Expanding Access, Knowledge, and Participation for Learning Disabled Young Adults with Low Literacy

Donita Massengill Shaw, Ph.D. and Laurel Disney

ABSTRACT

The purpose of this study is to provide a deeper understanding of learning disabled young adults who struggle with low literacy skills in order to learn more about their literacy profiles and, from an emic perspective, understand the affective factors that may have influenced their attendance and persistence in a post-secondary residential program. Pre-post literacy and affective assessments were given to 244 young adults. We found the students had relatively strong listening comprehension and vocabulary skills but were weaker in decoding and text comprehension. As a result of intervention, students' feelings about literacy positively increased as well as their self-reported abilities. Reasons for their persistence are discussed.

INTRODUCTION

Adult education and post-secondary developmental programs are necessary for the millions of adults who need to further develop their literacy skills (Kutner, Greenberg, Jin, Boyle, Hsu, & Dunleavy, 2007). More than half of the adults who attend adult literacy programs are 25 years and younger (Tamassia, Lennon, Yamamato, & Kirsch, 2007). The students who are served in these programs range in ability from adult basic education (ABE, functioning below 9th grade reading level) to adult secondary education (ASE, 9th grade reading level and above) (Mellard & Patterson, 2008). A number of these adults also have learning disabilities, which is a term encompassing several types of developmental disorders affecting specific academic or language skills, reading and writing, and other areas of functioning (Taymans, Swanson, Schwarz, Gregg, Hock, & Gerber, 2009).

Young adults with learning disabilities face a particularly unique and pivotal point in their lives: they are making decisions which can have lifelong consequences, yet there is little research on this group to help us understand who they are and why they make their educational choices (Belzer, 2006). The purpose of this study is to provide a deeper understanding of learning disabled young adults who struggle with low literacy skills to learn more about their literacy profiles and, from an emic perspective, the affective and program factors that may have influenced their attendance and persistence in a post-secondary residential program. Our specific questions are as follows:

1. What demographic, educational, and literacy history factors do the members of this group share?
2. What are the patterns of strengths and needs in their literacy assessment profiles?
3. How do the participants view proficient readers

and writers in general and their individual literate abilities in particular?

4. Are there any clues as to what influenced their educational decisions to attend and persist in this post-secondary residential literacy education program?

LITERATURE REVIEW

The national transition period from adolescence to adulthood generally stands at 18 to 24 years of age, and this progression lends itself well to postsecondary education. However, for people with learning disabilities and low literacy skills, this is often not the case (Edgar, 2005; Scanlon, Saxon, Cowell, Kenny, Perez-Gualdron, & Jernigan, 2008). Gerber (2009) found that 86% of learning disabled young adults leave high school and go directly to the workforce. Edgar (2005) found that 40% of learning disabled youth never graduate from high school; of those who do, approximately 25% go on to a post-secondary education but less than 25% actually graduate.

Developmental education courses, which do not count toward a post-secondary degree, are provided to support students' literacy skills development so they will be successful in college (Kozeracki & Brooks, 2006). More than half of all students who enroll in community college need to take a developmental course (Bailey, Jeong & Cho, 2010), although developmental courses focus on literacy subskills rather than bridge students' skill development to literacy tasks required in college (Grubb, 2010). A study completed by Kozeracki (2005) found that most faculty members do not feel competent to address students' literacy needs since their own graduate degree training (e.g. English) differs significantly from the techniques that struggling readers and writers need.

Learning disabled young adults who choose not to join the workforce or enroll in college have another option. A residential program is available for learning disabled young adults (ages 16 to 24) who want to prepare for vocational careers, enter higher education programs, or serve in the military but lack the qualifying skills. The federal government, under the Rehabilitation Services Administration, has nine similar federal and state supported vocational rehabilitation facilities around the country.

Adult literacy programs and developmental college courses struggle with a high attrition rate (Alamprese, 2009; Comings, 2009). Research by Scanlon et al. (2008) revealed lower rates of educational participation and persistence in students with learning disabilities as compared with their non-learning disabled (LD) peers. This finding is consistent with affective research on competence, motivation, and self-efficacy, which tells us that it is not unusual for people to avoid or discontinue frustrating and embarrassing situations in which they have been unsuccessful (Bandura, 1997; Dweck, 2000; Pressley, 2006) or abstain from educational programs where they perceive little likelihood of cost-benefit return (Beder, 1991). Reasons that students cite for discontinuing their adult educational programs can be attributed to both institutional and personal factors (Beder, 1991; Tracy-Mumford, 1994; Quigley, 1997). Institutional reasons for lack of program completion often have to do with class location/schedule or pace of instruction (Perin & Greenberg, 1994). Personal factors include family problems, health issues, and non-instructional support services (Perin & Greenberg, 1994; Taymans et al., 2009).

Differing profiles of strengths and weaknesses in adult literacy learners (Chall, 1994; Strucker, 1997; Taymans et al., 2009) reflect the various

etiologies underlying reading difficulties and distinguish adults from children of like reading levels and from other adults with similar low literacy levels. Mellard, Fall, and Mark (2009) assessed 295 adults and identified seven profile groups. All seven groups of low literate adults displayed comprehension deficits, yet their most pressing instructional needs fell into three primary areas: basic decoding skills, word level reading and fluency, and comprehension. The authors concluded that curriculum and instruction in adult education programs need to address the specific literacy profiles of each learner. A similar study completed by Hock (2009) found that adults who self-reported a learning disability had significantly different and lower skill level on multiple literacy assessments.

In sum, adult students are multifaceted and come to a developmental program with a wide variety of instructional needs and affective considerations, but the adult education programs designed to help them expand their abilities are plagued with challenges, including low retention rates. The purpose of this paper is to better understand the learning disabled young adult population who enrolled in one residential program so the findings can inform practice and policy.

METHOD

Background

While the postsecondary residential facility is located in a rural area 20 miles north of a mid-sized city in a Midwestern state, the student population hailed from urban, suburban, and rural areas statewide. The facility served adults 18 and older with moderate to severe disabilities who were seeking competitive employment. The facility had a literacy center, vocational assessment and counseling services, thirteen different trade programs, medical and psychological support services, a formal recreation services department, and on-site daycare. The focus on this particular study will be data collected from the literacy center whose charge was to assist students in building their literacy skills to a level that would allow them to be successful in trade training and the workplace.

Success in adult education programs has been variously defined. In an analysis of adult literacy research on persistence, Comings (2007) found that approximately 100 hours of instruction was sufficient for the majority of attendees to progress one or more years on a standardized test. Independent researchers (Sadoski & Willson, 2006; Truch, 2004; Eden, Jones, Cappell, Gareau, Wood, Zeffiro, Dietz, Agnew, & Flowers, 2004) and program developers (www.lindamoodbell.com) found that 80-120 hours of instruction was necessary for significant progress. Therefore, successful completion for this program was defined as a minimum of 80 hours of attendance and/or 1 grade level of progress on the *Woodcock Diagnostic Reading Battery* (Woodcock, 1997), and/or a four point gain on the *Comprehensive Adult Student Assessment Systems-Reading* (CASAS-R, 2001). While all individuals attending this school had one or more disabilities as defined by the Americans with Disabilities Act (ADA), individuals with self-reported traumatic brain injuries, coma, or deafness were excluded from the study since the assessments were not normed on these populations.

Literacy Program

Designed for intensive delivery, the full time Reading Clinic Program operated two educationally parallel sessions (Group A and

Group B) daily during each 10-week term. During the morning (8:00-11:30) half of the students (Group A) were divided into small homogenous groups of 3-5 students and rotated to a different teacher each hour. The homogenous small group instruction was explicit, structured, sequential skills-based teaching and strategy instruction designed to develop phonological awareness, phonics, a high frequency sight word base, fluency, and spelling using a Socratic questioning format. The Lindamood-Bell LiPS program (www.lindamoodbell.com) was the primary curriculum used by teachers and paraprofessionals who were trained by Lindamood-Bell staff but were not Lindamood-Bell employees. While every attempt to maintain LiPS program fidelity was made in the small homogenous groups, additional supplementary and complementary reading comprehension, vocabulary, and writing interventions were implemented during large group instruction and independent work periods as student needs dictated. In the afternoon (12:30-3:30) the combined Group A students met together. This heterogeneous group worked on a variety of integrated literacy related tasks including the use of informational and fiction texts, reading comprehension strategy instruction (Gambrell, Morrow, & Pressley, 2007; Pressley, 2006; Blachowicz & Ogle, 2001; Harvey & Goudvis, 2000; Zimmerman & Keene, 2007), expository writing instruction (MacArthur, Graham, & Fitzgerald, 2006; Greene, 2003; Miller, 1998; 2007) with opportunities for application and production, assistive technology instruction and application (http://nuance.com), computer literacy instruction and application (PowerPoint), and student selected project-based learning units designed to integrate all the facets of literacy in authentic activities one would naturally encounter in daily life, the job search process, or the workplace.

In response to research validated literacy learning and adult learning practices (Merriam, Caffarella, & Baumgartner, 2007; Knowles, Holton, & Swanson, 2005), the adult literacy program in this study evolved over the years from a full time program with an emphasis on word level skills instruction to a more fully developed program offering full- and part-time literacy development courses, custom designed literacy and study support to the trade classes, school-wide literacy assessment services, and instruction in assistive technology. The full time program, as the focus of this study, was research based and designed as an intensive, comprehensive literacy program which included assessment and instruction in print, oral, and technological literacies through a combination of small group direct instruction, large group instruction, independent computer/assistive technology aided reading, and project-based application of skills. The ever-evolving research based program model employed a two-pronged approach, combining intensive literacy intervention while simultaneously promoting assistive technology proficiency to enable access and production of print (McKenna, Labbo, Reinking, & Zucker, 2007) to address students' literacy needs and build on their strengths. In essence, allowing the students to work on their reading level and their intellectual and receptive language levels simultaneously follows Vygotsky's (1978) Zone of Proximal Development.

Participants

Over the course of three years, 244 participants attended the reading clinic at the residential facility and received literacy intervention. Most of the students were from middle and lower socio-economic levels and represented every region

in the state, including large and medium-sized metropolitan areas, suburban communities, and expansive rural areas. The average age was 20 years with 70.5% male and 29.5% female. The majority (80%) were Caucasian, 15% African American, and 5% were other ethnicities.

Materials and Procedures

Seven formal assessments were administered pre- and post-intervention to the participants. These included the *Peabody Picture Vocabulary Test-III* (Dunn & Dunn, 1997), *Test of Written Spelling* (Larsen, Hammill, & Moats, 1999), the *Comprehensive Adult Student Assessment Systems-Reading* (CASAS-R, 2001) and four subtests (Word Attack, Word Identification, Passage Comprehension, and Listening Comprehension) of the *Woodcock Diagnostic Reading Battery* (Woodcock, 1997).

The *Peabody Picture Vocabulary Test-III* (Dunn & Dunn, 1997) is normed on a diverse range of persons (eight special populations) ages 2 to 90+. Both Forms A and B were found to have moderate to high reliability and validity (Dunn & Dunn, 1997) and are appropriate for test retest situations. The *Test of Written Spelling – 4* (Larsen, Hammill, & Moats, 1999) is a norm referenced test of orthographic development for students in grades 1 through 12 in both regular and intervention programs. It contains two equivalent forms that were designed for identifying spelling needs for intervention purposes, detecting areas of relative strength, and documenting progress and response to intervention. The TWS-4 was found to be gender and racially unbiased with reliability greater than .90. *Comprehensive Adult Student Assessment Systems-Reading* (2001) is a criterion referenced multiple-choice test that can be administered by computer or on paper. The psychometric methodology uses the Rasch model of Item Response Theory. Test items are described as "functional context" questions representative of situations common to adult life and work situations. The *Woodcock Diagnostic Reading Battery* (Woodcock, 1997) is an individually administered measure of reading ability containing eleven subtests. It was normed on a wide range of ages and reading abilities, and scoring is reported in standard scores, percentiles, and age and grade equivalents. It is appropriate for use with children and adults, ages 2 to 90+, to measure reading progress and to diagnose specific gaps or weaknesses. Reliability is .89 and validity was established through correlations with other achievement tests. The program described in this study used four subtests: Word Attack, Word Identification, Passage Comprehension, and Listening Comprehension.

The qualitative measures were chosen or designed to explore the students' self-perceptions of their functional reading achievement levels, the impact of their low literacy abilities, and their responses to intervention in the context of daily living through authentic reading tasks imbedded in everyday activities (Purcell-Gates, Jacobson, & Degener, 2004). The participants in this study were judged to be most appropriately served by the Adolescent Reading Attitudes Survey (McKenna & Dougherty Stahl, 2009). The other qualitative measures, The Quality of Life Changes Survey (Disney & Vanderberg, 2003) and the Literacy Center Self-Assessment (Disney, 2009), were created and modified by the second researcher. The second author wanted to determine if students perceived functional differences in their everyday activities and see how their perceptions compared with pre- and post-test scores. She drew from the work of Purcell-Gates et al. (2004) regarding

authentic literacy tasks that are typical for young adults and researchers (Bandura, 1997; Chapman, Tunmer, & Prochnow, 2000; Pintrich & DeGroot, 1990; Schunk, 2003) who identified factors that were found to influence attitudes, motivation, self-efficacy, and persistence in educational settings. Based on the tasks and factors, the second author and her colleague created questions and crafted measures that would provide information on student perceptions. After previously using the Quality of Life Changes Survey and Literacy Center Self-Assessment the second author modified them to ease of administration and reduce student stress.

Data Analysis

A mixed-methods design (Johnson & Onwuegbuzie, 2004) was used to study the complex variables gleaned from the demographic information, quantitative, and qualitative measures in an attempt to construct a deeper understanding of low-literate young adults. All pre-and post-test items were entered in a spreadsheet by student identification number. Statistical analyses included analysis of variance techniques, correlation, and nonparametric procedures. Qualitative analyses gleaned from the pre-post self-assessment followed traditional case study techniques: all responses were typed, data were read several times, notes taken, patterns identified, and pertinent themes were established (Merriam, 2009).

RESULTS

Shared Demographics, Education, and Literacy History

Descriptive statistics from the answers provided on the literacy center self-assessment, which students completed before attending literacy courses, were run to determine similarities. Of the total 244 participants, most were male (70.5% male and 29.5% female) and were either 18 years of age (N=66 or 27%), 19 years of age (N=97 or 40%) or 20 years of age (N=39 or 16%). Eleven students were age 21, and there were about five students each at ages 22, 23, 24 and 25. Two students were age 28. Seven students were in their 30s, and two students were in their 40s. The majority (80%) were Caucasian, 15% African American, and 5% were other ethnicities. Ten of the 244 were speakers of English as a second language. Most of the students were from middle or lower socio-economic levels, and they resided in all metropolitan areas, suburban communities, or rural areas.

The participants were not typically transient, as over 70% of the students attended one or two elementary schools and one middle school and high school. They self-reported they were rarely absent (40%) or were sometimes absent (29%) from their K-12 education. Almost all students (97%) completed high school. Of those who did not finish high school, about 1% passed their GED. Approximately 25% of the participants said they repeated a grade, most frequently kindergarten or first grade, although several participants reported being retained in a different grade such as fourth, seventh, or twelfth. Only one participant said he repeated two grades—grades 4 and 9. Almost all students said they were cognizant about their struggle with reading, and 50% said they became aware of their challenge between first and third grade. Another 18% said they began to struggle in fourth to sixth grade, and some identified their troubles beginning in seventh through twelfth grade. Ninety-eight percent said they had been told they had a learning disability or dyslexia, while approximate 75% of the students said they received tutoring support for their literacy challenges. More students used voice recognition software (38%) instead of reading software (20%), and less than

Table 1—*Mean Scores for Pre-Post Literacy Assessments*

Test	Pre mean	Pre SD	Post mean	Post SD
Word Attack*	2.58	1.89	4.33	2.90
Word Identification*	4.46	1.86	5.61	2.33
Reading Comprehension*	5.80	2.55	7.45	2.78
Listening Comprehension*	10.88	3.89	12.68	3.52
CASAS**	218.99	11.33	225.53	11.61
Vocabulary	90.65	9.89	91.82	10.73
Spelling*	3.58	1.62	4.72	2.19

*Grade equivalent
** A score of 218 is low intermediate basic education grade 5 and a score of 225 is high intermediate basic education grade 6

1% used an electronic speller/dictionary to assist them in required school literacy tasks.

Ninety-three percent of the students completed the residential literacy program. Of the 17 students who did not complete the program, four were female and 13 were male. When evaluating the 17 drop-outs, several did have spouses, children, or economic pressures, although the majority did not. Health or disability related problems were sometimes a factor.

Strengths and Areas of Need in Literacy Assessment Profiles

Table 1 shows the students' entry and completion scores on the seven assessments. We learned that the students had relatively strong scores in listening comprehension and vocabulary. They greatly struggled with decoding words and had moderate difficulty in understanding text. After students received literacy instruction their scores on each literacy component significantly increased, although their overall profile of strengths and weaknesses did not change.

We evaluated whether the amount of instructional hours they received made a difference in their growth. Students were categorized into five time groups based on their amount of instructional hours (length of stay): 1) less than 50 hours of instruction, 2) 50-79 hours of instruction, 3) 80-120 instructional hours, 4) 121-149 instructional hours, 5) more than 150 hours of instruction. A mixed design repeated measures analysis of variance was conducted for each assessment. Table 2 displays the F and p value for each assessment pre versus post and then the interaction effect (time group and assessment pre versus post). There was significant growth on each assessment from pre to post. The only significant interaction occurred between word identification pre-post assessment and time group, indicating that the pre-post effect was different between at least two time groups. The group with the second-to-least amount of time (50-79 hours) experienced significantly higher growth than each of the groups who received more instructional time.

Students' prior knowledge is one of the strongest indicators of how much they will learn (Kane, 2011), and background knowledge is

Table 2—*Mixed Design ANOVA for the Assessments Pre-Post and By Time Group*

Assessment	F	p
Word Attack pre versus post	76.26	.000
Word Attack by time group interaction	1.50	.202
Word Identification pre versus post	99.11	.000
Word Identification by time group interaction	2.69	.032
Reading Comprehension pre versus post	144.81	.000
Reading Comprehension and time group interaction	.95	.436
Listening Comprehension pre versus post	46.56	.000
Listening Comprehension and time group interaction	.70	.590
CASAS pre versus post	104.83	.000
CASAS and time group interaction	.90	.466
Vocabulary pre versus post	4.47	.035
Vocabulary and time group interaction	.59	.668
Spelling pre versus post	102.48	.000
Spelling and time group interaction	2.27	.062

often manifested through vocabulary (Marzano, 2004). We explored whether students who came to the intervention with low vocabulary skills made as much progress as those who entered with high vocabulary. We found students with high vocabulary abilities made significantly more progress, Wilks $\Lambda = .925, F(1, 240) = 19.56, p < .001$, $\eta^2 = .075$. Based on incoming comprehension level, there was no difference between comprehension groups in the amount of progress they made from pre-post.

Views of Proficient Readers and Writers

At the commencement and conclusion of the intervention, students completed a self-assessment. We analyzed the data both qualitatively and quantitatively. Prior to intervention, participants were asked to complete sentence stems, "A good reader is…" and "A good writer is…" The majority of the students said a good reader decodes, while some participants (25%) said a good reader comprehends, and very few (7%) said a good reader decodes and comprehends. They believed a good writer is a person who composes and spells words correctly.

On a scale of 1-5, participants rated how they "feel" about reading and writing with 1 = hate and 5 = love. The results of the mean difference for the pre-post feelings paired-samples t-test showed significance, (M = .93), t (146) = 9.64, p < .001. Then, students rated their skill at word recognition, comprehension, spelling, and writing with 1 = weakness and 5 = strength. Table 3 shows the students' entry and completion scores on their self-reported abilities. After receiving literacy intervention, their self-reported abilities increased significantly for each area. One of the more interesting findings was that over half (57.14%) indicated that they enjoyed reading and writing as a recreational activity despite the fact that locating text that matched age appropriate content at the right readability level would be difficult.

Students were also asked to recognize their personal strengths, and all but one student could identify a positive trait. The dominant category among all 243 participants who identified a

Table 3—*Mean Scores for Pre-Post Self-Reported Skill Abilities by Component*

Literacy components	Pre mean	Pre SD	Post mean	Post SD
Word Recognition	2.78	.82	3.51	.83
Comprehension	2.85	1.04	3.62	1.00
Spelling	2.18	.87	3.18	.96
Writing	2.72	1.07	3.58	.87

*Gains for each component were significant at the $p < .001$ level

personal strength was personality, followed by students who identified a physical attribute. A few individuals believed they possessed good interpersonal skills or were strong in math/science or reading/writing.

Educational Decision Influences and Persistence Factors

After considering the pre-self-assessment, attitude survey, and quality of life survey, we conducted qualitative and quantitative analyses.

On the pre-self-assessment, students were given a selection of reasons why they chose to attend this reading program. Options were categorized into personal reasons (e.g. I want to improve) and mandated options (e.g. court ordered). Findings indicated that almost all students attended for personal reasons. Only 6% said they were mandated to attend, and one person said s/he did not want to be there.

Students completed an attitude survey at the commencement and conclusion of the intervention. The survey had 41 items they rated from 1 = very bad to 6 = very good. A higher mean score indicated more positive feelings about relevant literacy activities such as going to the library, getting a book for a gift, emailing friends, reading a variety of text types, and engaging in new literacies. A paired-samples t-test indicated students' reading attitude improved significantly as a result of intervention, $M = .67$, $t\ (39) = 5.04$, $p < .001$. Next, we looked at the amount of time they spent in the program to determine if the amount of instructional hours impacted attitude. We discovered all students reacted more positively regardless of instructional length of time, $F\ (1,36) = 12.18$, $p < .001$. Lastly, we were interested to see if there was a difference between students' attitudes about new literacies (e.g. participating in online chat rooms) and traditional literacies (e.g. participating in classroom discussions about text). We discovered there were significant differences favoring new literacies at the commencement, $M = .27$, $t\ (56) = 2.96$, $p < .005$ and at the conclusion of the intervention, $M = .34$, $t\ (86) = 5.65$, $p < .001$.

We wondered if students perceived any improvement in reading, spelling, and writing across a variety of contexts since they participated in the literacy program. The Quality of Life Changes Survey, taken at the conclusion of their intervention, listed 25 statements with a 1-4 likert scale (1 = no change and 4 = a lot of change). The mean score across all participants on this assessment was 3.19, indicating "some" improvement in tasks that increased individuals' quality of life.

DISCUSSION

Gaining insight into the nature of the learning-disabled young adults' abilities and their perceptions before and after completing an optional post-secondary residential literacy

intervention program has potential to inform adult education program design and influence outcomes by revealing variables, patterns, and connections associated with persistence to goal satisfaction and success.

We have learned several points for consideration. First, the majority of students wanted to attend this residential program and participate in literacy instruction (Gottesman, Bennett, Nathan, & Kelly, 1996). Demographically, they did not represent the typical minority population found in some studies (Gottesman, et al., 1996). We found that most participants experienced reading difficulty as a child and received intervention support during their K-12 years, which parallels a finding by Mellard & Patterson (2008). Further, they did not drop-out but persevered and appeared stable in their attendance at one or two schools.

Second, there were notable patterns in the young adult literacy learners' qualitative measures responses. While their perceptions of personal literacy skills were somewhat inflated relative to their word level pretests, their perception of their functional gains relative to their norm and criterion referenced post-test measures were reasonably accurate. Almost all of the young adults held optimistic views about aspects of their personalities or abilities; a couple even presented themselves confidently in literacy-related areas. Most of the participants indicated that they participated in recreational literacy pursuits.

Third, the patterns of strengths and needs in the young adult participants' literacy assessment profiles were consistent with previous findings about the profiles of the adult literacy population in general (Chall, 1994; Strucker, 1997; Mellard et al., 2009). The young adults' aggregated word level skills were significantly depressed when compared with their average adult-level vocabulary and concept development. Though the participants struggled with literacy, they had significant assets. The vocabulary and listening comprehension measures in the literacy assessment battery provided critical insights into the students' conceptual development levels and interests. This enabled the reading specialist (second author) to construct targeted intervention plans and select intellectually challenging materials which, in turn, may have helped sustain motivation and persistence.

Adult literacy researchers and educators who understand the complexity of the reading process—the many faceted dimensions of literacy, and the strengths and challenges young adult students bring to the classroom—agree that comprehensive literacy assessment for adults must include an evaluation of all aspects of literacy to ensure a well-grounded base to support instruction (Mellard & Patterson, 2008). In addition to providing essential information for instruction, an evaluation that provides information on receptive vocabulary development, background knowledge, and concept development can also help us to build on students' intellectual strengths, tap into students' interests, and select challenging and appropriate level materials not just for reading but for conceptual development as well. Assessing vocabulary and listening levels—and using multilingual materials if necessary—also serves as a reminder not to confuse limited literacy abilities with limited intellectual abilities.

As the findings indicated, the participants' completion rate (93%) was more than double that cited by researchers who have studied adult education programs (Beder, 1991). While we did not attempt to empirically analyze the instructional components for definitive answers as

to why these students persisted, we can speculate about a number of programmatic factors. First, the cooperative learning and small groups, along with mixed instructional methods, may have contributed towards the positive persistence outcomes for this group of students (Slavin, Cheung, Groff, & Lake, 2008). Second, program intensity may have allowed students to see progress much faster, which may have promoted feelings of self-efficacy and higher levels of motivation. Pragmatically, the shorter duration of the program under study cut down on the number of complicating life events that potentially could have interfered with achieving educational goals and program completer status (Comings, 2009). Third, the availability and accessibility of assistive technology hardware and software may have also played a part in the successful outcomes for some (Gerber, 2009).

We believe the affective characteristics that readers of all ages bring to the task are among the intrinsic factors impacting literacy acquisition. Alvermann (2006) wrote that people's view of their literacy competence can impact their academic career and emotional health in the long-term. While a few experiences with difficulty in a specific area, like reading for example, may not result in long term poor reading self concept, the pattern of experiences is very important. A young adult who reads on the elementary level has experienced a long pattern of limited success with literacy acquisition and many school-related tasks. If low literacy skills and limited motivation jeopardize secondary learning, then post-secondary learning and lifelong learning are at-risk as well. The negative implications transcend the academic realm with the potential to limit employment choices, jeopardize financial well-being, negatively impact personal health and health care efficacy, lower self-esteem, and interfere with social-emotional adaptation. This all connects to the ability to persist in an educational setting.

As with all research, this study has its limitations, specifically those involving assessment. Assessing young adults with low literacy presented challenges. Where equivalent multiple forms of an assessment were unavailable, pre- and post-tests were identical, and the practice effect could have skewed post test results. Some quantitative measures normed on adult readers are of limited diagnostic use for readers at the lowest levels because there are few, if any items, that enable a researcher to explore the lower ranges of their achievement levels. This is particularly true of group administered tests commonly used in adult education programs (Chall, 1994; Strucker, 1997). There is an even greater paucity of qualitative literacy-related measures for this group. The second researcher was unable to locate a reading attitudes scale designed for use with young adults with low literacy skills since scales designed for children contained items using language that an adult reader might find objectionable, and attitude measures for college students or average adult readers did not apply to struggling readers.

We encourage future research to discover what programmatic features impacted retention. One possible way to obtain this information is to interview current and past students on some of the factors for which we speculated. Also, following these students beyond the classroom into their vocational training and life work would provide greater insight into this young adult population and what factors played a role in their success. Research to support the variability of literacy profiles in adult learners has been established, yet little research exists on including listening comprehension levels in adult literacy assessment.

Future research exploring the variability of conceptual development may help practitioners to target instructional materials more effectively to student interests and conceptual development levels with potential implications for motivation and attendance.

Policy, practice, and research play distinct yet interconnected roles that have profound implications for attendance and persistence for young adults in adult education. Policies and regulations developed on both the state and federal levels dictate factors influencing attendance and persistence rates in adult education programs. Regulations sometimes conflict with learners' needs, goals, schedules, transportation availability, and instructional requirements resulting in lower rates of program attendance and persistence inadvertently sabotaging employment opportunities and lifelong learning. If policy makers included the voices of all stakeholders in the deliberative process, student voices could contribute information critical to the success of initiatives. If more researchers incorporate qualitative or mixed methods, which include the voices of the adult learners, it may help us better understand the unique and varied cultural, environmental, and social profiles students bring to their learning. Additionally, we may establish a more collaborative spirit within adult education resulting in better policies, services, supports, and assistance for learners as they move towards accomplishing their goals.

The authors would like to acknowledge the contributions of Dr. Nell Duke, University of Michigan, and Dr. Laura Vanderberg, University of Massachusetts.

REFERENCES

Alamprese, J. (2009). Developing learners' reading skills in adult basic education programs. In S. Reder and J. Brynner (Eds.), *Tracking adult literacy and numeracy skills* (pp. 107-131). New York: Routledge.

Alvermann, D. E. (2006). Struggling adolescent readers: A cultural construction. In A. McKeough, L.M. Phillips, V. Timmons, & J.L. Lupart (Eds.), *Understanding literacy development: A global view* (pp. 95-112). Mahwah, NJ: L. Earlbaum Associates.

Bailey, T., Jeong, D.W., & Cho, S.W. (2010). Referral, enrollment, and completion in developmental education sequences in community colleges. *Economics of Education Review*, *29*, 255-270.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Beder, H. (1991). *Adult literacy: Issues for policy and practice*. Malabar, FL: Krieger.

Belzer, A. (2006). *Learners on learning to read*. Retrieved March, 18 2009 from http://www.ncsall.net.

Blachowicz, C., & Ogle, D. (2001). *Reading comprehension: Strategies for independent learners*. New York: Guilford Press.

Chall, J. (1994). Patterns of adult reading. *Learning Disabilities*, *5*(1), 29-33.

Chapman, J. W., Tunmer, W. E., Prochnow, J. E. (2000). Early reading-related skills and performance, reading self-concept, and the development of academic self-concept: A longitudinal study. J*ournal of Educational Psychology*, *92*, 703-708.

Comprehensive Adult Student Assessment System. (2001). *CASAS Technical Manual*. San Diego, CA: Author.

Comings, J. (2009). Student persistence in adult literacy and numeracy programs. In S. Reder and J. Bynner (Eds.), *Tracking adult literacy and numeracy skills: Findings from longitudinal research* (pp. 160-176). New York: Routledge.

Comings, J. P. (2007). *Persistence: Helping adult education students reach their goals*. Retrieved November 18, 2009 from http://ncsall.net.

Disney, L. (2009). Literacy Center Self-Assessment.

Disney, L. & Vanderberg, L. (2003). Quality of Life Changes Survey.

Dunn, L. M., & Dunn, L. M. (1997). *Peabody picture vocabulary test-III*. Circle Pines, MN: American Guidance Service, Inc.

Dweck, C. (2000). *Self-theories: Their role in motivation, personality, and development*. New York: Psychology Press.

Eden, G. F., Jones, K. M., Cappell, K., Gareau L., Wood, F. B., Zeffiro, T. A., Dietz, N. A., Agnew, J. A., & Flowers, D. L. (2004). Neural changes following remediation in adult developmental dyslexia. *Neuron*, *44* (3), 411-422.

Edgar, E. (2005). Bending back on high school programs for youth with learning disabilities. *Learning Disability Quarterly*, *28*(Spring), 171-173.

Gambrell, L. B., Morrow, L., & Pressley, M. (2007). *Best practices in literacy instruction* (3rd ed.). New York: Guilford.

Gerber, P.J. (2009). Transition and adults with learning disabilities. In Taymans, J.M., Swanson, H.L., Schwarz, R.L., Gregg, N., Hock, M., & Gerber, P.J. (Eds.), *Learning to achieve. A review of the research literacy on*

serving adults with learning disabilities (pp. 211-230). Washington, DC: National Institute for Literacy.

Gottesman, R.L., Bennett, R.E., Nathan, R.G., & Kelly, M.S. (1996). Inner-city adults with severe reading difficulties: A closer look. *Journal of Learning Disabilities*, *29*, 589-597.

Greene, V. E. (2003). *Framing your thoughts*. St. Paul, MN: Language Circle.

Grubb, W.N. (2010). *Outside the instructional triangle: Historical and institutional perspectives on remediation*. Paper commissioned by the Committee on Learning Sciences: Foundations and Applications to Adolescent and Adult Literacy, Division of Behavior and Social Sciences, and Education, National Research Council, Washington, DC.

Harvey, S., & Goudvis, A. (2000). *Strategies that work: Teaching comprehension to enhance understanding*. York, ME: Stenhouse.

Hock, M. (2009). Teaching methods: Instructional methods and arrangements effective for adults with learning disabilities. In Taymans, J.M., Swanson, H.L., Schwarz, R.L., Gregg, N., Hock, M., & Gerber, P.J. (Eds.), *Learning to achieve. A review of the research literacy on serving adults with learning disabilities* (pp. 183-210). Washington, DC: National Institute for Literacy.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: a research paradigm whose time has come. *Educational Researcher*, *33*(7), 14-26.

Kane, S. (2011). *Literacy and learning in the content areas*. Scottsdale, AZ: Holcomb Hathaway Publishers.

Knowles, M. S., Holton, E. F., & Swanson, R. A. (2005). *The adult learner* (6th ed.). New York: Elsevier.

Kozeracki, C.A. (2005). Preparing faculty to meet the needs of developmental students. *New Directions for Community Colleges*, *129*, 39-49.

Kozeracki, C.A., & Brooks, J.B. (2006). Emerging institutional support for developmental education. *New Directions for Community Colleges*, *136*, 63-73.

Kutner, M., Greenberg, E., Jin,Y., Boyle, B., Hsu, Y., and Dunleavy, E. (2007). *Literacy in everyday life: Results from the 2003 national assessment of adult literacy*. NCES 2007-480. Washington, DC: National Center for Education Statistics. Available: http://nces.ed.gov/pubs2007/2007480.pdf [July 2012].

Larsen, S. C., Hammill, D. D., & Moats, L. C. (1999). *Test of written spelling* (4th ed.). Austin, TX: PRO-ED, Inc.

Marzano, R. J. (2004). *Building background knowledge for academic achievement*. Alexandria, VA: Association for Supervision and Curriculum Development. .

MacArthur C. A., Graham, S., & Fitzgerald, J. (Eds.). (2006). *Handbook of writing research*. New York: Guilford.

McKenna, M. C., & Dougherty Stahl, K. A. (2009). *Assessment for reading instruction* (2nd ed.). New York: Guilford.

McKenna, M. C., Labbo, L. D., Reinking, D., & Zucker, T. A. (2007). Effective uses of technology in literacy instruction. In L. B. Gambrell, L. Mandel Morrow, & M. Pressley (Eds.), *Best practices in literacy instruction* (3rd ed.) (pp. 344-372). New York: Guilford.

Mellard, D.F., Fall, E., & Mark, C. (2009). Reading profiles for adults with low-literacy: cluster analysis with power and speeded measures. *Reading and Writing*, *22*, 975-922.

Mellard, D.F., & Patterson, M.B. (2008). Contrasting adult literacy learners with and without specific learning disabilities. *Remedial & Special Education*, *29*(3), 133-144.

Merriam, S.B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco: Jossey Bass.

Merriam, S., Caffarella, R. S., & Baumgartner, L. M. (2007). *Learning in adulthood: A comprehensive guide* (3rd ed.). San Francisco, CA: Jossey-Bass.

Miller, J. (2007). *Business writing that counts* (5th ed.). Bothell, WA: Book Publishers Network.

Miller, J. (1998). *Business writing that counts*. Bothell, WA: Book Publishers Network.

Perin, D. & Greenberg, D. (1994). Understanding dropout in an urban worker education program. *Urban Education*, *29*(2), 169-187.

Pintrich, P.R. & De Groot E. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, *82*, 33-50.

Pressley, M. (2006). *Reading instruction that works: The case for balanced teaching* (3rd ed.). New York: Guilford.

Purcell-Gates, V., Jacobsen, E., & Degener, S. (2004). *Print literacy development: Uniting cognitive and social practice theories*. Cambridge, MA: Harvard University Press.

Quigley, B. A. (1997). *Rethinking literacy education: The critical need for practice-based change*. San Francisco: Jossey-Bass.

Sadoski, M., & Willson, V. L. (2006). Effects of a theoretically based large-scale reading intervention in a multicultural urban school district. *American Educational Research Journal*, *43*, 135-152.

Scanlon, D., Saxon, K., Cowell, M., Kenny, M.E., Perez-Gualdron, L., & Jernigan, M. (2008). Urban adolescents' postschool aspirations and awareness. *Remedial and Special Education*, *29*(3), 161-174.

Schunk, D. H. (2003). "Self-efficacy for reading and writing: Influence of modeling, goal setting, and self-evaluation". *Reading and Writing Quarterly*, *19*, 159-172.

Slavin, R.E., Cheung, A., Groff, C., & Lake, C. (2008). Effective reading programs for middle and high schools: A best-evidence synthesis. *Reading Research Quarterly*, *43*(3), 290-322.

Strucker, J. (1997). What silent reading tests alone can't tell you: Two case studies in adult reading differences. *Focus on Basics*, *1*. Retrieved February 28, 2011 from www.ncsall.net

Tamassia, C., Lennon, M., Yamamoto, K., and Kirsch, I. (2007). *Adult education in America: A first look at results from the adult education program and learner surveys*. Available: http://www.ets.org/research/policy_research_reports/aeps-report [Nov. 2011].

Taymans, J.M., Swanson, H.L., Schwarz, R.L., Gregg, N., Hock, M., & Gerberg, P.J. (2009). *Learning to achieve. A review of the research literacy on serving adults with learning disabilities*. Washington, DC: National Institute for Literacy.

Tracy-Mumford, F. (1994). *Student retention: Creating student success*. Washington, DC: National Adult Education Professional Development Consortium.

Truch, S. (2004). *Remedial outcomes with different reading programs*. Poster session presented at the International Dyslexia Conference, San Diego, 2004. Retrieved April 3, 2008 from, www.readingfoundation.com.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Woodcock, R. W. (1997). *Woodcock diagnostic reading battery*. Rolling Meadows, IL: Riverside Publishers.

Zimmerman, S., & Keene, E. O. (2007). *Mosaic of thought: The power of comprehension strategy instruction* (2nd ed.). Portsmouth, NH: Heinemann.