacy respectively, collectively designed the model and course calendar and taught the classes. Because of her late hiring, Amal had limited time to familiarize herself with the model but described Valerie as a "mentor" who shared materials and answered questions. Amal felt that teaching the same course as Valerie strengthened their collegial relationship; she also described their disciplinary conversations based on their advanced degrees in

Teaching English to Speakers of Other Languages. Valerie similarly referenced ongoing collaborations with the English chair. All four instructors appreciated their informal communication, demonstrating the collaboration's knowledge development and management (Senge et al., 2012).

Faculty also appreciated cross-departmental planning to "come up with the best scenario, and what's going to give success to our students. That's our top priority" (Valerie). Collective discussions to modify instruction and expectations for students illustrated their reflexive practice (Senge et al., 2012). This collaboration also impacted their teaching. In an ESOL lecture on summarizing main ideas, Amal highlighted connections to thesis statement instruction in the paired composition class. Similarly, Regina and Valerie referenced ESOL instruction aligned with both Texas ESL and Career and College Readiness Standards, such as providing explicit grammar instruction. This collaborative and intentional integration demonstrated the faculty's shared vision which is essential to forming the mental models of the challenge they are addressing and the tools at their disposal (Senge et al., 2012).

Based on this shared conceptualization, Gulf's developmental literacy instructors highly valued their faculty peers. Realizing that some developmental literacy assignments and expectations were beyond their corequisite students' current abilities, the developmental instructors looked to their counterparts who taught beginning adult ESL or ESOL courses focused on college preparation, particularly to integrate reading instruction into their developmental literacy class. This also demonstrated faculty's interdependence, an essential learning organization characteristic (White & Weathersbee, 2005), and a level of managed complexity—"the ability to see larger systems and forces at play especially where complex and 'messy' problems are concerned, and to construct public, testable ways of expressing those interrelationships" (Senge et al., 2012, p. 16).

Gulf instructors also encouraged students to utilize campus resources, including the tutoring center and online course documents. Shared expectations and reminders between the classes further solidified their alignment. Regina described jointly addressing "not just the calendar, but guidelines. These are just some things that we anticipate will make a coreq situation be more effective." This emphasis on building a system of resources and the team's relationship was evidence of their shared mental model (Senge, 1990) and, according to Regina, "maintain[ed] the integrity of our working relationship." Based on initial collaboration over the "model calendar" of scaffolded, thematic assignments, the group planned to next address collective assignment design.

Despite these achievements and the potential for increased collaboration, Valerie acknowledged alignment was "a challenge and a work in progress." The group included two department chairs with significant administrative duties and an adjunct whose teaching schedules at multiple institutions made meetings difficult. There were no resources to support their work or pay Amal for collaboration. As a result, the group lacked opportunities to recalibrate their instruction as the term progressed. Lack of collaboration with other faculty, mentoring, and prep time negatively impact student learning, graduation rates, and likelihood of transferring from a two-year to four-year institution (Murray, 2019). The negative effects of under-supporting adjunct instructors are particularly concerning given the academic aspirations of multilingual adult students transitioning into developmental literacy courses.

Limited resources for ongoing collaboration and communication were challenges facing programs in the study and illustrated the continued need for reflexive thinking to solve their wicked problem. Yet such collaborative critical reflection improves the practice of community college teaching (Brookfield, 2002). Formal and informal learning with colleagues drives individual and organizational learning (White & Weathersbee, 2005). Without dialoging and processing time, faculty had limited ability to sustain change. Indeed, time was perhaps the most necessary resource colleges could have provided. Valerie also expressed frustration over limited administrative direction. This was echoed by Natalie and Regina's concerns that the composition course was not as intense as other sections because students were "not ready" without intensive language support from ESOL. Thus, faculty struggled to align within and between programs. Despite these challenges, the team remained committed to the corequisite, believing they could better support multilingual adult students through it.

Study-wide evidence of limited engagement or collaboration. Amongst the study sites, the four-person team of Gulf faculty best exemplified the potential of a college to become a learning organization in support of transitioning multilingual adult immigrant students. Overall, despite clear evidence of overlap in adult ESL and developmental literacy standards and instruction, ES(O)L and developmental faculty had little to no direct or sustained interaction with each other across the study's other five sites. Borderland ES(O)L faculty officed on a separate campus and could not name their developmental counterparts. Star College instructors had little to no understanding of the other program's standards or instruction.

Panhandle ES(O)L and developmental literacy reported that they did not hold shared meetings or engage with faculty from the other program. Instead, they depended upon a single faculty member, Karen, who served first as department chair in ES(O)L and then in English. (At Panhandle, ESL and ESOL classes were offered by the same department.) Melissa, a developmental literacy instructor, explained her program's pervasive belief, "Karen knows [about ES(O)L], so we have a resource if we ever want to know something, we can go to her and say, 'What do we do about this?' and she has an answer." This assumption that Karen was the conduit between the programs and that additional, or structured, collaboration was therefore unnecessary represents a mental model that commonly impedes school improvement: "Before you change the rules, you must first look to the ways that people think and interact together" (Senge et al., 2012, p. 25). Melissa only contacted ES(O)L if a student came without adequate preparation: "We usually don't have much crossover [with ES(O)L because students] ... come over to us, and they're ready for our classes." Panhandle's faculty were typical in this regard. Programs demonstrated some evidence of standards alignment, but few had actual collaboration, and many faculty and administrators appeared ignorant of the complexities involving transition at their college let alone how to support multilingual adult students' transition.

Study-Wide Evidence of Collaboration Opportunities

None of the observed colleges invested at the institutional level in instructional alignment; however, their loosely articulated organizational goals and individual faculty efforts suggest the potential for these and other colleges to become learning organizations. Such a transformation necessitates supporting individual learning and applying it to institutional learning. Senge et al. (2012) distinguish between generative

(i.e., concept creation) and reflective thinking (i.e., concept revisioning and connecting to the institutional mission to expand and support processes). These types of thinking are essential to generating new ideas and reflecting upon their utility and adaptability for achieving institutional goals. Senge et al. also identify three elements of organizational learning: *guiding ideas*, *theories/tools/models*, and *innovations in infrastructure*. In this section, I report findings across the corpus of colleges related to generative and reflective thinking.

Deciding "who has to drive it." Leadership and a guiding theory are essential to generative and reflexive thinking (Senge, 1990). Supporting the transition from ES(O)L to college of multilingual adult students requires strong leadership to develop and disseminate the strategic plan. Regina described the dilemma of "Who has to drive it?", establishing consensus on the standards for the paired classes and the team's decision making,

> The truth is I have students who are not ready for 01 [the developmental literacy class]…. That's the reality of it, so it would be ridiculous if I said, 'Let my class be the one [to determine the learning objectives for the collaboration].' That would be ridiculous. So, I think there are elements of the ESOL class that have to drive the direction of 01 to a certain point.

Natalie, Gulf's other developmental literacy instructor, concurred, "I think those are some things that we can collaborate [on] when we do that next year." Natalie offered the example of a shared text, "It can be 'Hey, I want them to read this for my class.' And if we agree that we can split that reading between the two classes, we have this variety of texts that can count."

This suggested the benefits of dialogue and generative conversations to promote consensus. Regina and Natalie were sensitive to students' needs and the importance of a shared vision for innovative but uniform changes. In a learning organization, dialogue between team members facilitates individual in-depth contemplation for changing assumptions and behaviors (Senge, 1990). The Gulf team had not yet engaged in this work, but they recognized a need for it.

Bolstering fledging collaborations. The research sites demonstrated varied interest and ability to foster generative and reflexive thinking. Esther, a Baja College district administrator for developmental education and ES(O)L lamented,

> If you're not taking your time, you can't be building that quality program…. I had a dream that if I could put all of the partners together in one room and I could host a summit…but [right now] nothing is coherent. Come on we have the same goals! You have to coordinate it.

This spoke to Baja's need for a guiding idea or shared program-level vision. Esther believed faculty held shared goals but were unable to rally: they lacked a model to coordinate their efforts.

Learning with and from other programs. Team learning occurs in relationship to individual and organizational learning and is a key discipline for transformative organizational learning (Senge, 1990). Star College developmental and ES(O)L faculty shared professional development: an ES(O)L-led writing training and a developmental-led reading training. Tammy, an ES(O)L instructor explained, "We were at loggerheads more, and now I think we're recognizing, we have the same struggle and we want the students in our class… [to] have the best." Shannon was similarly enthusiastic:

> We were hoping that we could… collaborate with them—maybe even team teach that would be great…. That one meeting, you know, we are all sharing things, and I could hear from those instructors how thankful they were to hear some of the things that we were doing.

Faculty valued this formal cross-training and collaboration. Shannon appreciated the increased visibility of the other programs' assets, what Senge et al. (2012) describe as "arranging a group of

scattered elements so they function as a whole by orienting them all to common awareness of each other, their purpose and their current reality" (p. 116). Ultimately, however, Star lacked an articulated alignment model and therefore did not tap its full organizational learning potential beyond the team of ES(O)L and developmental literacy faculty.

Final Reflections

This is only a study of instructional alignment: a small component in the necessarily larger examination colleges' potential as learning organizations. A more comprehensive future study could examine advising, tutoring, and other forms of student support as well as student outcomes. Data collection was also dependent upon faculty's self-reports of engagement within and across programs. Despite these limitations, the findings illuminated instructional alignment efforts at six sites of adult ES(O)L and developmental literacy to explore how community colleges can function as learning organizations. Texas-mandated ESL and developmental literacy standards present a unique opportunity to examine institutional alignment between ES(O)L and developmental literacy to solve the "wicked problem" (Rittel & Webber, 1973, p. 136) of supporting multilingual adult students' academic and career goals across college divisions. Despite substantial overlap in ES(O)L and developmental literacy standards, colleges engaged in varying levels of cross-departmental efforts to transition students with only loosely shared organizational goals and insufficient leadership, structure, and time.

The majority of ES(O)L and developmental literacy faculty are adjuncts (Twombly, 2005). With their varying professional development, training, and previous experience, these instructors supporting the most marginalized students are in danger of marginalization themselves (Curtis, 2014; Johnston & Schade, 2017). The intentional collaborations observed at Gulf filled an important pedagogical need while elevating the status of ESL, ESOL and developmental faculty among their institutional peers. Yet no faculty or institutions held a clearly articulated mission guiding their collaboration or support for students across programs. More than simply pairing courses, a learning organization approach to alignment would articulate a larger goal for intentional collaboration and establish institutional supports for leveraging individual learning and development.

When adult educators understand the increasing language and literacy expectations facing their students, they can scaffold instruction to better align ES(O)L and developmental literacy programs. Senge et al. (2012) describe team learning as a "discipline of practices designed… to get the people on a team thinking and acting together" (p. 115); institutions can become learning institutions that solve difficult problems through continuous dialogue and collaboration. The present findings demonstrate the opportunity and potential for individual and institutional efforts to respond to complex problems as opportunities for rethinking our very system for serving students.

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Research Article

The Effects of an Adult Literacy App on Word Decoding

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Abstract

In the United States, 16.6 million adults are unable to comprehend sentences or read common documents, thereby limiting their ability to participate in a literate society. Given the consequences of low literacy, we conducted a single-case study with adult multilingual learners to test the effectiveness of a game app, Codex: The Lost Words of Atlantis, on word decoding. The analyses of the pilot study showed moderate to large effect sizes on phonological decoding of taught and untaught words and large and statistically significant increases from pre-test to post-test on five distal reading measures. These results suggest the app may support adult multilingual learners in learning to decode common English words.

Keywords: adult literacy, multilingual learners, word decoding, gameplay, single-case research design

The relationship between English literacy in the United States and positive social outcomes including better health, increased educational and employment opportunities, and higher wages is well established (Rothwell, 2020). Yet,16.6 million individuals ages 16- to 65-years-old are identified as below Literacy Level 1 by the Program for the International Assessment of Adult Competencies (Mamedova & Pawlowski, 2019). Adults at or below Literacy Level 1 often do not have basic literacy skills supporting them to read short sentences or texts, complete common forms, or identify or make inferences from information (National Center for Education Statistics, 2017). Furthermore, within this level, individuals who are born outside of the United States are represented twice as frequently as adults born in the United States.

Adults at or below Literacy Level 1 often depend on adult literacy programs to increase their reading ability. However, access to adult literacy programs is already limited, and if available, are often at capacity (ProLiteracy, 2022). For example, in Texas, a state ranked 44 out of 50 for adult literacy (National Center for Education Statistics, 2017) and a state with a large population of residents born outside of the United States and identified as English Limited Proficient (54%) (Migration Policy Institute, 2019), 4.8 million adults need adult education programs (Texas Workforce Investment Council, 2018). Further, the Texas Workforce Investment Council (2018) estimates that this need will increase by 80% from 2020 to 2050.

To support individuals at or below Literacy Level 1

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to gain access to literacy instruction, a group of Texas-based researchers collaborated to develop a smartphone/tablet-based literacy app. As part of the Barbara Bush Foundation Adult Literacy XPrize Global competition, the app called *Codex: The Lost Words of Atlantis* (from here, the app) was developed in 12 months and designed specifically for adult multilingual non-readers to acquire foundational English literacy skills (People ForWords, 2017).

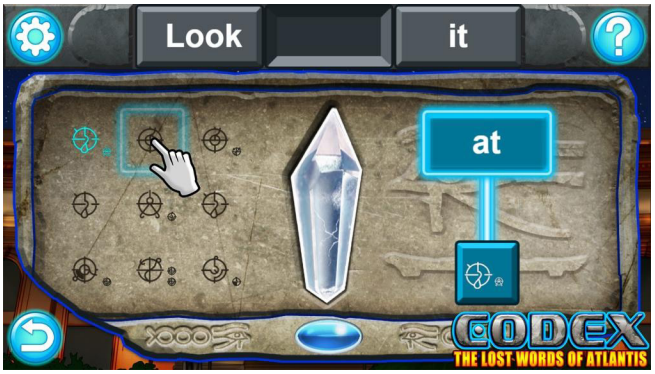
Rationale for App Design

The App Design

A smartphone or tablet provides access to reading instruction through the app. Because of this, individuals learn and practice foundational English literacy skills in private, during short time periods, and at their own pace in order to mitigate larger social structures and policies that may impact access to adult education (Biglow & Vinogradov, 2011). In addition, research on gaming suggests that an adventure format may engage players to persist in improving upon their current performance levels (Wichadee & Pattanapichet, 2018; Woo, 2014). Therefore, the app is designed within the context of an adventure where players assume the identity of an enterprising archaeologist searching for clues to the forgotten language of the lost civilization of Atlantis.

Players begin in the country of Egypt and move through five levels of gameplay by completing literacy games focusing on different foundational reading skills including: letter-sound fluency; word identification fluency; and phonological decoding fluency using onset-rime. (See Table 1.) During each game, the sound or word is said aloud and the user selects it on the screen. (See Figure 1.) To support Spanish-speaking multilingual learners, a read-aloud dictionary supports meaning-making across Spanish and English languages. The skills and content in each level are reinforced through games that mimic real world tasks, such as reading mailing labels, street signs, or lists of objects.

FIGURE 1: The App in Use: Learning Sight Words



Notes: Image from *Codex: The Lost Words of Atlantis* (Southern Methodist University, n.d.)

Letter-Sound Fluency

Players begin each (new) level playing a game providing instruction and practice with letter-sound fluency. The rationale for starting with this skill is adults at or below Literacy Level 1 need instruction on phonological tasks required of proficient reading since they show reliance on experiential word knowledge and there may be a presence of double deficits in phonological processing and speed/rate of word processing compounding already weak phonological abilities (Sabatini, 2002). In addition, adults who are multilingual typically know that print carries meaning but may not be able to link or manipulate letters-sounds, unitize words, and in most cases, assign meaning to English words and phrases, other than basic words and symbols (Adrian et al., 1995; Kolinsky et al., 1987; Morais et al., 1979).

Sight Word Fluency

Adults at or below Literacy Level 1 show a reliance on experiential word knowledge, including sight words (Eskey, 2005). However, this knowledge is often unsystematic and incomplete. Thus, sight

TABLE 1: Literacy Skills Developed During Gameplay in Egypt

Level	Letter Sound Fluency *Match lower case letters with their common sounds.*	Word Identification Fluency *Match written and spoken sight words.*	Phonological Decoding Fluency *Blend and segment consonant-vowel-consonant (CVC) & consonant vowel consonant consonant (CVCC) words using onset-rime.*
1	a, f, m, p, s, t	40 sight words across 5 levels	-am, -ap, -ast, -at words
2	d, g, h, n o		-ad, -ag, -an, -og, -op, -ot words
3	i, k, l, w		-id, -ig, -ip, -ill, -in, -it words
4	b, c, r, u		-ab, -ib, -ob, -ub, -ug, -un, -up, -ut words
5	e, j, v, x, y		-et, -en, -ed, -eg, -ell, -ax, -ex words

words taught and practiced during gameplay may ensure emerging adult multilingual readers to fluently identify and understand connected text.

Phonological Decoding

Since phonological decoding is an area of weakness in adults at or below Literacy Level 1 (Greenberg et al., 1997, 2002; Thompkins & Binders, 2003), we designed a game to build and segment CVC words by onset-rime. Further, research indicates that adults benefit from explicit instruction on phoneme segmentation and manipulation (Adrian et al., 1995; Kolinsky et al., 2019; Kruidenier, 2002; Kruidenier et al., 2010; National Reading Panel, 2000), as well as practice of building and maintaining phonological representations of words (Dietrich & Brady, 2001). Therefore, gameplay initially focuses on explicit instruction of phonemes and phoneme segmentation to develop word decoding skills.

Purpose of the Current Study

In sum, the literature suggests that adults at or below Literacy Level 1 need systematic instruction of letter-sound fluency, word identification fluency, and explicit practice with phonemic segmenting and blending tasks. Because of the need for such an approach, we hypothesize the app could benefit adult multilingual learners at or below Literacy Level 1 and who may not have access to adult literacy classes. Therefore, our pilot study investigates two research questions:

1. Is there a relationship between playing the app and phonological decoding of taught and untaught words?
2. Will adult multilingual learners make literacy gains from pre-tests to post-tests on distal measures during the 8-week study?

Methods

Research Design

This 8-week study was conducted to understand the relationship between the app and phonological decoding of taught and untaught words, as well as the acquisition of foundational English literacy skills from pre-tests to post-tests. Since the population of our study has been historically marginalized, an experimental group design with a sufficient sample size was difficult to obtain. Given this, we used an experimental single-case research design (Kratochwill et al., 2010). Single-case design provides rigorous experimental control

with each case serving as its own control. Multiple cases provide experimental replication and corresponding effect sizes are easily aggregated for estimation of overall causal effects (Burns, 2012).

The goal of this design was to provide experimental evidence to evaluate the change in targeted reading skills in response to the app (the "intervention"). Very simply, each participant provided a series of carefully obtained measures prior to using the app (the "baseline" phase), followed by a series of similar measures obtained while using the app (the "intervention" phase). As described below, analysis of the time-series data statistically contrasts the intervention data to the baseline data.

Based on an initial placement assessment, gameplay started at the participant's current skill level, followed by a series of very brief proximal measures of skill mastery, specifically mastery of phonological decoding of words taught (or practiced during gameplay) and skill transfer of learning to untaught words. After demonstrated mastery (after assessing at least five words), the app increments to the next skill level. These proximal measures were obtained during the baseline and intervention phases, resulting in a series of data points suitable for statistical analysis and estimation of experimental effects. In addition, distal measures were collected pre- (beginning of baseline) and post- (end of treatment), (i.e., letter-sound fluency, word identification fluency, phonological decoding fluency of isolated sounds and words) providing two data points for each measure. These data measured more global variables hypothetically related to use of the app.

With each of the nine participants treated as a single-case, we collected multiple-baseline data to test the effectiveness of the app across game levels and to examine the relation between using the app and progress on the proximal measure (e.g., Allor et al., 2018; Gast et al., 2014). For each individual case (i.e., participant), the multiple baseline design allowed us to experimentally study the effect of the app on reading across the different levels of gameplay. At each level, the baseline phase provides data for each case serving as their own control when the intervention is introduced. Based on placement tests, all participants began in Level 1. Each participant was treated as a unique case study and then the nine single-case results were aggregated for inference about the overall treatment effect.

Setting and Participants

After Institutional Review Board approval, we conducted an 8-week pilot study to test the effectiveness of the app. Because of budget and time constraints (due to our participation in the Barbara Bush Foundation Adult Literacy XPrize Global competition), we opted to use a convivence sample to understand the effectiveness of our app on the target audience: Spanish-speaking multilingual adults. To recruit participants, we provided flyers to local community centers in the Southwest. To be included in the study participants had to (a) be 18 years of age or older; (b) Spanish-speaking multilingual adults; (c) have not had the opportunity to develop basic literacy skills in English and in Spanish; (d) score at or below grade level 1.5 on a battery of standardized measures; (e) not be involved in any secondary or postsecondary education; and (f) have no known intellectual, hearing and/or sight disabilities. We recruited nine participants who were born outside of the United States and wanted to learn to read and write in English. For example, many of the participants, like Isabella and Luciana, wanted to learn to read to support their grandchildren and/or children who attended a local elementary school. Others, like Samuel and Sara, wanted to be able to better communicate with others in their workplaces. (See Table 2.)

TABLE 2: Participant Demographics

Participant*	Age	Gender	Highest Grade Level Completed	Technology Use Before Study
Sofia	60	Female	9th Grade	Cell Phone & Limited Game Play
Isabella	58	Female	2nd Grade	Cell Phone & Limited Game Play
Valentina	53	Female	9th Grade	Cell Phone & Limited Game Play
Samuel	56	Male	8th Grade	Cell Phone for calls only
Camila	20	Female	1st Grade	Cell Phone & Limited Game Play
Luciana	36	Female	8th Grade	Cell Phone & Limited Game Play
Jimena	54	Female	8th Grade	Cell Phone & Limited Game Play
Gabriela	49	Female	5th Grade	Cell Phone & Limited Game Play
Sara	52	Female	3rd Grade	Cell Phone & Limited Game Play

* **Note:** participants names are pseudonyms

Procedures

Participants were pre-tested using a competency-based standardized test of general reading ability and three one-minute assessments, which measured letter-sound fluency, word identification fluency, and phonological decoding fluency of isolated sounds and words. These measures were chosen to correspond directly to the skills taught in the game.

Participants received tablets and hotspots to access the app and online conferencing software. We found that use of the tablets and hotspots required extensive training due to participants' unfamiliarity with these technologies and we provided in-person workshops to overcome this barrier. Next, we trained participants to play the game and were asked to play the game four times a week for approximately 20 minutes across 8 weeks.

During the study, two multilingual data collectors contacted the participants four times each week via Zoom to test their word-reading ability using proximal measures on taught and untaught words (described below). These interactions were recorded. Upon study completion, we post-tested the participants using equivalent forms to the pre-test battery of standardized assessments. Participants were allowed to keep the tablets they used during the study to continue their learning.

Participant Measures

Screening

To be included in the study, participants needed to score at or below grade level 1.5 on relevant measures including: Letter Identification, Word Attack, and Passage Comprehension subtests from the Woodcock Johnson III Tests of Achievement (Woodcock et al., 2001). To provide an indication of overall lexical knowledge, the Picture Vocabulary subtest from the Woodcock-Munoz - Spanish Version (Woodcock & Munoz-Sandoval, 1993) was also administered. (See Table 3.)

Proximal Measures

Proximal measures were administered to see if participants could decode increasingly complex

taught (words that they had exposure to during gameplay) and *untaught* decodable words for a given game level. For experimental purposes, each level of the game has a baseline and an intervention phase. Within the baseline and intervention phases of the five levels of gameplay, we created a proximal measure of 60 decodable words aligned to that level of gameplay and five alternate forms for each individual player. We used alternative forms to: (a) establish the pre-intervention baseline for *untaught* words that will be taught in the next level of gameplay, (b) determine mastery of *taught* words that players had exposure to within the current level of gameplay, and (c) observe any *transfer* effects to untaught words containing letter-sound combinations that players had previous exposure to in the game. With correct responses scored "1" or "0" otherwise, at least five data points were recorded for each of the five baseline-intervention measures (Kratochwill et al., 2010). (See Table 3.) Data collection continued until measures were obtained four times per week via Zoom Teleconferencing. Each testing session was untimed, and video recorded.

During the baseline phase of each level participants responded to measures of both taught and untaught words. The taught words were measures of the current phase effect, while the untaught words provided the baseline measure for the next level, i.e., untaught words are sampled from the next level. As noted above, each item is scored "1" correct or "0" otherwise, and a score of 85% on at least 5 data points of taught words was required prior to advancing to the next level.

Distal Measures

In addition to the short-term weekly measures, overall literacy gains were measured in person at the beginning and end of the study using the following measures: (a) the computer adaptive version of the Comprehensive Adult Student Assessment Systems (CASAS; Posey & Jacobsen, 2009); (b) Letter-Sound Fluency (Fuchs et al., 2001); (c) Word Identification Fluency (Fuchs et a., 2004); and (d) Decodable CVC Test (researcher-created) of isolated letter-sounds and words. (See Table 3.)

Survey

To provide us with information regarding the feasibility of the game app, we developed a participant survey. The survey was constructed using the five components of feasibility, as established by Bowen and colleagues (2009), including: (a) fidelity of implementation and dosage, (b) acceptability to end-users, (c) demand, (d) practicality, and (e) end-user recommendation for expansion or modification. This instrument allowed for open-ended as well as Likert scale responses. The data collectors conducted individual survey sessions, which were untimed and video recorded. (See Table 3.)

Data Analysis

Proximal Measures

Using the web-based Tau Calculator (Tarlow, 2016a), we determined if a baseline trend existed, i.e., was the participant performance changing prior to treatment. By design, we hypothesized no change during baseline prior to implementation of the baseline. If a trend did not exist (Tarlow, 2016b), a visual analysis of the data was performed to notice patterns in the trendlines for the baseline, taught, and transferable word-decoding data, as it was an important step in drawing conclusions about validity (Parker et al., 2011). The statistic Tau was then calculated to as the effect size index (Tarlow, 2016b).

Distal Measures

The Wilcoxon Signed Rank Test was used to analyze the pre-to-post distal measures. We did not make assumptions about the population

TABLE 3: Participant Measures

Source	Measure	Skills	Time
Screening	**Woodcock Johnson III**[a]		
	Letter-Word identification	Identify letters and words	Untimed
	Word Attack	Decode letters and words	Untimed
	Passage Comprehension	Read and understand text	Untimed
	Woodcock-Munoz[b]		
	Picture Vocabulary	Identify pictures in Spanish or English	Untimed
Proximal[g]	Taught words	Read words taught from current game level	
	Transferable words	Read words made up of previously taught letter-sounds	5 minutes
	Untaught words	Read words from next game level to establish baseline	
Distal	CASAS[f]	General reading knowledge related to life/work skills	Untimed
	Letter Sound Fluency[c]	Letter-sound recognition	1 minute
	Word Identification Fluency[d]	Sight word reading ability	1 minute
	Decodable CVC Word Reading Fluency[e]	Phonological decoding ability of isolated letter-sounds and words in closed syllable word patterns	1 minute
Survey	Feasibility of the App	Fidelity of implementation and dosage, acceptability to end-users, demand, practicality, and end-user recommendation for expansion or modification	Untimed

Notes: [a]Woodcock et al., 2001; [b]Woodcock & Munoz-Sandoval, 1993; [c]Fuchs et al., 2001; [d]Fuchs et al., 2004; [e]Researcher-created; [f]Posey & Jacobsen, 2009; [g]Researcher-created.

distribution and therefore used the small sample nonparametric alternative to the repeated measures t-test to determine if there were significant changes pre- to post-intervention.

Results

Proximal Measures: Relationship Between Gameplay and Literacy Outcomes

Research question 1 asked whether a relationship exists between playing the app and phonological decoding of taught and untaught words. Consistent with the Meets Standards recommendations as outlined by the What Works Clearinghouse (Kratochwill et al., 2010), at least five data points for the baseline and intervention conditions were collected and 85 percent word-reading accuracy was required before individuals could move to the next level of gameplay. To this end, the data for five baseline-intervention conditions were visually and statistically analyzed to investigate the game effect (Parker et al., 2011). First, we used the web-based Tau Calculator (Tarlow, 2016a) to test if a statistical trend existed within the participant's baseline series of data points. When a baseline trend did not exist, we performed a visual analysis. In these data, we noticed a marked change in reading proficiency once participants advanced to Levels 3, 4, and 5 of gameplay. To describe these intervention effects in detail, we examined three changes in the data: trend, variability, and performance (level). (See Figures 2 and 3).

Trend

First, we examined trendlines for (a) baseline (currently *untaught* words related to the next level of gameplay), (b) intervention (*taught* words), and (c) trendlines for *transfer* words. As trend reflects movement in the data over time, we looked at the visual changes in the trendlines between the baseline and intervention conditions, noting the direction of the data path and the immediacy of effect within and across participants. In Levels 1 and 2 (of the game), we observed the trendlines for baseline untaught words, intervention taught words, and transfer words were positive (with a few exceptions), indicating that participants may have improved without intervention. However, beginning in Level 3, the baseline trend for most participants' untaught words became flat or even negative, while the slope for taught and transfer word-reading ability became increasingly positive. This shift in baseline trend and subsequent acceleration of the intervention suggests that in Levels 3, 4, and 5, the game may have begun to support literacy development. Notably, in five of nine participants, Level 4 trendlines for taught words show an immediacy of effect between the baseline and intervention condition with no overlap. The slopes of the remaining four participants indicate a positive, but delayed response with some overlap. For Level 4 of the transfer words, one of nine show immediacy for taught words, while marginally delayed responses were observed in slopes of five participants. The transfer-word trendlines of the remaining three participants tended to be flat.

Variability

Next, we looked at the variability in the baseline, taught word, and transfer word trends. Upon visual analysis, we noticed a wide fluctuation of the trendlines across all participants. Because we had a strong a priori assumption that multilingual learners with low-literacy had limited experiential sight word recognition, variability in the baseline was somewhat anticipated; however, variability in the intervention was also observed, indicating that participants may not have been consistent in the pronunciation or identification of the letter-sounds when reading taught and transfer words. We note that this variability may also have come from extraneous random error associated with the participants' unfamiliarity with the technology.

Performance

Lastly, in addition to analysis of trend over time for each participant, we analyzed their performance (level) after controlling for trend (should one be present). For this analysis, we used the single-case statistic baseline corrected Tau (Tarlow, 2016b) to test statistical significance and compute corresponding effect sizes. Ideally, after controlling for baseline trend, baseline corrected Tau can be interpreted as the percent of non-overlapping data points after implementation of the game app. On another metric, it can be interpreted simply as an adjusted correlation between the phase and the measure. (See Tables 4 and 5.) A pattern emerged within the taught word data showing Level 4 of gameplay had statistically significant ($p < 0.037$) and moderate effect sizes greater than 0.6 for eight of the nine participants. Further, within the transfer word data, Level 5 of gameplay had statistically significant ($p < 0.035$) and moderate to large effect sizes (0.648 to 0.833) for five of nine participants.

Overall

With the effect sizes computed for each of the nine single-cases, we statistically estimated an overall effect by aggregating the effect sizes across cases. This procedure followed Tarlow's (2016b) recommendation for computing weights, and estimating a mixed model to compute the effect size Tau across all records for each participant

and overall across each gameplay level. We found statistically significant (p = 0.000) and moderate effect sizes (0.721 and 0.497) for Levels 4 and 5 of the taught word measure and a statistically significant (p = 0.001) and moderate effect size (0.645) for Level 5 of the transfer word measure. These findings support the hypothesized relationship between participation in the gameplay and improved literacy outcomes, as well as confirm the prior visual inspection of the data where participants taught and transfer word-decoding abilities increased during the later levels of the game. We do conclude, however, further investigation of Levels 1, 2, and 3 is warranted.

FIGURE 2: Graphs of Proximal Taught Word Data for Each Participant

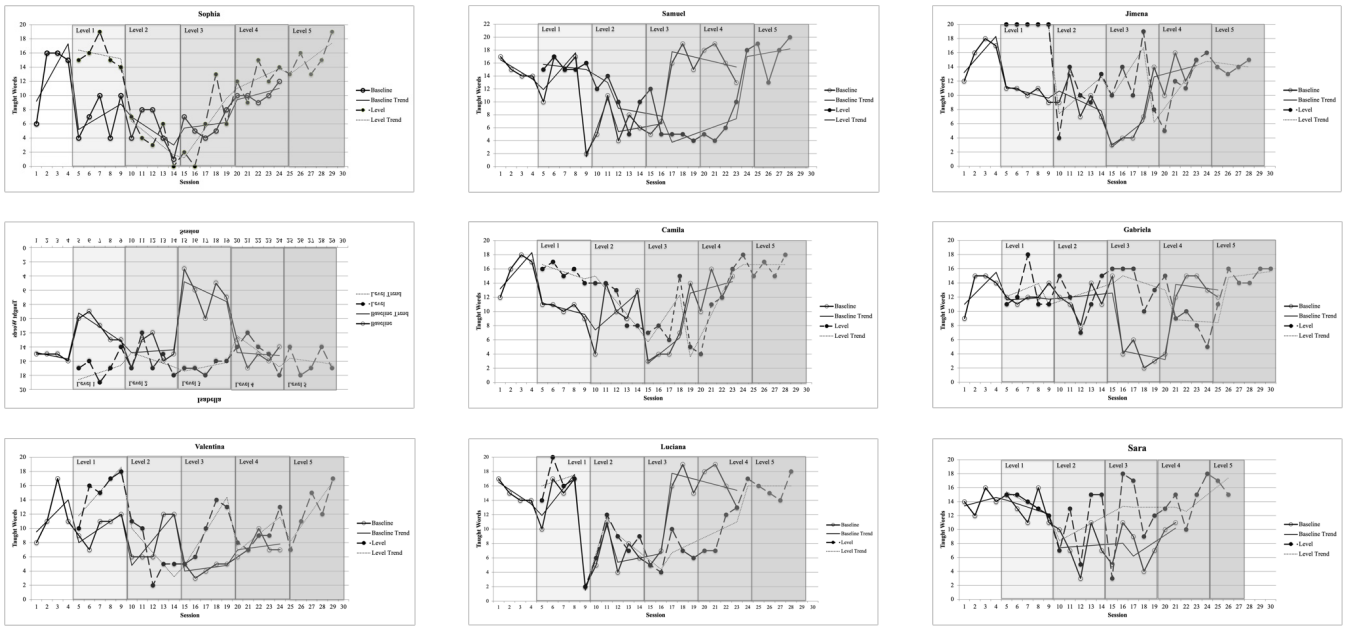


FIGURE 3: Graphs of Proximal Transfer Word Data for Each Participant.

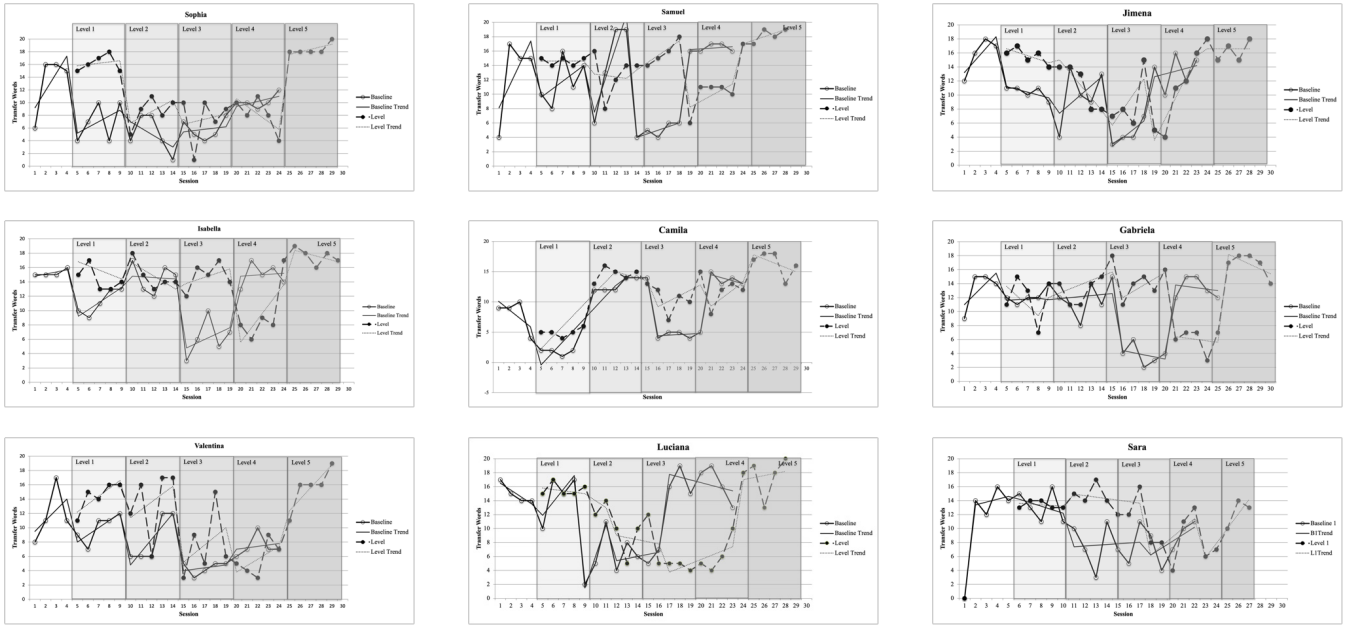


TABLE 4: Tau Effect Size Measures for Taught Words

Level	1		2		3		4		5		Combined*	
Participant	Tau	p-value	Tau	p-value	Tau	p-value	Tau	p-value	Tau	p-value	Tau	p-value
Sofia	0.082	0.899	-0.443	0.167	-0.031	1.000	**0.762**	0.012	**0.781**	0.011	0.412	0.000
Isabella	0.442	0.209	**0.640**	0.036	0.544	0.087	**0.754**	0.012	0.288	0.392	**0.581**	0.000
Valentina	0.268	0.459	-0.469	0.138	0.130	0.746	**0.781**	0.011	**0.641**	0.041	0.381	0.000
Samuel	0.040	1.000	**0.767**	0.019	0.000	1.101	**0.772**	0.011	-0.035	1.000	0.466	0.000
Camila	**0.679**	0.013	-308*	0.267	-0.533	0.191	**0.791**	0.017	**0.830**	0.015	0.465	0.000
Luciana	0.357	0.372	-0.645	0.108	0.101	0.880	0.422	0.160	-0.241	0.443	-0.006	0.939
Jimena	**0.877**	0.011	-0.352	0.286	0.356	0.317	**0.680**	0.037	0.158	0.670	**0.532**	0.000
Gabriela	-0.098	0.884	0.085	0.845	0.343	0.220	**0.693**	0.021	0.544	0.088	0.390	0.057
Sara	-0.04	1.000	-0.13	0.682	**0.613**	0.023	**0.671**	0.027	N/A	N/A	-0.014	0.022
Combined**	0.028	0.003	-0.005	0.989	0.219	0.387	**0.721**	0.000	**0.497**	0.000	-	-

Notes: *Estimates from mixed model computing the effect size across all case records.
** Estimates from mixed model computing the effect size for each level across case records.

TABLE 5: Tau Effect Size Measures for Transfer Words

Level	1		2		3		4		5		Combined*	
Participant	Tau	p-value	Tau	p-value	Tau	p-value	Tau	p-value	Tau	p-value	Tau	p-value
Sofia	0.327	0.375	0.281	0.396	0.593	0.056	0.443	0.167	**0.833**	0.009	**0.594**	0.000
Isabella	-0.374	0.304	**0.718**	0.020	0.031	1.000	0.427	0.172	**0.648**	0.035	0.400	0.000
Valentina	0.316	0.381	0.432	0.171	-0.195	0.589	0.197	0.588	**0.801**	0.010	0.440	0.000
Samuel	-0.179	0.686	0.117	0.804	0.000	1.098	**0.746**	0.018	**0.710**	0.028	0.417	0.000
Camila	0.023	1.000	**-0.553***	0.041	-0.465	0.222	**0.803**	0.017	0.553	0.104	0.169	0.078
Luciana	0.335	0.436	-0.258	0.593	0.264	0.539	-1.84	0.576	-0.184	0.576	-0.418	0.503
Jimena	-0.198	0.617	0.158	0.670	-0.149	0.713	0.545	0.105	0.593	0.056	0.244	0.001
Gabriela	-0.3	0.460	0.39	0.206	0.308	0.283	0.544	0.088	**0.656**	0.034	0.377	0.000
Sara	-0.258	0.515	0.238	0.413	0.195	0.511	0.213	0.528	N/A	N/A	0.108	0.022
Combined**	-0.027	0.512	0.184	0.532	0.105	1.00	0.338	0.00	**0.645**	0.001	-	-

Notes: *Estimates from mixed model computing the effect size across all case records.
**Estimates from mixed model computing the effect size for each level across case records.

Distal Measures: Pre-test to Post-test Literacy Gains

Next, we share our findings to research question 2: Will adult multilingual learners make literacy gains from pre-tests to post-tests on distal measures during the 8-week pilot study? Overall, we found all nine participants improved their scores on pre- and post-test computer adaptive administrations of the CASAS, affirming that adult multilingual learners made literacy gains on pre-tests and post-tests after participating in gameplay.

Six of the nine participants grew by 10 points or more. The CASAS moved eight of the nine from the Pre-Reading Literacy test (27R) at pre-test to the Beginning Reading test (81R) at post-test. (See Table 6.) Findings suggest that over the course of the study, adults at or below Literacy Level 1 may have been using the skills they had been working on in the game, applying and then transferring the skills to other contexts, particularly those that are critical for life and work reading.

Additionally, for all five measures, we obtained statistically significant gains using Wilcoxon Signed-ranks Test to compared pre-to-post scores. Referring to Table 7, the following results were obtained: CASAS ($p < .008$); Letter-Sound Fluency ($p < .008$); Word Identification Fluency ($p < .008$); CVC decoding of individual letter-sounds in words ($p < .011$); and CVC decoding of whole words ($p < .011$). Further, the effect size for each measure was greater than .6, interpretable as large (Cohen, 1988). These values indicate a possible positive game participation effect on literacy skill development.

TABLE 6: Pre- and Post-Test Reading Measures

	CASAS					Letter Sound Fluency			Word Identification Fluency			Correct Letter Sounds (CVCCLS)			Whole Word Fluency (CVCWWF)		
Participant	Test	Pre	Test	Post	Gain	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
Sofia	27R	194	81R	205	**11**	2	28	**26**	13	36	**23**	17	151	**134**	5	48	**43**
Isabella	27R	196	81R	206	**10**	9	12	**3**	19	40	**21**	72	145	**73**	23	45	**22**
Valentina	27R	181	81R	200	**19**	10	16	**6**	19	31	**12**	61	127	**66**	19	40	**21**
Samuel	27R	202	81R	205	**3**	1	26	**25**	6	32	**26**	18	107	**89**	5	34	29
Camila	27R	189	81R	191	**2**	3	16	**13**	7	10	**3**	3	66	**63**	1	21	**20**
Luciana	27R	174	28R	199	**25**	8	31	**23**	19	40	**21**	33	121	**88**	11	38	**27**
Jimena	27R	184	81R	189	**5**	9	16	**7**	26	30	**4**	124	123	**-1**	40	39	**-1**
Gabriela	27R	194	81R	205	**11**	0	14	**14**	10	35	**25**	14	95	**81**	4	28	**24**
Sara	27R	191	81R	203	**12**	2	46	**44**	15	19	**4**	52	97	**45**	16	33	**17**

TABLE 7: Wilcoxon Signed-Ranks Test for Distal Measures

	Pre-Intervention		Post-Intervention		Z	Sig. (2-tailed)	r
	Mdn	Range	Mdn	Range			
CASAS	191.00	28	203.00	17	2.668	.008	.629
LSF	3.00	10	16.00	34	2.666	.008	.629
WIF	15.00	20	32.00	30	2.670	.008	.629
CVCCLS	33.00	121	121.00	85	2.547	.011	.601
CVCWWF	11.00	39	38.00	27	2.547	.011	.601

Discussion

The purpose of this study was to determine if the app supported adult multilingual learners to develop English word decoding skills. Findings suggest that the app provides a viable approach to teaching adults at or below Literacy Level 1 how to read. We obtained significant and strong effects on proximal measures of targeted skills at levels 4 and 5 of the app, providing evidence of the participants' advancing literacy skills as they continued to learn letter-sound correspondences. Also, we found statistically significant gains on all distal measures supporting the hypothesis that participants learned as they played the app.

Relationship Between Gameplay and Literacy Outcomes

The first research question addressed a relationship between participation in the leveled gameplay and enhanced literacy outcomes on proximal word-reading measures. Using a single-case research design, we observed a relationship between participating in the intervention and improved reading scores on proximal measures of taught words. Participants across levels four and five showed significant improvement from baseline through intervention phases on word reading measures for taught and transfer words with combined effect sizes ranging from small to moderate. These data support an increased ability within each level of gameplay to recognize letter-sounds and unitize words directly taught in the app.

We questioned if repeated exposure to taught words could promote rote memorization of the practiced CVC patterns. To gain insight, we also investigated transfer word-reading. Transfer words are words that have similar CVC patterns but are not explicitly taught during gameplay. In these data, we also found a relationship between participating in the intervention and improved reading scores on proximal measures of transfer words. Seven out of nine participants showed significant improvement from baseline through intervention phases on word-reading measures of transfer words with effect sizes ranging from small to moderate. While it might have been possible for participants to begin to recognize taught words by sight, jeopardizing our conclusion of the app's intervention effect, an individual's enhanced ability to read transfer words makes this finding more unlikely. The transfer words required processing of different letter-sound combinations. Thus, the gains associated with these words support the hypothesis that participants were developing phonological processing abilities that likely contributed to accurate decoding and reading of text (Dietrich & Brady, 2001; Tunmer & Nesdale, 1985).

Despite these gains, it was important to note that it did take several weeks of gameplay to see significant literacy growth as measured by the effect sizes on the proximal measures across participants. This finding may be because it took time for participants to become familiar with the new technologies, or it may be because individuals had a reliance on word structure (i.e., experiential word knowledge) rather than on an understanding of phonological decoding (Thompkins & Binder, 2003).

As mentioned, not every participant scored statistically significant combined gains: Gabriela and Camila had inconsistent results. Gabriela did not show significant improvement from baseline to intervention for taught words but did show statistically significant growth on transfer words. We observed improvement beginning at Level 4 for taught words and at Level 5 for transfer words. During post-survey, Gabriela noted that "learning the letters' sounds and making the words" helped her to improve her ability to read. Camila, on the other hand, showed statistically significant progress from baseline to intervention reading taught words and not transfer words. Camila's growth strengthened at Levels 4 and 5 for taught words and at Levels 2 and then 4 for transfer words. She offered that the app helped her "to recognize words," but "in the start, it was hard..." She also mentioned that she "liked learning the sounds" of the English letters. Clearly, these cases support the hypothesis that participation with the app provides opportunity to learn letter/sound correspondence and therefore rely less on whole word knowledge and more on an ability to actively decode new words. These findings across participants tend to corroborate the improvement we saw from pre-test to post-test on the distal measures. (See Table 6).

Still, we wondered about Luciana who did not show significant improvement from baseline to intervention on any level of gameplay for taught and transfer words. Looking across data sources, she did show marked growth on the pre- and post-tests measuring letter-sound correspondences and decoding of CVC words. In the post-survey, she did not answer the question indicating whether the app helped her learn to read. Yet, she noted difficulty in being able to match sounds to the letters. Currently, Luciana's findings are inconclusive.

Pre-Test to Post-Test Literacy Gains

Our second research question was to examine whether multilingual adults at or below Literacy Level 1 would grow in their literacy learning across the 8 weeks of the pilot study. For all measures given, we found statistically significant increases in the means from pre-test to post-test. Moreover, results support that the participants were advancing in their word decoding skills and applied the skills they learned in the game to life- and work-related reading tasks (antidotally and as measured by CASAS).

As discussed, for both native speakers of English and multilingual adults at or below Literacy Level 1, several studies have found deficits in individuals' phonological processing and decoding ability, and particularly in explicitly linking letters to sounds (e.g., Adrian et al., 1995; Greenberg et al, 1997, 2002; Kolinsky et al., 2018; Thompkins & Binder, 2003). We found similar weaknesses in our participants. This evidence allowed us to draw inferences about how individuals might respond to the app with its carefully sequenced curriculum, opportunities for dedicated practice and feedback, and easy access to instruction. We hypothesized that the app would address critical gaps in letter-sound knowledge and in basic sight word identification for adults at or below Literacy Level 1 which, once filled, would propel them

forward in their phonological decoding skills and ultimately advance their general reading scores. We deliberately chose three 1-minute measures that tested participants' ability to recognize letter-sound correspondences, to identify common sight words, and to decode CVC patterns and then blend them back into whole words, since these are also the skills that are directly taught in the game.

The results of our investigation supported our hypothesis. Findings suggest consistency in playing the app may impact participants' literacy skills by improving phonological decoding abilities. For each level of play, they learned and practiced a corpus of four to five new letter-sounds. Throughout, they were instructed to recognize and link each single letter to its regular or most common sound. Initially, for our Spanish-speaking participants, this proved to be most challenging, not only due to several articulation differences between English and Spanish phonemes, but also because they had never been exposed to English letter-sound relationships. Here, we infer that the app contributed to their fluency in recognizing individual letter-sounds (ranging from 3 to 44 additional letter-sounds across the study), but it was also especially instrumental in putting their newly found decoding skills into practice as they read more CVC words. (See Table 6.) Across eight of nine participants, we observed growth in individuals' ability to fluently segment letter-sounds and unitize words. The improvements ranged from 45 to 134 additional correct letter-sounds in one minute's time and from 17 to 43 additional whole words read in the same minute. Recognition of common sight words grew across participants as well, ranging from 3 to 26 more words read in one minute's time.

Yet, we wondered about Jimena who did not show growth in these areas because she improved only marginally in her letter-sound identification (9 to 16 letter-sounds) and sight word recognition (26 to 30 words). She scored one less letter-sound (124 to 123) and one less whole word (40 to 39) on the Decodable CVC measure from pre-test to post-test. In general, looking across her scores, a pattern emerged. Jimena knew many words by sight: at pre-test, she read 124 decodable words, far more than any other participant. As noted, research supports adults at or below Literacy Level 1 often have significantly weak phonological skills and thus may come to rely on experiential word knowledge (Greenberg et al., 2002). We believe that although Jimena was exposed to new letter-sounds at each subsequent level of gameplay, she did not specifically make connections to or internalize how these letter-sounds could be used to segment and blend words. She relied on her own personal sight word knowledge. This lack of growth supports this inference as does her comment in the post-survey data stating, "At the beginning, it [the app] wasn't challenging…" It is highly likely that the game never reached an appropriate difficulty level for Jimena, giving her a reason to use any newly acquired phonological decoding skills that she might have attained.

Across all individuals in our study, we sought to examine if there would be increases in the participants' ability to transfer their new knowledge to work- and life-related reading tasks. At the outset, we felt that growth in general reading scores would be a reliable indicator of whether the app was impacting the participants' ability to use their literacy skills to function in society and become independent readers. As the CASAS (Posey & Jacobsen, 2009) is a standardized instrument used by general stakeholders to test the attainment of real-life competencies and skills, we believed that this assessment would suit our purposes well. The CASAS links scale scores developed through item response theory to basic

skill competencies. An individual's ability is then reported as a score along a fixed metric, ranging from 150 to 260. Any increase in scores over time represents the examinee's ability to perform at higher gradations of difficulty in their skills.

Over the course of the study, we observed that all participants improved upon their pre-test CASAS scores, and six of the nine improved by 10 points or greater with one participant scoring 25 points higher. If literacy acquisition constitutes mastery of a continuum of skills (e.g., Adams, 1990) beginning with explicit and systematic letter-sound instruction (Kolinsky et al., 2018), then our data and the increases we observed support the position that the app was effective in advancing the beginning reading skills of our participants. In addition, our results add to evidence supporting the notion that direct instruction of the phonological and orthographic structure of words may be an effective way to build the literacy skills of adults at or below Literacy Level 1 (e.g., Kolinsky et al., 2019; Kruidenier, 2002; Kruidenier et al., 2010). The fact that this instruction was accessible to individuals as an app downloaded to their personal devices may also be key to its success and a viable solution to issues surrounding accessibility of instruction.

Conclusion

In conclusion, the present study extends the research base about reading instruction for adult multilingual learners at or below Literacy Level 1, while adding to the knowledge of how gaming apps may support adult learning. Consistent with current research using explicit and systematic phonics instruction to teach phonological and orthographic structures of language (see Kolinsky et al., 2018; Kolinsky et al., 2019; Kruidenier, 2002; Kruidenier et al., 2010), we found positive outcomes in using the app. These results contribute to the body of evidence supporting the understanding that skills learned within a game environment may transfer to real life (Tobias et al., 2015). Evidence to support this was found in the increased CASAS (Posey & Jacobsen, 2009) scores since this test was designed to measure the attainment of real-life competencies and skills. Further, participants reported feeling more confident in their ability to read (and speak) English. This may be because gaming motivated players to persist in trying to improve upon their current performance levels (Wichadee & Pattanapichet, 2018; Woo, 2014). As such, the self-regulated learning offered through the app may have encouraged adult learners to move beyond their reliance on word structure to a new understanding of phonological decoding (Kolinsky et al, 2019; Thompkins & Binder, 2003).

While we provided a proof-of-concept showing how the app provides access to the knowledge and skills necessary to be able to teach adult multilingual learners at or below Literacy Level 1 how to read, we realize that we need to understand more about the affordances and constraints of the technology. Therefore, our next steps are to unpack this relationship by investigating survey and corresponding interview data, allowing us to determine how prior experience with technology may impact learner success. Moreover, our analysis will narrow to focus on understanding how participants took up the technological aspects of gameplay in relation to their literacy development.

Interpretation of our findings requires consideration of methodological limitations. Ideally, a stable baseline should be established prior to implementation of the intervention. However, due to the design, one limitation is that the baseline for proximal measures was not clearly established across all cases due to inconsistencies in the pronunciation of the CVC

words. This limitation was mitigated by the authors' video recording the entire corpus of data and establishing scoring reliability across the measures. Further, we used the baseline corrected Tau statistic to consider the estimated baseline trend and its variability.

Another limitation was that the research was conducted using one small sample of multilingual adults at or below Literacy Level 1 from the same community center. Despite following the Meets Standards of the What Works Clearinghouse with fidelity, it was not clear if the participants relied on each other to support their literacy gains. Although all testing was done in their homes via Zoom teleconferencing, we cannot verify that they practiced their newfound skills elsewhere.

A final limitation was that the app was not a full curriculum; it was designed to support foundational learning of basic literacy skills by filling the gaps experienced by adults at or below Literacy Level 1. In structuring the scope and sequence, upholding the evidence that literacy follows a continuum of skills from the earliest identification of letter-sound correspondences to the processing of sub-word parts, words, sentences, and passages was foremost in our priorities as we sought to change nonreaders into readers.

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Report from the Field

Strategies for Serving Internationally Trained Professionals in Adult Basic Education

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Abstract

Immigrant students are served in adult basic education programs across the country. This includes internationally trained professionals who often face nonrecognition of their foreign credentials and experience, leading to underemployment and a devaluation of skills. This article explores this issue from the perspective of a local program at Georgia Piedmont Technical College, where staff are attempting to create solutions to address the problem. Strategies implemented include credential evaluation, college and career pathway opportunities, and diverse funding sources.

Keywords: immigrants, refugees, credential recognition

Adult basic education (ABE) programs can serve as one of the entry points for immigrants arriving in the United States. These individuals may enter an ABE program for purposes such as gaining English proficiency, obtaining a U.S.-based high school equivalency (HSE), or accessing the career pathways that ABE programs increasingly offer. Among this student population is an often-hidden issue that can present challenges to program teachers and staff – the issue of brain waste and occupational downgrading.

In the United States, 21% of immigrants with college degrees, also referred to as internationally trained professionals (ITPs), are either unemployed or underemployed, a phenomenon termed *brain waste* in reference to the underutilization of skills and education among immigrants and how it poses a problem both to the individual and to the United States as neither can benefit from the skills and expertise of this population (Batalova & Fix, 2021). Scholars have further found that immigrants experience this form of underemployment as occupational downgrading in which the occupation obtained in the U.S. does not match previous occupations or education credentials (Adversario, 2021; Akresh, 2006). This often results in a U-shaped trajectory in which immigrants experience occupational downgrading but increase occupational status as they gain capital in the new country (Zorlu, 2016). While this complex issue cannot be resolved easily, institutions and organizations such as ABE programs can play a role in beginning to address these concerns at the local level.

Georgia Piedmont Technical College (GPTC) is located in Clarkston, Georgia, where 49.4% of the population is foreign born (United States Census Bureau, 2021). Due to our large immigrant student population, we encounter the issue of brain waste regularly among our students, sometimes

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unsolicited. For example, in one of our English to Speakers of Other Languages (ESOL) classes, a student shared about his overseas experience as a surgeon. During enrollment for one of our career pathway programs, a student working to earn his HSE casually stated that he was a former nurse in his home country. The more we converse with our immigrant students and ask details about their lives, the more individuals we meet who may already have secondary school diplomas, university degrees, and extensive work experience from their home country. In response, our program staff has gradually implemented strategies to better serve these students and increase recognition of their abilities and knowledge.

Serving Internationally Trained Professionals

Our process for serving ITPs has emerged and developed iteratively over a period of about a year as we have grown in our understanding of this issue. We now integrate specific services into our program for students who fall into this category, including assistance with credential evaluation, guidance into career or college pathways, and finding creative solutions to fund students in these pathways. Often, it is not one but a combination of these services that must be tailored to the individual situation of each student.

Like many programs nationwide, GPTC's Adult Education Department operates with a largely part-time teaching staff while administrators take on a variety of roles, including overseeing instructional quality, designing and implementing new programs such as integrated education and training (IET), registering and testing students, and maintaining daily operations. My own role is similar. As instructional coordinator, I am primarily responsible for supporting our teachers, overseeing curriculum, and working with other team members to run IETs. I have additionally become the staff member most often advising ITPs who are referred to me by other staff. Because my role often spans ESOL, HSE, credit programs, and Economic Development (all divisions within our technical college), this makes me more aware of how each department operates, information that I can then use to better guide students.

Gleaning this information over time did not come easily. When beginning to counsel students, I had extensive communication with various employees across the college to learn about admissions procedures, including the processing of foreign transcripts, financial aid options, and career programs. While I have learned a great deal, this learning process continues as I still encounter student situations that lie outside of my scope of knowledge. The connections I have made with colleagues beyond adult education and throughout the entire college help facilitate this ongoing learning as they provide access to needed expertise.

Identifying Eligible Students

Our ABE team works closely on a variety of projects to best serve our students, communicating frequently and thoroughly on various programmatic issues and topics. Teachers and intake staff, therefore, are aware of what I have learned and that I am a resource for the ITPs they encounter who may need additional support. Students are typically referred to me by these colleagues either informally through word of mouth or by email. These referrals primarily originated from our ESOL program but are increasingly coming from our HSE program where ITPs in our community often end up due to being told they need a U.S.-based equivalency.

For our ESOL program, referrals most often come from the high-intermediate and advanced classes

where students have developed strong English proficiency and are interested in pursuing college or career options. Teachers regularly share with them the opportunities available through our college and find out which students are ITPs, whom they then refer to me. Many of these students inquire about our HSE program as the next step towards their goals. My first question to them is whether or not they have a secondary school diploma or post-secondary degree from their home country. If the answer is yes, we discuss credential evaluation.

Credential Evaluation

The process of validating foreign diplomas and degrees can be intimidating for immigrant students, assuming they are even aware that it is an option. There are many companies to choose from, making it difficult for students to know where to begin. Additionally, I have observed that many immigrant students are hesitant to provide personal information to an unknown company. This could be especially true for refugees with traumatic backgrounds. Refugees may also have fled their home country without bringing their educational documents (Loo, 2016), presenting another barrier to the evaluation process. Despite these challenges, however, credential evaluation is an important option to consider when counseling ITPs. It can provide shortcuts by validating their prior education rather than requiring them to repeat schooling. It can also validate them as individuals as they see their prior education taking on meaning within the U.S. context. It must, however, be considered in view of the goals of the student and whether it will contribute to those goals. Some students may have employment goals that do not necessitate an evaluation, or others may not need a full evaluation of their post-secondary credentials because they plan to pursue a different career pathway and only need a secondary school equivalency to enter college.

When beginning to learn about credential evaluation, I was similarly overwhelmed by the broad scope of options. As a starting point, I went to the admissions page of GPTC's website and found a list of recommended evaluation companies, all of which are members of the National Association of Credential Evaluation Services. I then met with our admissions staff to confirm the companies on the list and ask if any were preferred. I also contacted an expert at one of the companies and another expert who works in the field independently to learn about the evaluation process so that I could better guide our students.

Prior to 2022, our staff would typically refer students to an evaluation company without much knowledge of the process and without any involvement after the referral. This has gradually changed upon observing what our students actually need. When I began referring students to companies and following up with them, most students would respond that they never contacted the company or tried and failed. It became clear that for most of our students, they needed step-by-step guidance. I therefore began scheduling appointments with individual students, first to explain the process and the companies, and then to help students complete the online application and answer any questions or concerns they had during the process. A couple of students were able to apply on their own when given the application link, but most students have requested assistance when offered.

While this may seem like daunting work to take on amid other responsibilities, I have found it to add only a small load of work but generate meaningful outcomes for students. For example, our program serves approximately 2,000 students annually. From November 2022

through March 2023, I helped seven students apply for credential evaluation. So far, three of those students have received an equivalency, and one applied for admission to our college. I track meetings, application submissions, and results in a spreadsheet that I check periodically so I can follow up with students, but these tasks do not detract from my ongoing responsibilities.

Credential Evaluation for Refugees

As mentioned earlier, refugees may have fled their home country quickly, leaving behind important documents such as diplomas and degrees. World Education Services (WES, 2023) is an evaluation company offering a program called Gateway that serves individuals from Afghanistan, Eritrea, Iraq, Türkiye, Ukraine, and Venezuela who have limited access to their educational documents. This particular evaluation was not initially accepted at our college, so I approached GPTC's Student Affairs Department asking if our college would accept this particular evaluation given the number of refugee students in our community. The department agreed, increasing college accessibility for those who fled and have limited documentation.

Funding Credential Evaluation

Credential evaluation typically costs between $100 and $300 per individual. Most students I have worked with have the funds and are willing to pay for the evaluation. For refugees, we work closely with the resettlement agencies that often have funds that can be spent towards credential evaluation. Finally, we continue to seek ways to incorporate credential evaluation costs into grant applications as a way to offset the financial burden and provide additional support to students.

Career Pathways

In addition to credential evaluation, we use our IET programs to fast-track ITPs into careers, whether careers that align with the field in which they have education and experience or a different field they may want to try instead. We currently offer certified nursing assistant, manufacturing, and commercial driver's license IETs. Students who have experience in the health care field are often interested in our certified nursing assistant program, for example. While this is an entry-level position, it can provide access to the field and puts them on a clear pathway for future education and opportunities.

Sometimes, we are able to move a student further down the career pathway based on his or her experience. For example, a recent ESOL student showed me his resume, which included extensive experience as a plant manager overseas. Rather than referring him to the manufacturing program, where he would start from scratch, we connected him with the economic development instructor, who introduced the student to a local employer needing employees with this student's skillset. The company was eager to interview him when learning about his experience.

College Programs

Many of our ITP students are interested in entering college, either because they finished secondary school and want to continue their education or because they want to pursue a new field. As described earlier, one of the ways we help facilitate this is assisting students with credential evaluation so they are qualified to attend, including through the WES Gateway program that our college now accepts.

Another entryway into college is through our new Career Plus program, which allows students to combine various HSE options (such as a HSE test with certain classes from a high school transcript or completing asynchronous high school courses) and earn two technical certificates of credit (TCC)

in order to receive a high school diploma. While ITPs may not be able to pull credits from a high school transcript, they may be able to include other experiences. For example, one of our immigrant students in this program completed a prior learning assessment for her work as a child development specialist, awarding her the two TCCs, and is now almost finished with taking the asynchronous high school courses.

Funding for College

Finding funding sources for immigrant students entering college has been a significant challenge. Students do not qualify for in-state tuition until they have lived in the state of Georgia for 1 year. Otherwise, they are categorized as international students and have to pay four times the tuition of students designated as in-state. This continues to be a barrier for our newly arrived students eager to enter college who have to wait until they receive the 1-year status.

Two significant funding sources for Georgia students are the Pell Grant and HOPE Grant. The Pell Grant is government funded and the HOPE Grant is specific to Georgia and funded by a state lottery. However, neither of these grants will fund tuition for students who already have a postsecondary degree, including foreign degrees, eliminating them as a resource for most ITPs. At GPTC, we have had to find creative options for funding students interested in college. One option is a local nonprofit that provides tuition services up to $5,000 for students who are income eligible. Title I funding from the Workforce Innovation and Opportunity Act is another option, as are scholarship opportunities at GPTC. Determining the funding options for students has to be done on an individual basis due to the various circumstances of each person.

Conclusion

The strategies described above are ones we have found to be effective in beginning to tackle the issue of brain waste and better serve our ITP students. We have learned a lot, but as stated earlier, this process is iterative. We will continue to grow and adapt as we make mistakes and learn from those mistakes. More attention needs to be given to this issue, however, as program staff like our own may be struggling to know how to best guide this unique population of students. Additional resources and knowledge could make a significant impact on these students, helping to connect their lives in their home countries to their new lives here in the U.S. ABE programs are often the first stop for these individuals, and we must be better trained and equipped to serve them in a capacity that meets their needs.

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Forum: Social Justice, Creativity, and Adult Literacy

(Part 1 of 4)

Visions of the Possible

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We are living in a time when right-wing forces are seeking to silence any voices, eliminate any narratives, and negate any identities that threaten white supremacy, patriarchy, cis-heteronormativity, and our country's prevailing economic order. These forces are working to ban the reading and teaching of the stories, histories, and movements of Black, Brown, and Indigenous peoples, who have been resisting systemic oppression, exploitation, and dispossession on this land for over 400 years. They are attempting to roll back civil rights, suppress democracy, and deny human rights and bodily autonomy to women, those who are LGBTQ+, and migrants. And they are fighting to undermine efforts to promote greater diversity, equity, and inclusion in our social, political, economic, academic, and cultural institutions.

Yet, rather than seeing it as a primary goal and responsibility of adult literacy education to counter these forces and align ourselves with movements for racial, social, gender, and economic justice, our field continues to operate largely within a neoliberal educational paradigm that sees our students primarily in their capacity as workers (or potential workers) and consumers and calls on us to justify the value of our own work in terms of its economic return on investment. Our discussions about "accountability" compel us to focus on what we owe and must provide to our funders rather than on what our funders and our country owe to our students and their communities.

Within this context, the three articles you are about to read give me hope. They offer visions of what is possible in our classrooms and programs. They uplift and describe practices that are rooted in the humanistic, progressive, and liberatory educational traditions that have long histories in our field, but which have largely been sidelined over the past 25 years. These three articles introduce concrete ways of centering students' identities, lived experience, languages, socio-cultural linguistic practices, and agency through storytelling, shared decision-making, and engaging in critical literacy and popular education practices. They interrogate power and authority in both the classroom and society at large, and they challenge adult literacy educators to be reflective practitioners mindful of our own identities and positionalities. These articles are grounded in theory, but they are ultimately a guide to practice.

It is said that the people closest to the problem are the people closest to the solution but the furthest from power and resources. These three articles describe ways of using the classroom as a resource to build students' collective power and amplify their voices and ideas. They call on adult literacy educators to see our students as producers, not just consumers of knowledge, and to work to transform classrooms from spaces of hierarchy, submission, conformity, and, in some cases, trauma, to spaces of healing, creativity, self-expression, democracy, and political action.

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The question of whose truth, whose representation of reality, gets seen, heard, elevated, and acted upon has always been a political question, not just an epistemological one. At a moment when right-wing forces seek to silence our students and communities, marginalize and make them invisible, and control the narratives and discourse about them, providing space – as two of these articles describe – for Black mothers and immigrants to tell their stories and share their truths in their own words can be seen as a radical political act.

In 2019, my organization, the Literacy Assistance Center, launched the Literacy & Justice Initiative to explicitly align adult literacy education in New York City with broader movements for racial, social, and economic justice. As a longtime professional development organization, we are often asked how adult literacy teachers can do this in the context of curriculum and instruction. These three authors identify ways that adult literacy classrooms can serve as spaces to uplift students' voices and leadership, engage students in critically interrogating the root causes of the inequities and injustices their communities confront, and amplify their personal stories and their collective histories of resilience and resistance. Ultimately, these articles demonstrate how adult literacy classrooms can serve as catalysts for building both individual and community power. I am grateful to the authors for providing all of us in the field with such concrete direction and clarity of vision.

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Forum: Social Justice, Creativity, and Adult Literacy

(Part 2 of 4)

Adult Literacy and Social Justice: Teaching with Criticality and Intentionality

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We are at a moment in history of slowly emerging from a global pandemic that highlighted for the world what many of us have known; that Black and Brown lives are considered dispensable and expendable by the dominant culture. We saw the continued killing of Black men and women at the hands of police that sparked worldwide protests in defense of Black and Brown lives. More recently though, we have witnessed backlash against critical race theory which recognizes the profound systemic racism upon which the United States was built (namely, the understanding that this country was built by labor of enslaved Black bodies). Adult education/adult literacy programs have had a long history of contributing towards social and racial justice (like Highlander Folks School in the 1950s who taught Black Americans to read and write in order to pass the citizenship test in order to vote). In short, adult literacy programs can continue, in that tradition, to support students in becoming actors in scripts which they themselves author. This feels like an especially urgent task given the eroding of basic human rights to which marginalized populations (like poor people of color) are especially vulnerable.

As a former adult literacy practitioner for over 15 years in New York City (I now teach in higher education), I have been reflecting on what teaching in an adult literacy context during this national and global moment might look like. How can we utilize adult literacy as a space to nurture social and racial justice? For countless adult literacy students, school represented a site of pain and disappointment; a space fraught with struggle/disappointment and to return to such a space signifies courage along with a deep desire and quest to gain visibility, voice, autonomy and respect. I remember a student sharing with me how his instructor in seventh grade told him not to bother speaking until he had something that was worth listening to. Over and over, I heard stories from students of not feeling good enough. Students shared repeatedly that staying in school was just too hard, so they left. How can adult literacy programs attend to the ways students have been traumatized by the very system that was supposed to be a path to social and economic mobility? Students' return might be as Brazilian political adult educator Paulo Freire (1970) termed, a desire to read both the world and the word. This effort should not be minimized or trivialized in any way. For many, many adult literacy students, these programs represent a last glimmer of hope in education, in redefining what is possible for them and what is possible for us as a society. How and by whom will we be judged? With so much emphasis on satisfying funding mandates in order to preserve public funding, how can adult literacy programs hold space to teach about difficult subjects…to maintain a critical focus

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that would enable and make space for important truth-telling? Truth-telling must always center voices and perspectives of historically and currently marginalized groups. In our society, poor, racialized people are marginalized in myriad ways and the only real power they might have to effect change is collectively through numbers (T. Heaney, personal communication, June 10, 2020).

One way of facilitating truth-telling in adult literacy education (and indeed in all types of education) is through problem posing, a central tenet in popular education. Popular education as defined by Freire (1970) utilizes students' lived experiences and understandings of their situations. Through collective critical questioning, this approach seeks to deepen those understandings aimed at collective social change. Problem-posing education affirms men and women as beings in the process of becoming. It allows students to name their realities and their education is centered around those themes. For example, gentrification and the housing crisis might be a possible theme interrogating how it impacts different communities and who benefits from the reshaping of neighborhoods. Another theme might be COVID-19 and ways it impacted communities of students (again probing reasons for these disparities and the privilege embedded in certain taking for granted terms like social distancing and for whom this was possible). One goal of popular education is individual and collective conscious raising through education. We know that education isn't neutral or objective and as Freire (1970) reminds us, it can either function to facilitate integration into the present system in the interests of conformity or it can become the practice of freedom, in which men and women deal critically and creatively with reality in order to participate in the transformation of their worlds. One of the central tenets of popular education is that ordinary people are valuable and collectively have the power to not only change their communities but reshape inequities in society.

My current role is as a faculty member at SUNY Empire State University with my background and research being grounded primarily in social justice and supporting marginalized populations in their ability to collectively co-construct agency and, in the process, reconceptualize who they are in the world – ultimately, affirming not only who we are as humans individually and collectively but also who we might become.

My dissertation was an oral history study of an adult literacy program in Brooklyn, New York, called The Open Book, where I taught. The program was inspired by the work of Freire. The program focused on how to engage students in sharing power and democratic decision-making in the classroom and the program at large. From its very inception, the philosophy of the program strove to model alternative visions of society rooted in more equity...something students could co-create together. Space was created by both instructors and students to unpack their lives, struggles, and hopes. Almost from the very beginning, the idea that the school was a community and students were more than just classmates to each other began to emerge. Students stayed after school, working with each other on their writing, which helped to establish a culture of peer teaching and that the space wasn't one they needed to leave once classes ended. Simultaneous co-teaching and co-learning (a central tenet in popular education) occurred organically amongst students and instructors. Cunningham (2000) reminds us that the concept of co-learners flattens the hierarchical structure. This doesn't mean the instructor doesn't have very different information than the learner; what it does assume is that the position of knowledge producer and knowledge consumer can

be regularly transposed between them through participation in praxis.

At The Open Book, no important decision was made without significant student input. For example, students were involved in hiring instructors. Many years ago, when I interviewed for a position at that program, there were two instructors and 10 students during my interview. Though I hadn't realized it at the time, students had studied each candidate's resume and decided who they wanted to interview. The students asked most of the questions during that interview. I mention that as a tiny example of what is possible in adult literacy programs today.

This critical examination of power was also embedded in curricula. In the classroom, there were efforts to build the curriculum around ideas and concerns that students were raising in class. By connecting the world inside the classroom to the larger society, opportunities for learning and making meaning expanded. Students could use the classroom to discover and discuss perspectives they had about their worlds, communities, jobs, homes, and how power was shared (or not) in each of them. bell hooks (1994) says if people don't tell their own stories, others do it for them. She reminded us that if people can speak about you better than you can talk about yourself, they will do so while erasing you and maintaining authority, authorship, and colonizer status.

Students as assistant teachers was another way the program attempted to share power. This opens up possibilities for relationships based on mutuality. Recognizing students' knowledge as an essential component in discussions inevitably impacts and shapes what the program looks like and will affect the directions it will grow. Students as assistant teachers open up possibilities for organic peer learning to occur. I should note that the idea of assistant teachers is not unique. The Open Book certainly didn't invent this concept but did implement it in deep and committed ways that made space for other sets of voices to be included in the ongoing conversation about the program. In doing so, it institutionalized the notion that students have important things to teach each other and everyone else.

Student leadership (retreats, town hall meetings, and committees) were also essential in terms of democratic decision making in the program. There were monthly town hall meetings which focused on how things were going for people and what they would like to see happen in the program. Students were encouraged to assume leadership roles and practice skills required for those roles. Freire (1970) reminds us that to exist humanly is to name the world and in doing so, change it. Democracy is always exercised in the midst of struggle and conflict; it exists in the face of contradictions both externally and internally. Externally, it is confronted by layers of undemocratic practice. Internally, by our unwillingness to take responsibility for situations or to understand the basis on which decisions are to be made (T. Heaney, personal communication, July 20, 2020). I write here about the Open Book because I have never witnessed anything similar before or since.

With few exceptions, whenever I meet adult literacy practitioners, a constant refrain is how much effort and time is given to teaching "to the test." The test in this context is the high school equivalency exam (or GED in New York). Students spend countless class hours taking practice tests instead of learning about subject matter using a thematic focus. Most adult literacy programs are funded through a combination of federal, state, and local funding and in this landscape, satisfying funders' mandates (which includes demonstrating

test gains and satisfactory attendance) is critical. Nowhere on this checklist is attending to students' profoundly precarious, complicated lives. Instead, the sterilized, fictional reality of funders' vision for adult literacy prevails. In this era of testing with a scarcity of funds, programs end up singing for their supper and always going to bed hungry. Students, for whom this model doesn't work, drop out of programs...dreams yet again deferred.

Since my time at the program, I have continued to situate my work within a community of scholars committed to social justice. For me, education is grounded in social justice, and, at its heart, involves the question, for whom and in whose interests? Whose voices, interests, and agendas, get privileged, and whose are absent? What is preventing or supporting socially just action? Making those visible for and with students is one aspect of teaching for social justice. So, courses I currently teach are informed by popular education, and grounded in examining power, how it works, and how it can be reframed as a more collective concept. Having witnessed and experienced how power can be shared through my time at the Open Book, has informed me about pedagogy and working with adult literacy students.

Anyon (1980) writes about how students in economically privileged neighborhoods receive a different kind of public school education than those in less well-resourced neighborhoods. This "hidden curriculum" as she calls it prepares the more privileged students to be future leaders while economically disadvantaged students (many of them, future adult literacy students) end up in the least resourced schools with the least experienced teachers. The more privileged models of education focus on process and supporting students in thinking through concepts (while having agency and choice) whereas the other is focused on the right answer while chastising students. Embedded in this hidden curriculum is teaching that certain groups will become authors and producers of knowledge while other groups will be consumers of others' concepts but never knowledge producers themselves. Understanding this, we can better see how traumatizing schooling has been for so many adult literacy students.

We can more fully understand how adult literacy can offer an opportunity for people to reconceptualize who they are as learners, as parents, as community leaders, and as humans in the world. Like Highlander Folk School and other popular education examples that situate adult literacy as a human rights struggle, we can witness that the structural inequities adult literacy students are struggling against and the ways in which these issues are systemic as well as raced and classed.

In courses I currently teach, I center social justice in all content areas. I strive to problematize notions of truth; whose truth is being proposed as the official story? To what extent can multiple opposing perspectives be privileged while preserving truth? We read different historical accounts of social justice struggles and discuss how they can all contain various aspects that are true to different groups at different points in time; in essence, we interrogate the fluidity of truth as a concept. We also focus our analysis on systems, not individuals.

Students interrogate various concepts such as solidarity and charity and what it means to stand with marginalized communities instead of speaking for them. We've also had ongoing discussions about allyship and what that could look like when acting with integrity. This embodies simultaneous co-teaching and co-learning in action. Students discuss activism they're involved in within their own communities

and how one can think beyond protest organizing to develop critiques of the dominant society in which we live while building solidarity with alternative institutions and communities that support the work of reimagining ourselves and thinking beyond fixed (often capitalistic) categories. We interrogate ways in which this society is organized that contributes to so much inequity and suffering among certain groups. Students share articles from journals like *Dialogues in Social Justice* as a way of further engaging with the issues. In one of the courses I teach, students volunteer twenty hours at an adult literacy program. Some programs students have worked in are Make the Road NY, an activist organization that's been at the forefront of struggles for workplace justice, immigrant rights, etc. in New York City. They have also volunteered at the Youth Justice Network which is an alternative to incarceration program also in NYC, Fifth Avenue Committee, CUNY adult literacy programs, etc.

bell hooks (1994) reminds us that the classroom, with all its limitations, remains a location of possibility. In that field of possibility, we have the opportunity to labor for freedom, to demand of ourselves and our comrades an openness of mind and heart that allows us to face reality even as we collectively imagine ways to move beyond boundaries, to transgress. This is education as the practice of freedom.

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Forum: Social Justice, Creativity, and Adult Literacy

(Part 3 of 4)

Storytelling in Adult Literacy Programs: Affirming Black Mother Learners' Identities

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In the 1960s, my maternal grandmother left Jamaica and joined two of her sisters in Canada. My young children and I are captivated by my grandmother's stories of her early experiences in the country. She reminisces about dancing to Jamaican ska with her sisters in their two-bedroom flat overlooking Toronto's downtown core. She remembers arranging her wet laundry across hot radiators to dry and haggling the butchers on Spadina Avenue for a lower price on oxtail. She describes scouring the aisles of Honest Ed's for special deals on winter coats, bed linens, and cooking pots. She also recalls working as a cleaner at a hotel and sending money to the sister in Jamaica who cared for the three children she left behind.

My grandmother prides her ability to tell a good story, despite her struggles with reading and writing. In a society where Black women's maternal identities are disparaged, storytelling affirms my grandmother's position as a knowledge bearer. As with some of her sisters, my grandmother's experiences of low literacy skills continue to shape the ways in which she cares for her family and receives literacy instruction.

Adult literacy learners hold multiple and layered identities. Learners' identities and experiences impact their engagement with education institutions and society at-large. Learners' lived experiences are also informed by intersecting oppressions. My grandmother and other adult learners recount traumas wrought by racism, gender-based oppression, and economic and political marginalization. For many adult learners, their identities are also a source of pride, joy, and resistance. My grandmother and other adult learners, especially those who are Black mothers, use storytelling traditions to deepen and share who they are with the world.

Storytelling is a pedagogical strategy that upholds learners' lived experiences and identities. In this paper, I present the use of Black feminist storytelling traditions as one way to connect classroom learning to the identities of Black mother learners. I begin this paper with an overview of Black feminist storytelling noting its lead thinkers and connections to Black learners' identities. The paper continues by situating adult literacy within the Canadian context. Afterwards, the paper presents educators with a framework and accompanying reflection questions to guide their use of Black feminist storytelling in their adult education programs. The paper concludes by calling on adult literacy educators to further support the centering of all learners' identities through Black feminist storytelling.

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Black Feminist Storytelling

Black communities worldwide engage in storytelling traditions. Black mothers use stories to order, make sense of, and give significance to the past, present, and future (Baker-Bell, 2017; Sampson, 2019; Smitherman, 1977; Toliver, 2020). We continue the tradition of using stories as sites to nurture psychic self-preservation (Rodriguez, 2006) and reimagine futures. Recognizing the importance of this literary practice, I call on educators to uphold the storied lives of adult learners, especially Black mother learners, attending their institutions.

A burgeoning body of scholarship emphasizes the importance of storytelling in Black communities. Black people have long used stories to articulate our hopes, fears, and dreams (Banks-Wallace, 2002; Klingler, 1997). Black feminist storytelling is a rhetorical strategy used by Black women to convey broad, theoretical observations about Black life through concrete stories (Simtherman,1977; Toliver, 2020). Our stories, comprising personal/self stories, cultural stories and metanarratives, allow us to ask and answer epistemological and ontological questions in our own voices. Black feminist storytelling involves collecting, sharing, analyzing, and theorizing Black women's stories (Baker-Bell, 2017; Haddix, 2016; Toliver, 2020). As Toliver (2022) explains, our stories emerge "from the lived experiences of Black people and communities that use Black knowledge/s as a tool to extend and author oneself beyond the conditions of anti-Blackness" (p. 4). Ultimately, Black feminist storytelling places our varied identities, such as race, gender, class, and citizenship, in conversation with one another (Baker-Bell, 2017).

My grandmother and other Black mother learners use stories to help plot, map, remember, and interpret the archives of the everyday Black experience. Our maternal stories demand us, as well as others, to bear witness to our collective resistance against the oppressions levied against our children, families, and communities. We engage in the art of storytelling to reaffirm our humanity, especially within contexts that attempt to diminish Black maternal life. According to Black mother learners attending Canadian adult education programs (Fearon, 2023), our stories are sites where we nurture joy, healing, remembrance, and usher social change. Black feminist storytelling is a strategy that Black mother learners use to make space for other ways of thinking, knowing, interpreting, and representing their identities and experiences within and beyond formal learning spaces (Fearon, 2023). Indeed, Black mother learners leverage the artistic tradition of Black feminist storytelling not only to affirm their identities, but also to challenge dominant narratives of subjugation, create new realities, and extend understandings of literacy.

Context: Adult Literacy in Canada

In Canada, by the 1980s, literacy was no longer perceived as a binary construct of literate versus illiterate. Instead, Canadian policymakers, researchers, and practitioners conceptualize literacy as a contextual social practice existing on a continuum (Elfert & Walker, 2020). Canadian adult literacy advocates maintain that literacy skills are necessary for adults to thrive within a dynamic society (Elfert & Walker, 2020). In fact, Canadian scholars advance socio-cultural understandings of literacy emphasizing that it is a plural and dynamic social and cultural practice (Elfert & Walker, 2020). Such thinkers stress the importance of acknowledging different literacies according to the different domains of life and defined by the individual and community (Addey, 2018). Further, scholars assert that the experiences

of adult literacy learners, especially Black mother learners, are informed by varying and intersecting oppressions that help shape their engagement with the world (Brookfield, 2003; Darder, 2015; Fearon, 2023; hooks, 1994; Jones, 2019).

Affirming Adult Learners through Black Feminist Storytelling

Black feminist storytelling affords Black mother learners with opportunities to engage in literacy development in ways that align with individual and wider community goals and cultural practices. It champions Black mothers' words and narratives as sources of legitimate knowledge. Through storytelling, learners reassert themselves, their ideas, and dreams within the learning space. The following sections offer educators critical insights into the ways Black feminist storytelling can be leveraged in adult learning spaces.

Setting the Conditions for Black Feminist Storytelling

Scholarship centering the educational lives of Black learners call for creation of educational sites that uphold Black communities' agency and experiences (hooks, 1994). Black feminist storytelling encourages learners to use narratives to explore their relationships, identities, and ideas with others (Collins, 2000; hooks, 1994; Toliver, 2020). When preparing to engage learners in Black feminist storytelling traditions, educators must deepen their relationships with themselves, learners, and the communities in which they serve. To facilitate such a building of critical consciousness, I encourage educators to use the following questions to inform their work:

- How will I engage in critical self-reflection around my own beliefs about storytelling and literacy?
- What steps will I take to foster positive relationships with learners?
- How will I deepen my knowledge on the histories and current realities of learners, including Black mother learners?
- What professional learning must I engage in to further understand the social and educational inequities existing within my learning institution and society at-large?

Preparing Learners to Engage in Black Feminist Storytelling

In her groundbreaking text *Talkin and Testifyin: The Language of Black America*, Geneva Smitherman (1977) positions Black storytelling as spiritual and cultural labor. The art of storytelling allows learners to investigate and reveal their layered identities and literacy experiences. Such an exploration requires learners to be vulnerable and secure within the educational space. Black feminist storytelling prioritizes the act of listening, creating, and communicating from one's cultural standpoint (Evans-Winters, 2019). Accordingly, educators must partner with learners to co-construct a learning environment conducive to story listening and telling. The following questions help guide educators as they prepare to engage learners in the art of storytelling:

- How do learners conceptualize storytelling?
- What commitments must all those in the learning space make to facilitate the sharing of stories, experiences, and identities?
- How is leadership amongst learners nurtured within the educational space?
- How will I select and use materials that affirm learners' diverse knowledge systems and experiences (e.g., digital tools, texts, audio-visual resources)?

Engaging Learners in Black Feminist Storytelling

Black feminist storytelling honors the connections between the story, storyteller, and story listener. The telling of the story, Smitherman (1977) explained, "recreates the spiritual reality for others who at the moment vicariously experience what the storyteller has gone through" (p. 150). By sharing their lives through stories, learners, such as Black mother learners, reaffirm their humanity and agency to themselves and those listening. These guiding questions support educators as they engage learners in Black feminist storytelling:

- How might I leverage learners' identities and experiences to authentically engage them in a wide range of storytelling practices (e.g., oral storytelling, visual storytelling, digital storytelling, written stories, etc.)?
- How might I support the social, emotional, and intellectual well-being of learners throughout the storytelling process?
- How might institutionally marginalized narratives be centred in the learning space?
- How might I leverage learners' personal and cultural stories to inform curriculum, policies, and professional development?

Conclusion

I began this short paper by recounting my grandmother's emigration journey from Jamaica and reading experiences in Toronto. My grandmother, now in her late 80s, continues to encounter some reading challenges. My grandmother, as with many other Black mother learners, doubts the ability of any formal learning site to affirm their storied lives and identities.

In Canada, ongoing concerns around adult literacy learning have resulted in the repositioning of literacy as a set of essential skills for the workplace. This shift of learning toward employability skills has resulted in adult learning experiences that are detached from an analysis of learners' identities, cultural experiences, and diverse passions (Belzer & Kim, 2018; Fearon, 2023; Jones, 2019). I challenge educators and those in leadership to reimagine supports offered to adult learners on their literacy journeys. I urge educators to adopt approaches in the classroom that affirm learners' identities and diverse experiences with literacy. Embedding storytelling in adult education programs is a way for educators and learners to come together and deepen their understandings about literacy, identity, and power. This process fosters a dialogue that encourages the collective reimagining of adult literacy programs in ways that authentically center learners' experiences.

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Forum: Social Justice, Creativity, and Adult Literacy

(Part 4 of 4)

Unlocking Creativity for Adult Language Learning

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The use of creative tasks—such as storytelling, drama, and art projects—in the language learning classroom can have numerous benefits. While creative activities are widely used in working with younger learners, playful and creative language learning is not as common in adult learning contexts, which are more often framed within a pragmatic approach to language use. However, learning through creativity does not have to end in adulthood. Creativity is a human impulse that just won't quit (Kastenbaum, 1991), a desire that ebbs and flows throughout the life course. Being creative opens up spaces for self-expression (Zeilig & Almila, 2018), political activism (Sawchuk, 2009), and construction of new powerful identities (Balyasnikova & Gillard, 2021). Being creative in the language use is natural and adult language learners are often able to express themselves more creatively drawing on their plurilingual and pluricultural repertoires (Bernaus & European Centre for Modern Languages, 2007).

In this paper, I suggest that use of creative and playful tasks in the English as an Additional Language (EAL)[1] classroom is an effective way to support adult language learning and promote learner engagement. I use the term plurilingualism to refer to the learners' ability to use multiple languages in context, often mixing and blending different languages. I pose that in such contexts, creating conditions for the playful use of non-standard language or many languages should be an intentional pedagogical practice that affirms one's plurilingual repertoire and their plurilingual and cultural identities (Galante, 2019; Piccardo, 2013; Piccardo & Ortega, 2018).

I came to appreciate the potency of integrating creativity in language learning as a practitioner-researcher within an interdisciplinary program in Vancouver, Canada, called Seniors Thrive. This arts-based EAL program helped immigrant seniors learn English, build social connections, and strengthen their leadership beyond the classroom. Most of the programming in Seniors Thrive merged arts-based learning, leadership opportunities, and targeted language learning (see more about the program: Balyasnikova et al., 2018; Balyasnikova & Gillard, 2018, 2021), thus providing a comprehensive and holistic approach to foster active language use by senior learners.

1 I will be using the term EAL (English as an additional language) instead of ESL (English as a second language) because it is a more inclusive term that recognizes the diverse linguistic backgrounds of language learners. Some students may already speak multiple languages and are adding English as another language to their repertoire. Using EAL acknowledges and respects the plurilingual contexts of language learning and emphasizes the importance of recognizing the multitude of linguistic resources that learners bring to the classroom (see García & Otheguy (2020) for further elaboration and Flores (2013) for pointed critique).

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Creativity in Language Learning and Use

My experience as a language instructor prompted deep reflection on how to approach the task of encouraging creativity in language learning classroom. This endeavor proved to be challenging, as the concept of creativity is simultaneously ever-present and elusive. Many language scholars differentiate between the Big C and the little c creativity (Jones, 2016). Big C creativity is easily recognized in language use because it refers to highly original language products of famous writers, poets, and playwrights who create monumental works of art such as poetry and prose. Little c creativity refers to everyday language use, being playful with language through creating puns, metaphors, and other forms of wordplay. Regardless of the discussions around definitions, there is a growing consensus that creativity is "innate to all human beings, which can be manifested in all types of discourse" (Hidalgo-Downing, 2016, p. 108). Keeping this understanding at the forefront, I will approach the rest of the paper with the intention of exploring how classroom practices can work towards unlocking learners' creativity(ies) in EAL classes.

Similar to other colleagues, I found that in additional language classrooms playful engagement with the target language "is vital to target language development and growth, mainly because of its inherent potential for 'failing forward'" (Kurtz, 2015, p.73), or learning from failures, seeing them as opportunities for growth. Such growth mindset can be encouraged in different contexts; however, I would pose that it will flourish in classrooms that are playful by design. Playful classrooms encourage learners to draw on diverse modes of expression (multilingual, multimodal) without strict rules of correctness or expectations of excellence. Playfulness is intellectually stimulating and can act as a catalyst for further creative expression (Luria et al., 2019). Some psychological studies have identified a correlation between playful teaching and students' linguistic creativity (Chang, Hsu & Chen, 2013) as well as higher creativity in how learners themselves co-construct the process of learning the target language (Barabadi et al., 2022). In a way, by fostering an environment of not taking things 'too seriously' and taking risks, playfulness in the classroom might serve as a fertile context for a more creative and experimental engagement with language in the classroom and beyond.

Seniors Storytelling Club

As part of my doctoral research, I developed a project called the Seniors Storytelling Club within the broader framework of Seniors Thrive. Through 10 weekly gatherings, I guided storytelling sessions where older immigrants shared their experiences related to language learning upon immigration, and actively practiced language skills in a supportive and engaging environment.

The Seniors Storytelling Club was intentionally designed prioritizing creativity in all modes of expression, including creative use of multiple languages. Creating a playful context was of utmost importance, ensuring that participants felt comfortable in their language use and empowered to take creative risks throughout the time we spent together. For example, they were encouraged to experiment with different words (both in English and their primary language), create new sentence structures, and use different modes, thus celebrating the vibrancy of their self-expression. By affirming and accepting learners' use of multiple modes of expression (both verbal and not), the Seniors Storytelling Club aimed to create an environment where participants could

confidently express themselves leveraging their creative abilities.

Seniors Storytelling Club also fostered an atmosphere of respect and understanding by encouraging learners to engage in storytelling on their own terms and according to their unique linguistic backgrounds. It was emphasized to the learners that their stories could be as concise or extensive as desired. It was also explicitly communicated that there was no obligation to write or share a story if they did not feel connection to any particular prompt, granting them the freedom to explore topics of personal interest.

Inspired by the success of Seniors Storytelling Club project, but restricted by COVID-19 closures, I conducted an online study in another literacy program for older adults this time in Toronto, Canada. In this study, I employed digital storytelling as an informal language practice, leveraging the participants' creative impulse to foster meaningful language learning experiences in a virtual space. The success of this project further reinforced my belief in the effectiveness of incorporating storytelling as a creative practice in EAL programming regardless of the mode of delivery. Further in the paper, drawing on my teaching experience and research, I discuss the benefits unlocking learners' creativity for EAL learning by sharing my experience facilitating the two Storytelling Clubs.

Unlocking Creativity for Language Learning

Integration of creative elements into the classroom practice can transform the learning experience into a more dynamic and engaging process. In today's adult EAL classrooms, the emphasis is often placed on pragmatic competence that leads to certain efficiency of communication. While this approach has its merits, it tends to prioritize the mechanical aspects of language learning, often neglecting the exploration and utilization of language as a creative medium. Moreover, a prevailing focus on measurable outcomes may inadvertently overshadow the significance of embracing the full potential of learners' creativity, thus denying them this inherent trait. By incorporating creative tasks into language instruction—encouraging learners to come up with multilingual puns, metaphors, and other forms of wordplay—educators might have an opportunity to redirect learners' attention towards a more playful exploration of language and thus affirm their creative impulse. Such an approach not only fosters a more engaging learning environment, but also acts as a catalyst for cultivating a sense of curiosity and appreciation for the rich tapestry of modes of expression available to humans. By encouraging learners to playfully explore the target language and tap into their creative impulse without fear of making mistakes, educators can foster a deeper understanding of language and its creative significance. This brings me to my first insight: **we should move away from focusing on pure efficiency and productivity of language use and towards a more creative language use in the classroom and beyond.**

Seniors Storytelling Club was an EAL class in both its purpose and desire of the participants. This is why, we wanted to make sure that learners engaged in active language production both with the facilitators and each other. We structured our session through a series of storytelling prompts that encouraged learners to create written and multimodal texts.

- Reminiscence prompts: recalling any stories about people, places, or events in their community (e.g., tell me about your community).

- Evaluative prompts: comparing experiences in different contexts (e.g., compare your first day in Canada to today).
- Multimodal prompts: using multiple modes in their writing/speaking (e.g., draw your story and tell about the image).

In response to these prompts, learners often drew on the many languages and modes available to them, creatively adapting and merging them into new linguistic forms. While some might see such texts as ungrammatical, I saw them as artifacts of creative process, representing learners' agency and engagement with multiple modes of expression. In addition, I interpreted reliance on multimodal and plurilingual forms of expression exhibited by several learners as a self-defining act of taking ownership of their own learning. Similar to the findings of the seminal work on identity texts by Cummins and Early (2011), I found that many learners not only actively engaged with the prompts, but also transformed their narrations into more familiar, accessible modes. This plurilingual and multimodal approach to storytelling resulted in deeper learning experiences and the emergence of creative language use. The plurilingual context of the classroom, coupled with the intentional use of storytelling prompts, created valuable opportunities for playfulness with the language. Most learners embraced and celebrated the diverse linguistic resources at their disposal, employing multiple codes to participate actively in the language learning process. Such dynamic not only enhanced the learners' communicative abilities but also reshaped the power dynamics within the classroom. The learners became confident, creative communicators, actively co-constructing a productive playful learning environment. This brings me to my second insight: We should not shy away from multiple language use in the classroom, albeit seemingly chaotic and ungrammatical. On the contrary, **by intentionally incorporating plurilingual creative prompts, we can foster a learning environment where learners act as agentive and confidant communicators.**

Creating a learning environment in which learners see themselves as stakeholders and valuable members of the community was one of the goals of the Seniors Storytelling Club. This is why all stories – short, long, plurilingual, and multimodal – were published in an illustrated book entitled *Exchanging Stories* that was launched at the end of the course. English and Irving (2015) write that the creation of a physical artifact as a product of creative practices has the potential to generate "social transformation and change" (p. 49). Indeed, creating an artifact together was incredibly affirming for language learners. At the book launch party, the participants each received a copy of the book and got an opportunity to share their thoughts and feelings about this publication. The book launch was attended not only by the Seniors Storytelling Club members but also by their friends, relatives, and the staff of the learning centre. During the event, some participants expressed their pride and excitement in seeing their stories in print. They shared their plans to show the publication to everyone they know, further emphasizing the sense of accomplishment they felt in having their work recognized and presented in a physical form. In addition, the book launch was a special event that recognized and celebrated participants' creative use of languages/images in storytelling. It also affirmed learners as valuable contributors, talented storytellers in multiple languages, and published authors. This brings me to my final insight: **when learners have the chance to see the tangible artifact of their creative expression, it fosters a profound sense of accomplishment and a desire for learning.**

Conclusion

Butterwick and Lawrence (2009) write: "the arts are a way to communicate our stories in ways that connect with others" (p. 35). This paper suggests that creative exercises such as storytelling is an effective way to support adult learning. I discussed what constitutes creativity in language learning and use as well as the benefits of unlocking learners' creativity for EAL programing beyond the language classroom.

Humans are inherently creative beings, and it would be an oversight to neglect it in the language learning classroom. By recognizing and encouraging learners' creative potential, we can foster a dynamic learning environment. From enhancing engagement and motivation to affirming emerging identities of the learners as confident, expressive communicators, integration of creative elements into language instruction can lead to transformative language learning experiences. As educators, we need to seize the opportunity to establish creative language classrooms that reignite learners' inherent playfulness in language use. By embracing learners' creativity in all its forms, we can unlock their full potential and nurture a sense of joy and fulfillment on their language learning journeys.

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Book Review

Review of *Planning Programs for Adult Learners: A Practical Guide (4th Edition)*

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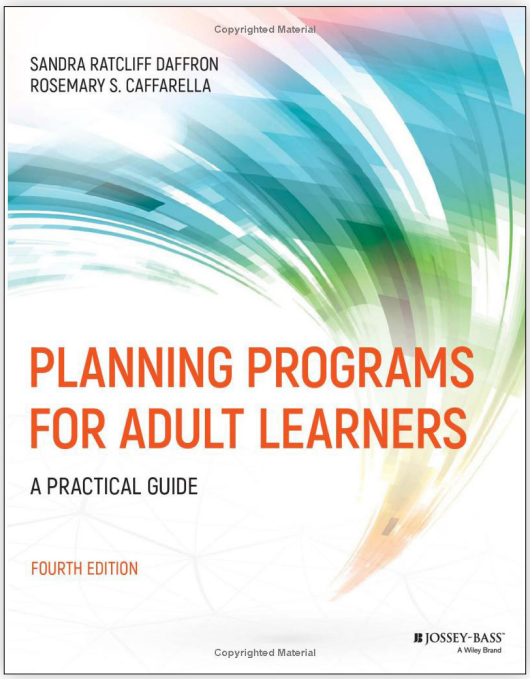
In 2021, Daffron and Caffarella published the fourth edition of their *Planning Programs for Adult Learners*, updated to reflect a world indelibly shaped by COVID-19. The text offers a comprehensive overview of program planning and management by outlining an updated version of their Interactive Model of Program Planning. The Interactive Model that provides the framework for the book certainly transcends what the authors critique as often niche-driven literature on program planning; ultimately, their text offers both a broad overview of the landscape shaping programs today as well as a detailed framework of essential program components.



The Interactive Model of Program Planning, arranged to mimic a blooming flower, includes (from center moving outward) three influences (ethical, political, and social justice); seven administrative tasks (budgeting, marketing, staffing, formatting, managing details, scheduling, and negotiating); seven learning tasks (context, evaluation, learning transfer, instruction, goals and objectives, needs assessment, and support); and five assumptions (change, culture, global problems, stakeholders, and power). If the model seems complex, it is because it is, but, as the authors convincingly write, so is the current world influencing and shaping program management.

Although the book discusses each of the elements of the model, and readers can enter the text at any point based on their own needs and goals, the elements are integrally interwoven. This interconnectivity is perhaps the greatest strength and weakness of the book. Just as the model itself reflects a complex, interdependent world filled with uncertainty and change, the very nature of this interconnectivity makes it difficult to truly utilize individual elements of the model without reading through and engaging with the model altogether.

Daffron, S.A. & Caffarella, R. (2021). Review of *Planning Programs for Adult Learners: A Practical Guide (4th ed.)*. Jossey-Bass. 560 pages. $46.00 paperback. ISBN: 978-1-119-57738-6.

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A strength of the authors' model is its non-linear arrangement. Although the book goes through the various elements of the model systemically, the model itself allows for flexibility and fluidity of adaptation, allowing, in theory, the reader to enter the model at any given point. For those looking for a handbook to guide and inform their practice, they can enter the model at the location most pertinent to their own needs. However, because of the complexity of the model, meant to reflect an increasingly complex world, it is difficult to fully utilize the book without reading through it in its entirety. Thus, this is less a book that can be dissected and used episodically and more a text to be used to inform and shape practices at large.

The previous edition of the text debuted in 2013. The authors rightly describe the need for an updated text reflecting changes in the world over the last decade. In particular, the authors focus on the ways COVID-19 has upended many of the norms with which program planners have had to contend. To this end, and among other updates, they added an additional chapter (Planning Programs in Difficult Times with Technology), meant to address the increasingly online nature of both day-to-day life as well as program delivery. Although the chapter addresses important changes in the world since the advent of COVID-19 and the large role technology plays in these changes, the chapter also provides an interesting insight into how technology is framed throughout the text. Certainly, technology creates its own unique challenges that must be thoughtfully navigated, particularly regarding issues of equity, social justice, and politics of power; however, technology can also be an asset that can transcend challenges as well. Perhaps the text simply reflects the more reactive moments at the beginning of the COVID-19 pandemic as programs struggled to move in-person offerings and practices into a digital sphere and technology was experienced more as a challenge to be overcome rather than an asset to be strategically utilized. Whatever the reason, the book's discussion of technology tends to focus more on transcending technology's shortcomings (of which, admittedly, there are many) and less on the possibilities it may open for programs.

The fourth edition's updates feel exceedingly relevant to this moment in history, as people still contend with the effects of COVID and increasingly face a changed landscape in which they must adapt program operations and practices at a moment's notice. What remains to be seen, however, is the longevity of the book's approach as the world moves beyond COVID specifically and must approach day-to-day life of program operations in a landscape intimately influenced by new macro and micro events.

The authors, in the preface, explain their goal to write a text that could transcend niche needs of program management that had previously dominated much of the existing literature on the topic as well as to offer a comprehensive look at the mechanics of program management. In the fourth edition of *Planning Programs for Adult Learners*, they certainly succeeded in producing an extensive text that acknowledges and describes the important contextual complexity that influences program decisions, and the interconnectivity of program elements and designs practitioners must consider and navigate when managing programs for adult learners. Though not without its shortcomings, particularly in their framing and discussion of technology's role in the 21st century, the text still manages to offer both a competent overview of program management as well as a helpful model that distills the integral elements, practices, and complexities with which practitioners will inevitability contend. Additionally, their

inclusion of "real-world" scenarios, releveant references for further study, and reflective questions at the end of each chapter provide additional content with which readers can continue their engagement on each subject that transcend the pages of the book itself.

In this way, the book's textbook-like setup makes it a perfect resource for any class or training on program design, planning, or management. This book would be particularly helpful for those new to adult learner programming as its model and framework provide a complex yet manageable overview of the multifaceted world in which both programs and adult learners must learn to operate.

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Resource Review

Review of Tier 2 Vocabulary Websites

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- ***Adult Basic Skills Professional Development (ABSPD) Tier 2 Vocabulary Lessons at https://sites.google.com/view/abspdtier-2-vocabulary/home?pli=1 (no registration required, no fee)***

- ***ATLAS ABE Teaching & Learning Advancement System at https://atlasabe.org/resource/vocabulary-units/ (no registration required, no fee)***

Adult educators will tell you how challenging it is for adult learners when they encounter unknown words while reading. Students' comprehension grinds to a halt as they struggle with demanding vocabulary. Improving vocabulary knowledge gives adult learners the skills they need to read texts with understanding. This review focuses on two similar resources for teaching Tier 2 vocabulary. Tier 2 words are academic vocabulary that cut across multiple content areas. Tier 2 vocabulary includes words like *complex*, *establish*, and *verify*.

The first resource, the ABSPD Tier 2 Vocabulary Lessons, was developed by Adult Basic Skills Professional Development at Appalachian State University. It features 38 Tier 2 vocabulary lessons designed specifically for adult learners. ATLAS, Minnesota's ABE Teaching and Learning Advancement System, created the second resource that contains 32 Tier 2 vocabulary lessons.

Both of these freely available online resources furnish Tier 2 vocabulary lessons designed for direct vocabulary instruction. The lessons supply basic word definitions and examples of how each word is used in context. The resources then give students' application activities such as matching, fill-in-the-blanks, true/false, yes/no/why, and read and respond. One resource also has writing prompts.

While most adult basic education students benefit from vocabulary instruction, these two resources are designed for learners in grade level equivalents 4 to 9. Learners below level 4 may still need instruction in Tier 1 (basic words like *chair*) words. Students above grade level 9 usually spend more time learning Tier 3 words which are more complex, content specific words like *hypotenuse*.

The evidence base recommends direct vocabulary instruction that includes clear definitions and rich discussions of the word in context. Students should be given multiple opportunities to interact with words over several days and the chance to complete

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formative assessments to show understanding. Instructors should encourage students to use new vocabulary on an ongoing basis in their speech and writing (Beck et al., 2002).

ABSPD Tier 2 Vocabulary Lessons

The ABSPD lessons are housed on a dedicated website. All 38 lessons are available in three formats (Microsoft Word, Google Doc, and PDF) conveniently housed in its own section on the website. The lessons are free and available for use under a Creative Commons License. Multiple formats allow for versatility which makes it easier for instructors to adapt lessons to face-to-face, online, or HyFlex instruction.

Lessons begin with a Knowledge Rating Scale where students choose one of four selections ranging from, "I've never heard this word before" to "I know the meaning of this word." This exercise is a unique and useful feature in the vocabulary lessons as it helps activate students' background knowledge and prepares them for new learning.

Every lesson supplies word definitions. A key consideration for any vocabulary resource is its definition clarity. Some dictionary definitions confuse learners by using many unfamiliar words. ABSPD provides clear definitions using as few words as possible while still conveying adequate meaning. For example, the word *alter* is defined as "to change something," while the word *prominent* is defined as "important and well-known." The resource also provides the part of speech as well as synonyms and antonyms.

The research findings note how important it is to teach words in a meaningful context. ABSPD supplies a short example paragraph where words are used in context. For instance, the context for the word *scarce* discusses product scarcity during the holiday season. Usually only one context scenario is supplied for each word which may limit students' understanding. Additional contexts would be welcome. The example section closes with a question inviting learners to supply their own context. Additional questions to invite deeper student discussion around a variety of topics would be useful.

Next, the ABSPD lessons move into application exercises. The activities flow in a logical progression from less to more challenging. Less challenging activities include fill-in-the- blanks and sentence completion. A positive feature of the sentence completion exercise is that they are open-ended. For the word *conclusion*, the sentence reads, "I felt relieved at the conclusion of _____." Learners must show they understand how to use a word to logically complete the sentences.

More challenging learning experiences include yes/no/why and read and respond. Yes/no/why questions are also open-ended as they can be answered in two ways and invite learners to explain their reasoning. An example sentence is, "Do **transparent** instructions make you more willing to complete and **submit** assignments?" (Tier 2 words are in bold print.) ABSPD yes/no/why questions contain either one or two new Tier 2 words. Some learners may find tackling sentences with two new words very challenging.

The last type of application activity is read and respond. These questions feature Tier 2 words in questions related to a provided reading passage. Learners must apply their knowledge of these new words to successfully understand and answer the questions. The reading passages are taken from the Reading Skills for Today's Adults resource and are of appropriate challenge for intermediate level (grade level equivalent 4 to 9) readers. Questions have one or two Tier 2 words. All the application activities are useful for giving

learners ongoing opportunities to use words in their speech and writing.

An added feature of the ABSPD lessons is the interactive online practice developed by the nonprofit CrowdED Learning during a 2020 EdTech Maker Space. This practice consists of Quizlet decks, flashcard-style exercises where students can test their knowledge of the new words. Learners can access Quizlet through a QR code or web address. The interactive practice is a welcome bonus as it supplies learners with additional opportunities to reinforce their new vocabulary knowledge and could be used as homework or for informal assessment.

ATLAS Vocabulary Lessons

Minnesota adult educators adapted the ATLAS Vocabulary Lessons from those created by the Illinois Adult Learning Resource Center. The Illinois lessons each feature 10 words. The ATLAS lesson designers concluded that learning 10 new Tier 2 words at one time may be challenging for many adult learners, so the ATLAS exercises feature only 5 words. The lessons are housed on a Google Drive linked to the ATLAS website, which is an open resource. There are 32 sets of Tier 2 vocabulary lessons.

Lessons begin by providing clear, accessible definitions. For example, the word *major* is defined as, "very large or important" while the word *distinction* is explained as "a clear difference between things." These definitions are robust enough for learners to comprehend without being too wordy.

Notably, these lessons contain two or three examples of how each word is used in common contexts. Having several contextual examples aids students' learning as they can understand how the words are used in different areas. However, this resource lacks pre-prepared questions that invite learners to supply their own context.

The ATLAS lessons furnish application activities that move in a logical progression of increasing difficulty. They begin with a match the word to the definition activity. The next two exercises are fill-in-the-blanks. This additional practice is beneficial as instructors have three basic activities for use in developing student understanding.

As for more complex activities, the ATLAS lessons have sentence completion, true-false and why, and writing prompt ideas. The sentence completions give relatable examples appropriate for adult learners such as, "A **major** challenge in my life is … ," and "One **factor** I considered when I enrolled in school was …." (Tier 2 words are in bold print.) The true-false and why activity provides realistic challenges using a variety of real-world examples.

Finally, the research base indicates that students should be encouraged to use new words in their writing. The ATLAS resource concludes with ideas for writing prompts. Examples such as, "Name factors in your life that helped shape the person you are today," which offer learners additional opportunities to practice using new word knowledge in context while practicing writing skills.

ABSPD and ATLAS lessons have some dated examples which is to be expected since they were developed over 10 years ago. Some vocabulary context examples are state or regionally specific, but these are minor issues in what otherwise are two highly beneficial resources.

Suggestions for Use

How might vocabulary instruction look using the ABSPD vocabulary lessons? First, students should fill out the Knowledge Rating Scale to activate their background knowledge and prepare to learn.

Using the definitions and context provided, the instructor then teaches the new words and definitions. Students can fill out graphic organizers such as quadrant charts to organize their learning. During instruction, educators should supply examples of several contexts and facilitate dialogue to aid student understanding. Word meaning instruction concludes with students going back over their answers to the Knowledge Rating Scale. Learners are encouraged to modify their answers based on what they learned during the lesson.

To practice using new words, students should complete some application activities in every class session. For a class meeting twice a week, learners may do the fill-in-the- blanks and sentence completion activities in the first class. In the second class, students could do the yes/no/why and read and respond exercises. Instructors should evaluate learners' responses in a whole group discussion, asking students to provide the rationale behind their answer choices. Multiple student perspectives during the discussion aids learning.

Recommendations

The ABSPD and ATLAS vocabulary resources enable instructors to teach vocabulary using evidence-based practices. Adult literacy professionals knowledgeable in research and andragogy created these resources. Lesson developers selected Tier 2 words from well-known academic word lists. Both resources are completely free and easily accessible. They minimize preparation time because of their easily followed format, a great advantage for busy adult educators with limited preparation time. The two resources contain helpful answer keys for the matching, fill-in-the-blanks, and read and respond questions.

Each of the lesson sets compare favorably with well-known vocabulary resources like the *Townsend Press Vocabulary Series* and *Words to Learn By*. Unlike those resources, both the ABSPD and ATLAS lessons are free. The ABSPD and ATLAS resources present only five words per lesson while *Townsend Press* and *Words to Learn By* have more than five. Trying to learn more than five new Tier 2 words at a time may create student confusion while providing them with less practice.

These lessons are best used by instructors of intermediate-level learners and above. According to the adult reading components study, 75 percent of adult basic education intermediate-level students need vocabulary instruction to improve their reading skills (Strucker & Davidson, 2003). Direct and explicit vocabulary instruction using these resources will assist students in developing a more robust vocabulary which will serve them well in achieving their educational and career goals.

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Research Digest

Writing Instruction for Adult Education Learners

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Charles MacArthur, University of Delaware
Zoi Philippakos, University of Tennessee

Writing is a critical skill that is considered important for employment, further education, civic participation, health, and personal fulfillment. For example, a substantial percent of nearly all jobs that non-college graduates possess require some type of writing. Workers are increasingly required to use their writing skills for memos, reports, and emails and may find their ability to move into well-paying jobs or enroll in technical training programs limited by their inadequate writing skills (Gillespie, 2001). Adults who lack these skills have limited opportunities to acquire them (National Commission on Adult Literacy, 2008). Despite the importance of writing, there is little research on the writing knowledge, skills, and strategies of adult education learners or research on instruction designed for their needs.

This digest provides a brief review of the research in this area. We begin with general information about the writing process, and proceed to what is known about adult learners. Evidence-based writing practice centers around strategy instruction, and therefore our digest emphasizes strategy instruction. We end with practical guidance and implications for instructors.

Theoretical and Empirical Foundation

Figure 1 depicts the demanding and complex nature of writing, an activity that requires a wide range of skills, strategies, and knowledge.

Discourse Knowledge

Proficient writers have considerable knowledge about the purposes, text structures, and linguistic features of common genres (e.g., comparison, narrative, argumentative) that they use while generating and organizing content during writing (Hayes, 1996; Hayes & Flower, 1980). In comparison, struggling writers have limited knowledge of discourse information (Englert & Thomas, 1987). Additionally, proficient writers have considerable knowledge of a wide range of attributes of effective writing that they use to revise and edit their writing (MacArthur et al., 2012; 2016). In contrast, struggling writers have limited knowledge of the revision process, often focusing on lower-order surface features (e.g., spelling and punctuation) rather than revising the content and organization of their writing (Graham et al., 1993). Research on strategy instruction in K-12 settings has shown that students can learn multiple text structures and how to use them when planning and revising

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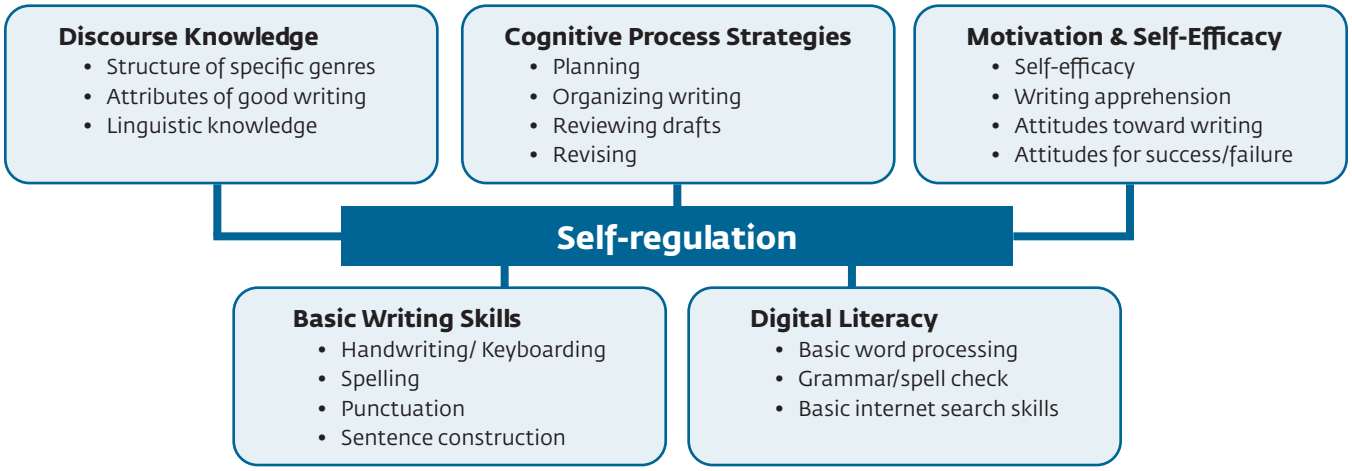
FIGURE 1: Model of the components and processes of writing

(National Research Council, 2012. Adapted and reproduced with permission from the National Academy of Sciences, courtesy of the National Academies Press.)



text. Most importantly, such instruction has been shown to enhance writing quality (Graham, 2006) and reading comprehension (e.g., Meyer & Poon, 2001).

Cognitive Process Strategies

Proficient writers have a repertoire of cognitive strategies for planning and revising text that they use together with discourse knowledge to achieve their writing goals (e.g., Hayes, 1996). When planning, they engage in rhetorical analysis of the audience and purpose (for whom and why am I writing?) and generate content using a variety of strategies such as brainstorming, outlining, drafting, and evaluating. Younger and less skilled writers engage in less planning, often focusing only on content generation. Skilled writers are also able to evaluate what they have written and revise text to meet their goals. When revising, they keep their goals and audience in mind and revise to improve meaning, organization, and language. More and less proficient writers also differ dramatically in the amount and type of revision, with less skilled writers often limiting changes to minor or surface level edits. Research with grade school and college level students shows that teaching students planning and revision strategies has large effects on writing quality across ages and grades (e.g., Graham & Perin, 2007; MacArthur, et al., 2015).

Motivation and Self-Efficacy

Writing challenges the motivational resources of both novice and expert writers. Many are apprehensive of writing, lack motivation, and have negative reactions when asked to write. This might be particularly true for adult learners who have faced years of difficulty. One important influence on individual motivation is self-efficacy beliefs about one's ability to successfully complete writing tasks. Individuals with higher self-efficacy are more willing to participate, work harder, persist longer, and have less adverse responses to difficulty than those who doubt their abilities (Pajares & Valiante, 2006). Self-efficacy is also correlated with writing achievement at all age levels, including college learners (MacArthur et al., 2015). Fortunately, self-efficacy can be influenced instructionally, and research shows it increases when students are provided with process strategies that guide them in tackling tasks (e.g., Graham & MacArthur, 1988). When students

learn writing strategies, learn to evaluate their writing, and see progress, their self-efficacy and self-satisfaction increases. Students are taught that they can be successful if they use effective strategies, and conversely to explain failure as due to inadequate strategy use.

Basic Writing Skills

Issues of grammar and writing conventions are critical to any discussion of struggling writers. When writers are not fluent in basic writing skills it can interfere with the quality of text generation. Transcription skills, including handwriting/typing, spelling, and punctuation, have a significant impact on writing quality for young writers and older struggling writers. Sentence production, including grammatical errors and control over complex sentence structures, has been studied with basic college writers (e.g., Smith et al., 2006). Given that adults come from diverse backgrounds with varied language skills, improving basic writing skills for those who struggle is particularly important.

Digital Literacy

The Committee on Learning Sciences (2012) includes proficiency in writing in electronic environments as a key outcome, arguing that the use of computers for writing has become nearly universal in all aspects of life. Adults need basic technology skills for accessing information, producing text, and communicating online. This includes knowing how to use word processing, editing, and internet searching tools. Unfortunately, low digital literacy skills are prevalent in 41% of adults without a high school diploma (OECD, 2013). Research supports the positive effects of tools such as spell checking on grade 1-12 student writing, particularly for struggling writers (MacArthur, 2013; Morphy & Graham, 2012).

Self-Regulation

Self-regulation is required for coordinating the different aspects of writing. Several types of self-regulation strategies have been studied with regard to writing, including self-monitoring, self-instructions, goal setting, self-reinforcement, and management of time and environment. In a meta-analysis of writing strategy instruction research, Graham (2006) found larger effect sizes for instruction following the Self-Regulated Strategy Development model (Harris & Graham 1996) than for approaches with less explicit focus on self-regulation.

Strategy Instruction for Adult Learners

Based on the theoretical and empirical foundations described above, we offer practitioners some guidance for developing writing instruction for adult learners.

Writing Strategies

Whereas there is a large body of research with elementary and secondary students (Graham, et al., 2012; Graham & Perin, 2007) demonstrating the effectiveness of strategy instruction for improving writing quality, there is far less research with adult learners. In two studies (Berry & Mason, 2010; MacArthur & Lembo, 2009), strong positive effects of self-regulated strategy instruction (SRSI) with adults preparing for the high-school equivalency exam were noted. More recent research on SRSI with basic college writers showed very large effects on writing quality, as well as positive effects on self-efficacy (MacArthur et al., 2015; MacArthur et al., 2022). Therefore, the core ideas of SRSI to teach writing strategies using methods such as explanation and think-aloud modeling, collaborative practice, self-and peer-evaluation,

and gradual release of responsibility to learners to facilitate independence appear to be useful for adult learners. Adult learners similar to grade school children and basic college writers will need explicit instruction on writing strategies.

Self-Regulation Strategies

In research with college students with learning disabilities, Butler et al. (2000) found that SRSI enhanced students' metacognitive knowledge, perceptions of task-specific efficacy, attributional patterns, strategic approaches to tasks, and performance on academic tasks. Overall, strategies should be designed to encourage learners to take responsibility for their own learning by setting goals, choosing strategies, managing their efforts, and reflecting on their progress. These self-regulation strategies are important because adults are typically expected to regulate their time and effort to accomplish academic and professional tasks. For adult learners, general self-regulation strategies may be especially vital, because they may have already previously been exposed to writing strategies without learning how to use them independently.

Instructional Processes

Although teachers should provide explicit explanations of writing strategies, much of the instructional and learning effort should be devoted to scaffolding learners' attempts to use strategies and helping them to understand the value and purpose of using strategies. First, adult learners would benefit when they are taught strategies using authentic writing tasks such that they are meaningful to them and have greater generalization to other tasks and settings. Second, teachers should provide explicit explanations and modeling of strategies using think-aloud methods, which are necessary to demonstrate processes that are otherwise invisible. Third, teachers can provide scaffolding through teacher-learner collaboration and guided practice. It is important that teachers monitor learner understanding and provide feedback to learners on how well they are using the strategy and on their writing performance. Practice should continue until learners demonstrate independent use of the strategy. Finally, teachers can build motivation by helping learners see how the strategy improves their performance and success.

Implications for Practice

As mentioned previously, proficient writers have considerable knowledge about the purposes, text structures, and linguistic features of common genres. We suggest focusing on argumentative writing because it is the genre required for the writing portion of high school equivalency exams. Learners should be taught strategies that use knowledge about the purposes and structural elements of argumentative writing to guide their planning, drafting, and evaluating/revising processes. For example, since arguments are intended to persuade, a planning strategy could involve brainstorming reasons and evidence on both sides and developing an organized plan with position, reasons and evidence, counterarguments and rebuttals, and a conclusion. Revision strategies could include teaching learners to use a rubric focused on the elements of writing an argumentative essay to evaluate their essays and provide suggestions for improvement. Based on the success of SRSI, effective instructional practice should include an emphasis on self-regulation designed to support learners in coordinating their use of strategies and in generalizing their learning to other academic writing tasks. Finally, because both adult learners and teachers have time

and accessibility constraints, any instruction designed to support the academic attainment of adult learners and assist instructors could leverage digital tools and online technology.

What we have presented here is only suggestive. The extant literature provides us all with an opportunity to explore what works best for adult learners to be successful writers.

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Bridging Resource Gaps in Adult Education: The Role of Generative AI

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Generative AI (GenAI) refers to the production of entirely new creative works, such as text, pictures, music, or poetry, in response to simple prompts (Lanxon et al., 2023). Some view GenAI as a disruption to our education system, pointing to biases in the training data, concerns about misleading or inaccurate information, challenges to educators, as well as issues of personal safety and privacy (Weil, 2023, Yu & Guo, 2023). In adult foundational education, where teacher capacity and resources are limited, AI-powered edtech tools have the potential to support the rapid creation of high quality, tailored, and engaging materials for instruction and assessment in any learning context. This article aims to provide insight into adult educator perspectives on the use of GenAI as well as highlight edtech tools and features that educators can use to strengthen their instructional design skills and more effectively meet diverse learner needs.

The pandemic made clear that adult educators need to build capacity as instructional designers, leveraging research-based instructional frameworks and digital technologies to enhance learning opportunities (Vanek, 2022). When ChatGPT was released to the public in 2022, educators began to experience the powerful capabilities of new GenAI tools and features. Advances in AI-powered tools—such as ChatGPT, Dall-E 2, or Synthesia—can assist educators by automating tasks like assessment, communication, and resource creation, providing more time and space for creativity and efficiency in instruction (Atlas, 2023; Zhai, 2023).

Growing evidence reveals that AI-powered technology, used ethically, can promote greater equity, access, and quality learning in education, especially when educators' professional judgment and learners' experiences are centered in the design and features (Rochelle et al., 2021). Research about the impact of GenAI on adult learning outcomes is just starting to emerge. Leiker et al. (2023) explored the use of the GenAI video creation platform to create instructional videos in a micro-learning course. The experiment—which was conducted in an online professional learning setting for technicians, engineers, and administrators in the battery industry—aimed to understand the impact of AI-generated instructional videos compared to traditional instructional videos created by trained teachers. Importantly, the course content was developed by human subject matter experts who knew the learner population, then used the platform Synthesia to generate text-to-videos with photorealistic synthetic actors, essentially avatars that look like real instructors.

Results indicate significant improvement between

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pre- and post-learning assessments among those who viewed the traditional video recorded by an instructor and the AI-generated video, with no statistical difference in terms of learning gains (Leiker et al., 2023). Findings suggest that AI-generated learning videos could be an effective substitute in online educational settings. With GenAI, the rapid and affordable production of instructional materials has the potential to address some of the most significant resource gaps in adult learning communities, such as geographically remote and/or incarcerated settings.

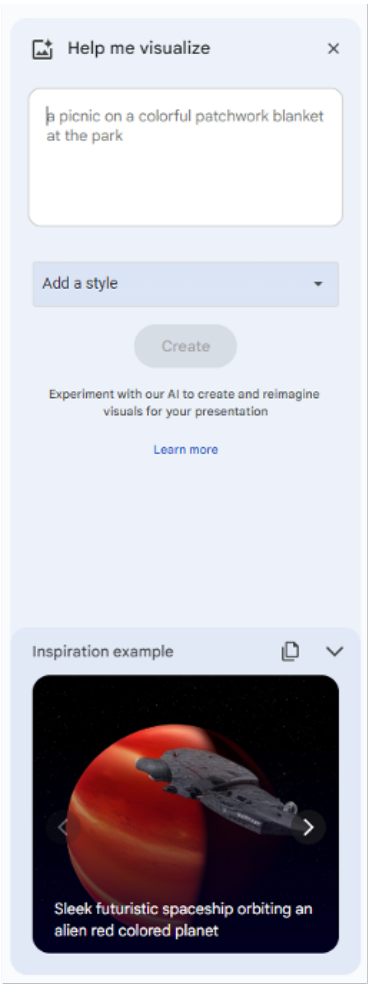
At First Glance: The Adult Educator Perspective on GenAI

In response to the growing interest in AI for adult education, The EdTech Center @ World Education recently launched Leveraging AI for Learning and Work, an initiative focused on gathering information, facilitating collaboration, and supporting efforts to design and use AI responsibly and equitably in adult education and workforce development. To inform this initiative, the EdTech Center conducted a brief survey among over 400 educators who self-selected to participate in the EdTech Bytes: GenAI webinar series. While responses are not representative of all adult educators, they provide an insightful sample of teacher perspectives. Most survey respondents found GenAI to be useful for enhancing productivity, design, writing, and teaching, and almost half indicated that they are "just figuring this out." Over 75% of respondents felt GenAI has the greatest potential to support adult learning and education in content creation and as a teaching tool. While more research is needed in this area, this preliminary pulse check indicates that educators see value in further exploring GenAI technology to meet the unique needs of adult learners.

Exploring GenAI in EdTech Tools

GenAI-powered features are being built into the most popular edtech tools at a rapid rate. Google launched Google Labs, a suite of GenAI features that will be built into the Google tools that countless teachers use every day (see example in Figure 1). The well-known app Kahoot now has a built-in question generator powered by GenAI. Padlet was ahead of the game when it released the I Can't Draw feature in 2019 which uses GenAI to generate images based on text descriptions. Most recently, the popular design tool Canva has swiftly added features that support users in generating text, images, and layouts in their designs.

FIGURE 1: Screenshot of Labs feature "Help me visualize" in Google Slides



GenAI in Popular EdTech Tool Canva

Canva is a free design tool used by creators, marketers, and teachers. In 2023, Canva released GenAI-powered Magic features, including Magic Design, Magic Write, and Magic Edit (Adams, 2023). In line with several major tech companies like OpenAI, Adobe, and Google, Canva also integrated a text-to-image feature. For free and in real time, teachers can enter any text prompt, such as "woman at the bank handing a credit card to the bank teller" (Figure 2) and conjure image options in a variety of styles. With Canva Text-to-Image, teachers can quickly generate images to facilitate learner comprehension, enhance the learning experience, and increase accessibility for adult learners, promoting visual literacy competencies and skills, foundational reading, writing, and digital skills (Guglietti, 2022).

FIGURE 2: Screenshot showing Canva's Text-to-Image feature, outlined in red

Without GenAI, finding free images to create instructional materials or facilitate understanding in real time can lead to cumbersome internet searches, never mind the challenge of determining whether the image is in the public domain or openly licensed. While the latter is made easier by sites such as Unsplash (World Education, n.d.), the terms of use on image repository sites can be difficult to understand, leaving teachers uncertain about whether and how they are permitted to use the images they find. To date, Canva makes no claim over images generated using the Canva Text-to-Image feature. That means that teachers can use a single free tool to request a specific image without second-guessing their ownership of that image. This free access to images, if used responsibly, has the potential to address a key resource gap in adult learning: relevant and representative images.

Relevant and Representative Images

AI image generators, such as Canva's Text-to-Image feature, can be used to create images in adult learning contexts that ultimately support adult learner factors such as a sense of belonging and reduce stereotype threat (Digital Promise, n.d.). With Canva, teachers can effortlessly add images to slides, worksheets, or digital whiteboards that depict adults engaging in tasks that are relevant and contextualized. On a math worksheet, for example, an image of an adult performing calculations on the job could motivate and engage learners, making a direct connection to important competencies. In an ESOL classroom, teachers might quickly develop visually stimulating imagery that supports vocabulary comprehension and practice activities. Before applying use of the tool, though, teachers should consider two pitfalls of AI-generated images: bias and hallucinations.

Bias and Hallucinations

A recent study found that whiteness and masculinity were overrepresented in three text-to-image GenAI models. Notably, one of these models, Stable Diffusion, is what underlies Canva's Text-to-Image feature and was found

to be more diverse than OpenAI's popular tool, DALL-E 2 (Luccioni et al., 2023). Tech developers are reportedly working to mitigate bias in AI, and in the meantime, we recommend three human-centered strategies to responsibly use GenAI to increase diversity in educational resources:

1. **Involve learners.** Giving learners voice and choice in developing diverse materials serves the dual purpose of increasing representation while engaging learners in an activity that builds English language and digital literacy skills. Learners could write a passage about their hometown or country and use Canva to generate an image to include with their writing, reflecting on the results together. In a workforce preparation class, learners could generate images of specific occupations and examine the degree of homogeneity in the results. No matter the context, time should be dedicated to critical reflection in which learners can express successes or pitfalls they encountered when using GenAI.
2. **Refine prompts.** Specificity and detail in text prompts give human users more control over image results, avoiding ambiguity that leaves room for algorithmic bias. Write text-to-image prompts with specific outcomes in mind and be as descriptive as possible, especially when eliciting images of humans. A prompt that says "construction worker" might result in obviously homogenous results, like those shown in Figure 2. Adult educators, though, who are familiar with the diverse backgrounds, stories, and experiences of individual learners can draw on real students and real stories to write descriptive prompts that are authentic to adult learning contexts and factors. While not GenAI specific, resources like OER Common's Tool for Identifying Bias in Sources can be utilized to provide objective and critical insights (Germán et al., 2021).
3. **Discuss results.** Collaborating with other educators in a community of practice to share experiences and compare outcomes is an effective way to expand awareness of human-centered approaches for mitigating bias. Many existing professional development approaches at various levels of formality support effective edtech implementation and can and should be applied to the use of GenAI-powered tools. Service learning in an EdTech Maker Space is one example of how educators can work together to generate resources and build skills with edtech (Maddrell et al., 2023). A common EdTech Maker Space activity includes the comparison of the affordances of various edtech tools to generate a specific educational resource. This activity would be valuable for strengthening our ability as a field to responsibly leverage GenAI (see example comparison in Figure 4).

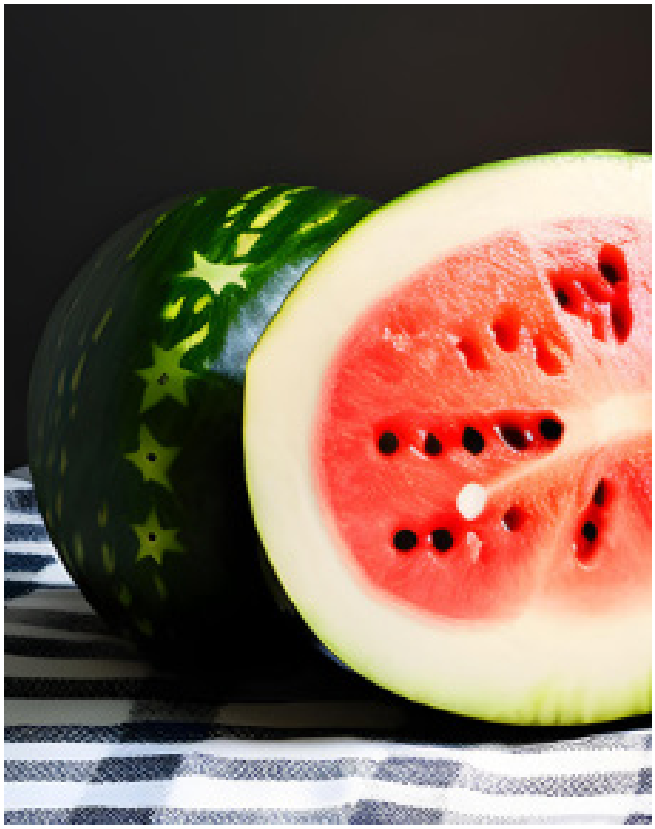
FIGURE 2: Images generated by Canva's Text-to-Image using prompt "construction worker"

FIGURE 3: Results from the prompt "worker in STEM" from Canva's Text to Image (left) and Padlet's I Can't Draw (right)

In addition to the potential for bias, educators must be mindful that GenAI images can "hallucinate" which describes an AI response that is inaccurate despite appearing to be dependable, whether from a chatbot, text-to-image generator, or otherwise (U.S. Government Accountability Office, 2023). An illustrative example of this can be seen in Figure 4 which shows an image that was generated in Canva using the prompt, "shelf at a grocery store containing apples, oranges, pears, bananas, grapes, strawberries, watermelon." In a beginner ESOL class, this kind of image could be helpful for vocabulary practice activities like labeling the items in an image. Such an activity would really backfire if watermelon were to be depicted in the way that it is in Figure 4, with tall green stalks that resemble a kind of leek-watermelon hybrid. Like any new technology, educators are encouraged to test and explore its use and develop workarounds to fit their needs, like prompting the tool to depict a "watermelon" and avoid the term "shelf" altogether as in Figure 5.

FIGURE 4: Example of hallucination generated in Canva's Text-to-Image

FIGURE 5: Image generated in Canva using the prompt "watermelon"



Conclusion

The applications of GenAI are wide-ranging, from text generation to image, video, and music generation. AI has the potential to support complex learning experiences with multiple people and resources and augment human abilities in a variety of learning contexts (Rochelle et al., 2020). As with any new and emerging technology, educators need to prioritize learning goals over tools and ensure that the use of GenAI tools and features supports learners in meeting their unique and diverse learning needs and aspirations. Further, digital learning experiences and programs must be designed with a trauma-informed lens given the glaring inequities in access to digital literacy skills and technology among adult learner populations (Housel, 2023). Efforts to integrate GenAI technology in adult education should advance educational goals, while evaluating and limiting key risks to the educators and learners involved (U.S. Department of Education Office of Educational Technology, 2023).

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