An Examination of the Basic Reading Skills of Incarcerated Males

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One of the most common characteristics prison inmates typically share is unsuccessful educational experiences including dropping out of school, repeating grades, and not gaining basic literacy skills. The most recent National Assessment of Adult Prison Literacy Survey (NAAPLS) by the U.S. Department of Education indicates that large disparities in reading skills exist between U.S. prisoners and adults in U.S. households. Understanding basic reading levels of inmates is important in determining where to start with basic reading instruction and pre-GED skills. The purpose of this study was to assess the reading skills of adult male prisoners (n = 266) in a medium security prison in Alabama. The basic reading skills assessed included (a) word identification, (b) word attack, and (c) reading comprehension. Results indicate significant differences in reading skills of inmates by race and age. These findings are discussed in light of the increasing incarceration rate in United States.

As the rate of incarceration increases, the issue of providing evidence-based basic literacy instruction for incarcerated adults is also becoming a national priority (Educational Testing Services, 1996). The United States has the distinction of being the world incarceration leader surpassing imprisonment rates in China and Russia. One in 100 adults in the United States is in prison (PEW, 2008). Males are incarcerated 10 times more compared to females with one in 30 males between the ages 20 and 34 years of age and one in 54 for all men over the age of 18 being in jail or prison. European Americans are incarcerated at a rate of one for every 106. Most startling are the rates of minorities. Hispanics males over the age of 18 are incarcerated at a rate of one in 36 while one in 15 African American males over the age of 18 is incarcerated (PEW).

The southern states continue to imprison people at the fastest rate in the nation with a 2.3% increase since 2006. These disquieting statistics are placing an ever increasing economic burden on states. Nationally, one out of every $15 of discretionary state funding is spent to "lock up" prisoners (Bureau of Justice Statistics, (2007). This accounts for approximately 6.8% of general state funds. Such alarming statistics place an imperative upon researchers and practitioners to examine and implement strategies that will reduce recidivism rates. One such consideration needing further research is the literacy skills and abilities of imprisoned adults (Bates, Davis, Guin, & Long, 1992; Shippen, Curtis, Meade, & Henthorne, 2009). Improved literacy rates have been associated with increased employment and wages (Comings, Sum, & Uvin, 2000; Tyler, 2002; Tyler, 2004), better health (AHRQ, 2004), increased community involvement and enhanced social well-being (Behrman & Stacey, 1997). Furthermore, increased education is clearly linked to reduced recidivism (Vacca, 2004)

National Assessment of Adult Prison Literacy Survey

The most recent data published on prisoner reading levels by the U.S. Department of Education (U.S. DOE), the National Center on Educational Statistics (NCES) and reported in the *Literacy Behind Bars: National Assessment of Adult Prison Literacy Survey* (Greenberg, Dunleavy, & Kutner, 2003); and in the National Assessment of Adult Prison Literacy Survey, (NAAPLS) (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993) continue to substantiate this literacy discrepancy for the majority of incarcerated adults. Considering the prison population has increased nearly 55% since the time of the original 1992 survey, there is an ever more pressing need for literacy instruction for these adults.

The *National Assessment of Adult Prison Literacy Survey (*NAAPLS) (Greenberg et al., 2003) measured three areas of literacy which include (a) prose literacy, (b) document literacy, and (c) quantitative literacy. Prose literacy is described as "knowledge and skills needed to search, comprehend and use information from continuous texts" (p. iv). Document literacy is defined as "the knowledge and skills needed to comprehend, and use information from noncontinuous texts" (p. iv). Quantitative literacy is noted as "knowledge and skills needed to identify and perform computations using numbers that are embedded in printed materials (p. iv). Each of the three literacy areas are divided into four ability levels. The first level is "proficient: which suggests that a person completes literacy activities that are challenging and complex. The second level is "intermediate" which suggests that a person completes literacy activities that are moderately challenging. The third level is "basic" which suggest that a person completes simple literacy activities needed for everyday life. Finally, the fourth level is "below basic" which suggests that a person completes simple literacy activities that are concrete in nature.

The NAAPLS report (Greenberg et al., 2007) offers two English literacy comparisons between incarcerated adults (n=1,200) in state and federal prisons and adults (n=18,000) living in households. The first comparison was the change in literacy levels of incarcerated adults from the 1992 to 2003. The second literacy comparison was between the 2003 prisoner data and the literacy level of household populations. The NAAPLS report examined differences in literacy levels of prisoners and those in households by age, gender, race, language, education, participation in welfare, job-related training, use of technology, health related conditions, and literacy practices. Adults who could not be assessed due to mental or cognitive impairments were not included in either sample.

Across the board, incarcerated males score statistically lower as compared to non-incarcerated males in prose (257 v. 273), document (249 v. 269), and quantitative literacy (250 v. 287), respectively. The same is true for females in prose (250 v. 277), document (249 v. 272), and quantitative literacy (237 v. 279), respectively. It also should be noted that a higher percentage of incarcerated males (17%) as compared to incarcerated females (9%) are functioning at the "below basic" level in prose while the opposite is true for the quantitative literacy area for males (39%) and females (47%). Document literacy abilities were equal across gender.

When comparing the literacy abilities of incarcerated versus non-incarcerated by age group, a consistent trend is found. Age groups include ages 16-24, 25-39, and 40 or older. Across all age groups, incarcerated adults score statistically lower in prose, document, and quantitative literacy levels. Incarcerated adult prose scores respective to age groups were 255, 260, and 252 while non-incarcerated adults prose scores respective to age groups was 273, 284, and 272. Incarcerated adult document scores respective to age groups were 248, 254, and 240 while non-incarcerated adult document scores respective to age groups were 274, 283, and 264. Incarcerated adult quantitative scores respective to age groups were 246, 252, and 245 while non-incarcerated adult quantitative scores respective to age groups were 275, 292, and 281.

The findings related to race/ethnicity are even of more interest. This is important as the achievement gap between whites and blacks remains a chronic issue in American education. For example, the National Assessment of Educational Progress (NAEP, 1998) reported that minorities consistently perform below their non-minority peers which aligns with the findings of the NAAPLS in 2003. Across the board, incarcerated Whites as compared to non-incarcerated Whites performed statistically lower in prose (274 v. 289), document (265 v. 282), and quantitative literacy (274 v. 297), respectively. Yet, this trend that appears to be logical is not maintained with Black and Hispanics. Incarcerated Blacks score statistically better in prose literacy (252 v. 243) as compared to non-incarcerated Blacks. Still more striking is that incarcerated Hispanics score statistically better than non-incarcerated Hispanics in prose (232 v. 216) and document literacy (236 v. 224), respectively. For the purposes of this study, age, gender, and race were considered since these factors relate more closely to basic literacy according to the NAEP (1998) and the NAAPLS (2003).

Alabama Prisoner Demographic Data

In Alabama, where the present study took place, gender, race, and age data for 2007 were reported by the Alabama Department of Corrections (ADOC,2007) research and planning office. Of the 29,394 inmates in Alabama state prisons at the end of 2007, 93% were male and 7% were female, aligning with the NAAPLS findings. In the area of race, however, 60% of inmates were African American, 39% were European Americans and less than 1% were other, indicating a 14% higher average of African Americans and 7% higher average of European Americans being incarcerated in Alabama than reported in the NAAPLS. Age data indicated that 11% of the Alabama prison population was under 24 years old, 48% were between 25 and 39, and 41% were over 40. According to these data, Alabama's population is older than the NAAPLS sample with 5% fewer adults under age 24 years old, 4% fewer between 25 and 39 years of age, and 9% more over the age of 40 years.

While the NAAPLS provides data about the national prose, document, and quantitative literacy abilities of inmates across differing age, gender, and racial inmate populations, minimal standardized reading assessment data are available. Anecdotal data suggest that approximately 75% of all Alabama inmates read below the 5th grade level (J. Hopper, former DOC commissioner of Alabama, personal communication, August 22, 2006) and 60% have not completed high school or a General Equivalency Diploma (ADOC, 2007). The purpose of this study was to examine the basic reading skills of incarcerated males in a state prison using individually administered standardized reading assessments.

Method

Setting and Participants

This study took place in a medium security male prison in north central Alabama. Medium security prisons house inmates that (a) have not committed capitol crimes, (b) are not on death row, and (c) are eligible for parole. Inmates seeking voluntary enrollment in an adult basic literacy program (n = 266) were assessed in three areas of basic reading, including reading comprehension, word identification, and word attack. Participants' ages ranged from 18 to 64 years of age. At the time of this study, 1956 males were imprisoned in the facility; thus, the sample in this study represents 14% of the total facility population.

Sixty three percent (n = 168) of the participants in this study were African American, 35% European American (n = 93), and 2% (n = 5) reported race as Hispanic. Combining age and race demographics into sub-samples, African Americans under age 24 were 19% (n =32), African Americans age 25-39 were 46% (n = 78), and African Americans over 40 were 35% (n = 58). In the European American sub-sample inmates under 24 were 1% (n = 7), inmates between age 25-39 were 45% (n = 42), and inmates over 40 were 47% (n = 44). With only five inmates in the Hispanic sample 20% (n = 1) was under 24, 60% (n = 3) were ages 25-29, and 20% (n =1) was over 40.

Procedures and Materials

Each participant was individually administered the *Woodcock Reading Mastery Tests Revised/NU* (WRMT-R/NU, 1998) Short Scale. The WRMT-R/NU is a battery of standardized norm referenced tests designed to measure the reading achievement level of individuals, age 5 to 75. The WRMT-R/NU has two alternate forms (G & H). According to the examiner's manual, the standard scores yielded by the WRMT-R/NU are based on a mean of 100 and a standard deviation of 15 and should be administered individually. The WRMT-R/NU short scale consists of three subtests which are (a) Word Identification, (b) Word Attack, and (c) Passage Comprehension. The WRMT-R/NU Short Scale was administered by the authors and three trained graduate students at the facility where the study took place. Assessments were given in the visitation room at the facility.

Data Analysis and Results

Data were examined descriptively and statistically. Descriptive data included mean reading scores by race, age, and overall sample on word identification, word attack, and reading comprehension subtests. Also, a basic skills cluster mean was calculated which is yielded through a combination score of the word attack and word identification subtests. Finally, the overall mean reading grade equivalents yielded in the form of a Total Reading Short Scale score was analyzed.

Results of the descriptive data on grade equivalent (GE) scores for the overall sample indicated that the mean word attack GE score was 6.8, the mean GE for word identification was 7.2, the mean GE for passage comprehension was 7.0, the mean GE for the basic skills cluster was 7.0, and the mean GE for the total reading short scale was 7.0. Table 1 and 2 provide mean and standard deviation GE results for these five areas by race and age.

Descriptive data for mean standard scores (SS) on word identification measures by race and age categories were as follows: African American participants under the age of 24 had a mean word identification SS of 67, European Americans under 24 had a mean word identification SS

of 76, and Hispanics had a mean word identification SS of 17. (It should be noted that the sample for Hispanic participants was quite small). In the age category of 25 to 39 in word identification, African Americans had a mean SS of 74, European Americans had a mean SS of 88, and Hispanics had a mean SS of 64. In the age category of 40 and older, African Americans had a mean word identification SS of 73, European Americans had a mean SS of 89, and Hispanics had a mean SS of 78. Table 3 provides mean standard scores for word identification by age and race.

Table 1: Mean (standard deviation) reading levels by age category

Age Category	Word Attack GE *	Word Identification GE	Passage Comprehension GE	Basic Skills GE	Short Scale GE
Under 24 (n = 40)	5.5 (4.2)	5.3 (2.9)	5.2 (3.2)	5.3 (3.3)	5.1 (2.9)
25-39 (n = 123)	7.4 (5.3)	7.7 (4.9)	7.6 (5.0)	7.6 (5.1)	7.7 (4.8)
Over 40 (n = 103)	6.7 (5.8)	7.3 (5.0)	7.0 (5.2)	7.1 (5.4)	7.1 (5.0)

* Grade Equivalent

Descriptive data for mean SS on word attack measures by race and age categories were as follows: African American participants under the age of 24 had a mean word attack SS of 85, European Americans under 24 had a mean word attack SS of 96, and Hispanics had a mean word attack SS of 37. In the age category of 25 to 39 in word identification, African Americans had a mean SS of 92, European Americans had a mean SS of 107, and Hispanics had a mean SS of 95. In the age category of 40 and older, African Americans had a mean word attack SS of 84, European Americans had a mean SS of 106, and Hispanics had a mean SS of 67. Table 3 provides mean standard scores for word attack by age and race.

Descriptive data for mean SS on reading comprehension measures by race and age categories were as follows: African American participants under the age of 24 had a mean reading comprehension SS of 73, European Americans under 24 had a mean reading comprehension SS of 85, and Hispanics had a mean reading comprehension SS of 10. In the age category of 25 to 39 in reading comprehension, African Americans had a mean SS of 77, European Americans had a mean SS of 93, and Hispanics had a mean SS of 57. In the age category of 40 and older, African Americans had a mean reading comprehension SS of 74, European Americans had a mean SS of 88, and Hispanics had a mean SS of 42. Table 3 provides mean standard

Table 2: Mean (standard deviation) reading levels by race

Race	Word Attack GE	Word Identification GE	Passage Comprehension GE	Basic Skills GE	Short Scale GE
AA* (n = 168)	5.7 (4.7)	6.1 (3.8)	5.8 (3.8)	5.8 (4.0)	5.9 (3.7)
EA** (n = 93)	9.1 (5.9)	9.3 (5.5)	9.5 (5.7)	9.4 (5.8)	9.4 (5.6)
H*** (n = 5)	3.5 (2.7)	3.8 (2.1)	2.2 (2.1)	3.5 (1.9)	2.8 (2.1)

* African American ** European American *** Hispanic

Table 3: Standard scores for word identification (WID), word attack (WA), and reading comprehension (RC) measures by age and race

Race	Age	WID Standard Scores	WA Standard Scores	RC Standard Scores
African American	Under 24	67	85	73
	25-39	74	92	77
	Over 40	73	84	74
European American	Under 24	76	96	85
	25-39	88	107	93
	Over 40	89	106	88
Hispanic	Under 24	17*	37*	10*
	25-39	64	95	57
	Over 40	78	67	42

* n = 1 (non-English speaker)

scores for reading comprehension by age and race.

Multivariate Analysis of variance (MANOVA) procedures were performed for race (African American, European American, and Hispanic) on all five outcome measures (word attack, word identification, passage comprehension, basic skills cluster, and reading short scale) using standard scores. The results of the MANOVA indicated a significant main effect for age Wilks' lambda $\Lambda = .86$, $F(10, 506) = 3.94$, $p < .00$, and race Wilks' lambda $\Lambda = .87$, $F(10, 506) = 3.57$, $p < .00$, but not a significant interaction between age and race. Table 4 provides MANOVA results.

Discussion

The intention of this study was to examine the basic reading abilities of Alabama inmates in a medium security male facility using individually administered standardized measures. The measures used in this study are typical of those employed when investigating the academic achievement of both children and adults though limited data are available regarding their use with prison inmates. Utilizing such instrumentation allows for data comparisons within the prison population and with those individuals who are not incarcerated. For the purposes of this study, data were analyzed using grade equivalent and standard scores as they related to inmate age and race. Both types of scores are important to understand the current literacy achievement and future success of inmates. Additionally, understanding the interaction between age, race, and reading achievement provides evidence for potential relationships that could influence inmate educational programming.

Grade equivalent scores are a common metric used

Table 4: MANOVA result for race and age and interaction

		Value	F	Hypothesis df	Error df	Sig.	Observed Power
***Age Main Effect**	Wilks' Lambda	0.86	3.94	10.00	506.00	0.000	0.998
***Race Main Effect**	Wilks' Lambda	0.87	3.57	10.00	506.00	0.000	0.994
Interaction Effect	Wilks' Lambda	0.91	1.22	20.00	840	0.229	0.770

*Significant p>.05

to describe basic reading abilities since most people can relate to educational achievement denoted by school grade levels. While grade equivalent scores are not standardized, they do provide an indication of how literate inmates are in comparison to typically developing students in public schools. Grade equivalent scores suggest that inmates under the age of 24 were reading at the beginning to middle of fifth grade in all reading subareas (word attack, word identification, passage comprehension). Inmates ages 25 to 39 were reading at the middle seventh grade level. Similar findings were true for inmates over the age of 40 who were reading at the beginning of seventh grade level. These data suggest that inmates under the age of 24 continue to increase their reading abilities by several grade levels prior to reaching a plateau after the age of 24. One potential explanation for this finding is that inmates in their early twenties have greater and more recent access educational opportunities as compared to inmates who are older. The case could be made that occasions to increase literacy skills are both more frequent and familiar to this age group of inmates. Additionally, there probably are fewer stigmas associated with accessing literacy instruction at a younger age as compared to those who are older.

If engaged in educating prisoners, either in adult basic education, GED program, or vocational training, adult educators could employ peer tutoring procedures, pairing more competent older readers with younger less competent readers to remediate reading skills.

Knowing inmate reading grade level achievement is also important when considering how well they may perform on the General Equivalency Diploma (GED) tests. The GED test provides adults who have dropped out of school with a second chance to advance in society, be employed with a better salary, and seek postsecondary education (Wade, 2007). According to the American Council on Education (2006), developers of the GED, adults who pass the tests must score at or better than 40% of graduating high school seniors. This suggests that GED test takers need to read at the tenth grade or higher to pass the test. Unfortunately, most inmates in this study were functioning at or below the pre-GED levels. Typically pre-GED preparation occurs when adults read between the sixth and eighth grade levels. Thus, the inmates in this study did not demonstrate the literacy skills necessary to earn a GED. Not having the skills necessary to earn a GED while in prison or after release increases the potential of recidivating (Walsh, 1985), reducing postsecondary options (Murnane, Willett, & Boudett, 1997; Murnane, Willett, & Tyler, 1999), and could reduce employment opportunities (Educational Testing Service, 1996; MacKenzie, 2008).

Standardized reading scores provide data on how the inmates were performing relative to non-incarcerated adults their own age. Standard scores for the instrument used in this study are based on a mean of 100 with a standard deviation of 15 (Woodcock, 1998). On average, African American and Hispanic inmates scored one to almost two standard deviations below their non-incarcerated peers in reading. The greatest deficits were in reading comprehension for Hispanic inmates and word identification skills for African American inmates. Reading comprehension skills for Hispanic inmates were dramatically lower when compared to their non-incarcerated peers scoring around three standard deviations below the mean. European American inmates scored around one standard deviation below the mean in word identification and reading comprehension skills. Interestingly, these inmates had average word attack scores.

The results of MANOVA indicated a significant main effect for both age and race while there was no interaction effect between the two. These findings suggest that those under the age of 24 are relatively poorer readers than those over the age of 25. Factors such as the current status of Alabama's prisoner educational system and literacy programs in prisons could potentially play a role in this finding; however, no evidence exists to either support or not to support these suggestions.

A significant main effect also was found with race. European Americans out performed both African Americans and Hispanics. The Hispanic population of inmates in this study performed most poorly just behind African American prisoners. While this study does not provide evidence regarding the exact cause of these findings, one potential connection is between the Alabama prison education system and the current reading abilities of inmates. The NAAPLS also noted that African American prisoners are markedly behind European Americans in reading skills, aligning with the findings in this study.

One of the most disconcerting findings was the dismal reading comprehension scores for Hispanics in this study, albeit a very small number of participants. Reading comprehension is the fundamental purpose of learning how to read. Readers are expected to extract and construct

meaning as they interact with the written language (Snow, 2002, p. 11). For English Language Learners (ELL), acquiring meaning from text can be even more difficult when compared to learners whose primary language is English. ELLs have a decreased likelihood of gaining meaning from vocabulary, using inferential reading skills, and interpreting grammar and syntactical rules (Buttaro, 2001; Slavin & Cheun, 2003). With Hispanics being the second largest minority population (U.S. Census Bureau, 2007) in the nation and being overrepresented in prison, there is an increasing need to develop effective reading instruction in adult prisons. While there is a continued debate regarding whether bilingual or English-only programs are best at addressing the educational needs of ELLs (Slavin & Cheung), providing inmates with the basic reading skills necessary to be successful in adult life is an imperative. Continued research needs to be conducted to determine the best method of providing inmates with the foundational literacy skills necessary for being successful with educational and post release employment endeavors.

Limitations

The primary limitation of the current study may be generalizability of the data. The inmates in this study were in a medium security facility in Alabama. These findings may or may not be comparable to more or less secure facilities. Also, the findings may be different than other prisons across the state and across the nation. Another limitation is that the participants in this study were volunteers who were currently enrolled in an adult basic literacy program. No attempt was made to assess the literacy abilities of those not in a literacy prison program. It is unknown whether the literacy skills of the participants in this study would be higher, lower, or equal to those not involved in the literacy program. Finally, only 266 inmates participated. While this is a noteworthy number of participants, it does not represent the entire population of inmates either at the facility, across the state, or nationally.

Despite these limitations, these findings provide further evidence regarding the reading abilities of imprisoned adults. The more that is known about the literacy abilities of prisoners that greater the chances are that effective and efficient educational programming can be developed for this population of adults. Increased literacy skills have the potential to improve the overall quality of life of these men and enhance society by reducing recidivism rates and the costs associated with incarceration (Vacca, 2004; Wade, 2007).

Implications for Adult Educators

The findings of this study do have implications for adult educators. Researchers found that younger incarcerated males generally had lower reading levels than older incarcerated males. These results are similar to findings by others (e.g., Bureau of Justice Statistics, 2007 Greenberg, et al., 2007; Murihead & Rhodes, 1998). Research has shown that increasing literacy skills has the potential to improve quality of life and reduce recidivism benefiting both the offender and society (Vacca, 2004; Wade, 2007).

If engaged in educating prisoners, either in adult basic education, GED program, or vocational training, adult educators could employ peer tutoring procedures, pairing more competent older readers with younger less competent readers to remediate reading skills. Peer tutoring has been used successfully in schools at both the elementary and secondary level to improve reading comprehension (Fuchs, Fuchs, & Burish, 2000). Similarly, peer tutoring programs have also been used successfully to remediate reading problems of adults (Sandman-Hurley, 2008).

Not only have these methods been shown to be effective, they are also efficient. Utilizing individuals who are more competent readers as tutors can increase individual instruction provided for tutees, and in turn, improve skills. This method will also increase the productivity of the adult educator. Although adult educators will need to provide on-going training and supervision for the tutors (Sandman-Hurley, 2008), this "train the trainer" model may increase the number of adults served; magnifying the overall impact of the training program. Such a peer training program could be conducted in a prison setting, a half-way house, or other adult educational setting.

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