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Education Desegregation and Cognitive Change in African American Older Adults

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Objectives. The present study examined the relationship between desegregated schooling and cognitive change in a sample of 420 community-dwelling African American elders (mean age = 68.6; *SD* = 9.1).

Method. Participants were recruited for the Baltimore Study of Black Aging—Patterns of Cognitive Aging. Cognitive measures from six domains of function were administered at baseline and follow-up 33 months later. Repeated measures multivariate analysis of covariance was conducted; the between subjects factors were schooling type and age cohort, and the within subjects factor was time. Analyses controlled for age, years of education, and sex, and follow-up univariate analyses were used to determine which individual cognitive scores drove the multivariate effects.

Results. There were significant multivariate within-group, between-group, and interaction effects ($p < .05$). Univariate analyses indicated that the desegregated schooling group scored significantly better on Language and Perceptual Speed ($p < .01$), and the youngest age cohort (50- to 59-year-olds) performed better on measures of Perceptual Speed. There were no significant univariate interactions between schooling group or age cohort and cognitive change over time.

Discussion. Overall, these findings suggest a slight advantage of desegregated schooling for cognitive performance, but no advantage of desegregated schooling on the rate of cognitive change over time in this sample.

Key Words: African Americans—Cognition—Cognitive change—Desegregation.

Education and Cognition

It is a common finding in the cognitive aging literature that higher levels of educational attainment are associated with better cognitive performance in late life (e.g., Albert, 1995; Alley, Suthers, & Crimmins, 2007; Inouye, Albert, Mohs, Sun, & Berkman, 1993; Richards & Sacker, 2003; Schaie, 1996; Wilson *et al.*, 2009). Cognitive aging theory has suggested that an enriched childhood educational environment is associated with meaningful experiences throughout life and, consequently, protective of cognitive competency in late life (Salthouse, 1991). Prior statistics show that older African Americans are more likely to have fewer average years of formal education than older whites (Harper & Alexander, 1990). This racial/ethnic difference is in addition to the existing age cohort differences in educational achievement (Adams-Price, 1993; Aiken Morgan, Sims, & Whitfield, 2010). In fact, partly due to differential access to education and amount of resources allocated to school systems, many older whites received a better quality childhood education than their African American counterparts did (e.g., Beady & Hansel, 1981; Bruno & Doscher, 1981, Massey, Scott, & Dornbusch, 1975; Walker, 1996).

Thus, these less advantageous childhood educational experiences of African Americans likely affect their cognitive performance later in life. For example, racial/ethnic comparisons on neuropsychological performance overwhelmingly show African Americans perform worse on average than whites (e.g., Alley *et al.*, 2007; Castora-Binkley, Peronto, Edwards, & Small, 2013; Fillenbaum *et al.*, 2001; Manly *et al.*, 1998, Manly, Jacobs, Touradji, Small, & Stern, 2002; Masel & Peek, 2009; Zsembik & Peek, 2001). Similarly, some studies suggest that they are also at greater risk of cognitive decline and dementia in later life (Manly & Jacobs, 2002; Whitfield, 2002). Although many factors, such as health and socioeconomic status, play a major role in poorer cognitive performance among older African Americans, differences in education quality may explain a large part of the racial group differences observed for cognitive performance. Nevertheless, few researchers have sought to understand the relationships between education quality and cognition in African Americans. Among those that have, study findings suggest a strong relationship between education, educational quality, and cognitive performance among older African Americans

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(e.g., Aiken-Morgan et al., 2010; Cagney & Lauderdale, 2002; Manly *et al.*, 2002; Sisco *et al.*, 2014; Zsembik & Peek, 2001).

Education Desegregation: *Brown v. Board of Education*

Arguably, no other education policy decision has influenced the quality of education experienced by African Americans as much as the racial integration of public schooling in the United States. The initiation of school desegregation began 60 years ago, following the *Brown v. Board of Education* U.S. Supreme Court decision in 1954 that declared an end to separate and unequal education in the United States (Brown v. Bd. of Educ. of Topeka, 347 U.S. 483, 1954). Although this legal decision dramatically changed the lives of children receiving public education after 1954, the change was not entirely uniform in its implementation by state or region. The first cities to implement school desegregation were Baltimore, New York, and Washington, DC. The individual differences in educational attainment, literacy skills, and subsequently cognitive functioning observed among adult African Americans may have resulted, in part, due to this history-graded event (Whitfield & Wiggins, 2003). There were positives of this legal decision, such as pushing our society as a whole to address the inequality between minority groups, particularly African Americans and whites; nevertheless, there were potentially negative outcomes. The U.S. Supreme Court decision was resisted by many, which often made the experience of attending a desegregated school stressful for African American students due to acts of education discrimination and violence.

Understanding the relationships between cognition and education, both quantity and quality, becomes more complicated when considering African American older adults, since they experienced the effects of segregated and/or desegregated education. These effects carried potentially positive and negative consequences for their educational experiences during the formative years. The intention of education desegregation was to provide an equal educational set of opportunities for African American and white children. This included providing equal if not better quality educational resource materials, which was thought to contribute to better learning outcomes. Negative consequences of desegregation included racism in the classroom and discriminatory school funding practices (for children remaining in segregated schools). The classroom conditions may have been particularly hostile and stressful for African American students during the early years of school desegregation (Walker, 1996). Furthermore, historical evidence documents that white teachers' expectations for African American students were significantly lower than that of African American teachers (Beady & Hansel, 1981; Massey, Scott, & Dornbusch, 1975), which may have led to a "self-fulfilling prophecy" for students. Often, desegregation resulted in the removal or demotion of qualified black teachers, whereas less qualified teachers filled these positions (Bruno & Doscher, 1981).

For these reasons, merely accounting for years of education is not enough to fully understand the educational history of African American elders; instead, qualitative educational factors must also be considered to appropriately capture the effects of context on individual learning differences in educational settings (Whitfield & Willis, 1998). The impact of years and quality of education on individual differences in African American cognitive aging has been previously studied cross-sectionally. The first study, by Whitfield & Wiggins (2003), examined the influence of educational desegregation on cognitive performance among 197 older African Americans living in metropolitan Baltimore. They conceptualized cognition using Horn's Gf-Gc theory (Horn & Cattell, 1966) by assessing fluid and crystallized abilities with several measures. Their results showed that the desegregated schooling group had significantly higher mean performance; however, after correcting for age, gender, years of education, and years educated in desegregated schools, there were no differences between groups on two cognitive measures: Number Concept (crystallized) and Inductive Reasoning (fluid). Nonetheless, there were group differences on Vocabulary (crystallized) and Spatial Ability (fluid) measures. These findings were explained by differences in schooling and other potential influences over the life course.

Another study of educational desegregation and cognitive function in older African Americans by Allaire & Whitfield (2004) sought to examine the structure of cognitive abilities in their relationships with age and education. Results showed expected patterns in the structure of the relationships among cognitive abilities and age and education; however, the pattern of age differences in cognition differed between the two groups (Allaire & Whitfield, 2004). The desegregated schooling sample showed significant negative age differences for Reasoning and Processing Speed, whereas the segregated schooling group did not show age differences for these cognitive abilities. Nonetheless, there were negative age differences for the segregated schooling group for Memory, whereas there were no age differences for the desegregated schooling group on this cognitive factor (Allaire & Whitfield, 2004). These findings highlighted the importance of considering unique social contextual factors when studying cognitive aging in African Americans.

To our knowledge, no studies have examined longitudinal effects of educational desegregation on cognitive performance in African Americans, which is the focus of the present investigation. The present study sought to extend previous research by examining whether desegregated schooling was associated with cognitive performance over time. Informed by previous research (Whitfield & Wiggins, 2003), we hypothesized that desegregated education would be associated with better cognitive performance across a 33-month time period. This study also examined whether age cohort effects were associated with cognitive performance and interacted with the hypothesized relationship between schooling type and cognitive performance, given the different patterns of age differences by schooling type reported by Allaire & Whitfield (2004). We hypothesized that there would be age group differences in cognition and interaction effects between desegregated schooling and age cohort in their relationships with cognitive performance.

Method

Participants

To test our hypotheses, we used data from the Baltimore Study of Black Aging—Patterns of Cognitive Aging (BSBA-PCA). The purpose of the BSBA-PCA was to examine changes in relationships between cognition, health, and psychosocial factors in older African Americans across two time points, approximately 3 years apart (33 months). The BSBA-PCA had a total of 602 participants at baseline that ranged in age from 48 to 95 years (mean = 69.1; *SD* = 9.8). Between the two data collections, there were 58 deaths, six refusals, 21 people who moved to a location beyond our recruitment area, 13 who were too sick to participate, and 54 who were unable to be found. As previously reported (Gamaldo *et al.*, 2014), participants who did not participate in the second data collection were not significantly different from the participants who completed the baseline assessment for mean age, sex, education, and median income. There were fewer men included at follow-up (baseline = 25.4% and time 2 = 22.4%). However, among the cognitive variables, drop-out participants had significantly lower Language scores at baseline ($p < .01$).

The present study sample was comprised of 450 middle-aged and older, urban, community-dwelling African American adults who completed both baseline and follow-up interview and testing sessions (IRB approval from Duke University #1610). Recruitment covered 29 urban senior housing buildings (all independent living) and one senior center primarily in the West Baltimore area (>75% of sample came from these locations). These sites were selected for their large older and diverse population of African Americans that is heterogeneous in terms of educational, economic, and societal resources. Thirty participants were excluded from the present analyses due to missing data on any of the demographic and/or cognitive outcome variables. This resulted in a final analytic sample of 420 (mean age = 68.6; *SD* = 9.1; 22.5% men).

Study Measures

Demographics.—Information regarding the age (at baseline) and sex of each participant was collected and used as covariates in the analyses to control for their influence on cognitive performance. We divided our sample into three age cohort groups (50- to 59-year-olds [*N* = 73]; 60- to 69-year-olds [*N* = 144]; and 70 years and older [*N* = 203]) to assess the effects of age cohort on the relationship between schooling and cognitive performance in later life.

Education and desegregation.—Education was defined as self-reported number of completed years of formal schooling. To assess schooling type, participants were asked to report if they attended a "racially mixed" (desegregated, *N* = 118) school or not (segregated, *N* = 302). For the 50–59 age group, 68.5% (*N* = 50) attended desegregated schools, whereas 37.3% of the 60–69 years group (*N* = 44) and 20.3% of the 70 and older group (*N* = 24) attended desegregated schools. Demographic means and standard deviations are presented in Table 1.

Cognitive measures.—Participants were administered the following cognitive measures at baseline and follow-up assessments. Composite *T*-scores (*M* = 50, *SD* = 10) were computed for each cognitive domain (for details, see Gamaldo, Allaire, Sims, & Whitfield, 2010), and the influence of education was residualized from the composite scores (see Allaire et al., 2009). Global Cognition: Mini-Mental State Examination (Folstein, Folstein, & McHugh, 1975) and the Short Portable Mental Status Questionnaire (Pfeiffer, 1975); Reasoning: Letter Series (Schaie, 1985) and Shipley Institute of Living Scale Abstraction Test (Shipley, 1986); Memory: Hopkins Verbal Learning Test (Brandt, 1991), Rey Auditory Verbal Learning Test (Rey, 1941), and Immediate Recall (Zelinski, Gilewski, & Schaie, 1993); Working Memory: Alpha Span (Craik, 1990), Operation Span (Turner & Engle, 1989), and Backward Digit Span (Wechsler, 1981); Language: Verbal Ability Test (Ekstrom, French, Harman, & Derman, 1976) and Shipley Institute of Living Verbal Meaning Test (Shipley, 1986); and Perceptual Speed: Number Comparison (Ekstrom *et al.*, 1976), Identical Pictures Test (Ekstrom *et al.*, 1976), and Digit Symbol Substitution Test (Wechsler, 1981).

Procedure

To aid study recruitment, flyers were posted at each housing or community building after permission was granted by local staff. Information sessions were held in each building, and potential participants contacted the study project office if they were interested.

Study appointments were scheduled with individuals who met basic age criteria (age 50 years and older), and individual interviews and testing sessions (lasting approximately 3 hr with two 15-min breaks) were held in the participants' homes or another quiet space in the building. Participants were compensated $35 for the baseline interview. They received an additional $60 for completing the cognitive assessments and $15 if they opted to participate in a separate DNA collection at the follow-up assessment.

Table 1. Baseline Characteristics by Schooling Group

	Full sample	Desegregated	Segregated	
	$N = 420$	$N = 118$	$N = 302$	F value
Age	68.60 (9.14)	62.28 (8.97)	71.08 (7.95)	4.46*
Years of education	11.95 (2.76)	13.48 (2.87)	11.34 (2.47)	1.64*
Male	22.6%	26.3%	21.2%	

*$p < .05$

Results

Multivariate Analysis

Repeated measures multivariate analysis of covariance (MANCOVA) was used to determine whether there was cognitive change with time, across measures, both within and between groups, after controlling for years of education and sex as covariates. There were two independent grouping variables; education schooling group (desegregated and segregated) and age cohort group (based on starting age group at baseline testing: 50–59 years, 60–69 years, and 70 years and older). There were six dependent cognitive variables (Global Cognition, Reasoning, Language, Perceptual Speed, Memory, and Working Memory).

The repeated measures MANCOVA tested three types of multivariate effects: within subjects (change over time between baseline and follow-up assessments), between subjects (schooling group differences), and between-by-within subjects effects (schooling group by time, age cohort group by time, and schooling group by age cohort group by time interactions).

Results showed a significant multivariate within subjects effect of time (Wilks' $\Lambda = 0.966$; $F(6, 407) = 2.397$, $p = .027$; partial $\eta^2 = 0.034$), between subjects effect of schooling group (Wilks' $\Lambda = 0.944$; $F(6, 407) = 4.042$, $p = .001$; partial $\eta^2 = 0.056$), and a significant between subjects effect of age cohort group (Wilks' $\Lambda = 0.928$; $F(12, 814) = 2.570$, $p = .002$; partial $\eta^2 = 0.036$). There was also a significant interaction of age cohort group by time (Wilks' $\Lambda = 0.945$; $F(12, 814) = 1.957$, $p = .025$; partial $\eta^2 = 0.028$). However, there were no multivariate interaction effects for education schooling group by time (two-way interaction) or education schooling by age cohort groups by time (three-way interaction).

These results suggest that there were differences in cognitive performance between the desegregated and segregated schooling groups, as well as significant cognitive performance differences between the three age cohort groups. Furthermore, there were significant changes in cognitive performance for the entire sample across the two testing time points. Specifically, the entire sample, regardless of groupings, declined significantly in overall performance on cognitive measures from baseline to posttest. The directions of these findings were explored further in follow-up univariate analyses for each cognitive variable presented in the next section.

Univariate Analyses

The presence of significant multivariate effects required follow-up univariate analyses to determine their directions for each cognitive composite score. Beyond within subjects analyses, these follow-up analyses also examined the between-group effects and interactions. While the univariate between-group analyses were not "protected" by the omnibus multivariate test, they were still useful as follow-up analyses. These findings are reported with their original, uncorrected p values, since there is little consensus on alpha adjustment for these post-hoc tests (Tabachnick & Fidell, 2007). However, with six follow-up univariate analyses, Bonferroni correction would require probabilities of $p < .05/6 = .0083$ to be labeled as significant.

Follow-up univariate repeated measures ANCOVA (one for each cognitive composite score) were used to determine the direction of the multivariate between and within-group effects observed and outlined in the previous section. We were particularly interested in the occasion-by-schooling group interactions, which addressed whether individuals who attended desegregated schools showed significantly more or less decline in cognitive performance for one or more cognitive domains than participants who attended segregated schools; however, given the lack of multivariate interaction effects for schooling type (two- or three-way interactions) these effects will not be reported. There were three types of univariate effects tested for each of the six cognitive domain composite scores: between subjects (education schooling group and age cohort group), within subjects (time between baseline and follow-up assessments), and between-by-within subjects effects (age cohort group by time interactions). Estimated marginal means and standard errors are reported with each significant main effect.

Within subjects effects (time).—There was a significant within-group effect for Reasoning (Time 1: 50.605 ± 0.522 vs. Time 2: 50.142 ± 0.582; $F(1, 412) = 11.890$, $p = .001$; partial $\eta^2 = 0.028$), suggesting significant decline in Reasoning scores over time for the entire sample, regardless of group membership. Perceptual Speed (Time 1: 52.102 ± 0.451 vs. Time 2: 51.329 ± 0.457; $F(1, 412) = 6.664$, $p = .010$; partial $\eta^2 = 0.016$) and Working Memory (Time 1: 50.592 ± 0.458 vs. Time 2: 50.530 ± 0.397 $F(1, 412) = 3.887$, $p = .049$; partial $\eta^2 = 0.009$) also showed significant effects of time; however, with Bonferroni correction, these two effects were no longer significant.

Between subjects effects: schooling group.—Next, there were significant between subjects effects, which indicated that across the two time points, the desegregated schooling group scored significantly better for Reasoning (desegregated: 51.369 ± 0.671 vs. segregated: 49.378 ± 0.538; $F(1, 412) = 5.237$, $p = .023$), Language (desegregated: 52.438 ± 0.720 vs. segregated: 49.404 ± 0.577; $F(1, 412) = 10.586$, $p = .001$), and Perceptual Speed (desegregated: 52.970 ± 0.651 vs. segregated: 50.461 ± 0.521; $F(1, 412) = 8.856$, $p = .003$). With Bonferroni correction, only the effects for Language and Perceptual Speed remained significant, which is consistent with previous cross-sectional findings (Whitfield & Wiggins, 2003). Estimated marginal means for all cognitive variables by schooling group and time, regardless of significance, are presented in Figure 1.

Between subjects effect: age cohort.—For Perceptual Speed, the 50- to 59-year-old group scored significantly higher than the 60–69 and 70 and older groups, while the 60- to 69-year-olds scored significantly better than the 70 and older age cohort across the two time points (50–59: 53.587 ± 0.818 vs. 60–69: 52.125 ± 0.583 vs. 70+: 49.434 ± 0.700; $F(2, 412) = 8.189$; $p < .000$). Estimated marginal means for all cognitive variables by age cohort group and time are presented in Figure 2.

Age cohort by time interaction effect.—For Memory, the 50- to 59-year-old cohort improved slightly over time, whereas the 60–69 and 70 and older age cohorts both declined with time ($F(2, 412) = 3.978$; $p = .019$; see Figure 2). However, after Bonferroni correction, this effect is not considered significant.

Discussion

The objective of the present study was to examine longitudinal effects of desegregated schooling on cognitive performance in a sample of 420 middle-aged and older African Americans. Previous findings have suggested that early educational experiences in African Americans significantly affect cognitive performance in later life. Specifically, desegregated schooling was associated with better performance on certain measures of fluid and crystallized cognitive abilities (Whitfield & Wiggins, 2003); and a similar cognitive structure for desegregated and segregated schooling groups, but differences in performance by age cohort groupings, also has been found (Allaire & Whitfield, 2004).

The current study sought to extend these cross-sectional findings by determining the effect of desegregated schooling on cognitive performance over time across six cognitive domains. We observed significant differences in overall performance for measures of Language and Perceptual Speed, with a slight but significant advantage for desegregated schooling; however, the segregated schooling group did not show an accelerated rate of cognitive decline over time. In addition, we found age cohort differences in overall performance on Perceptual Speed measures, with the best performance among the youngest age group (50- to 59-year-olds), as would be expected.

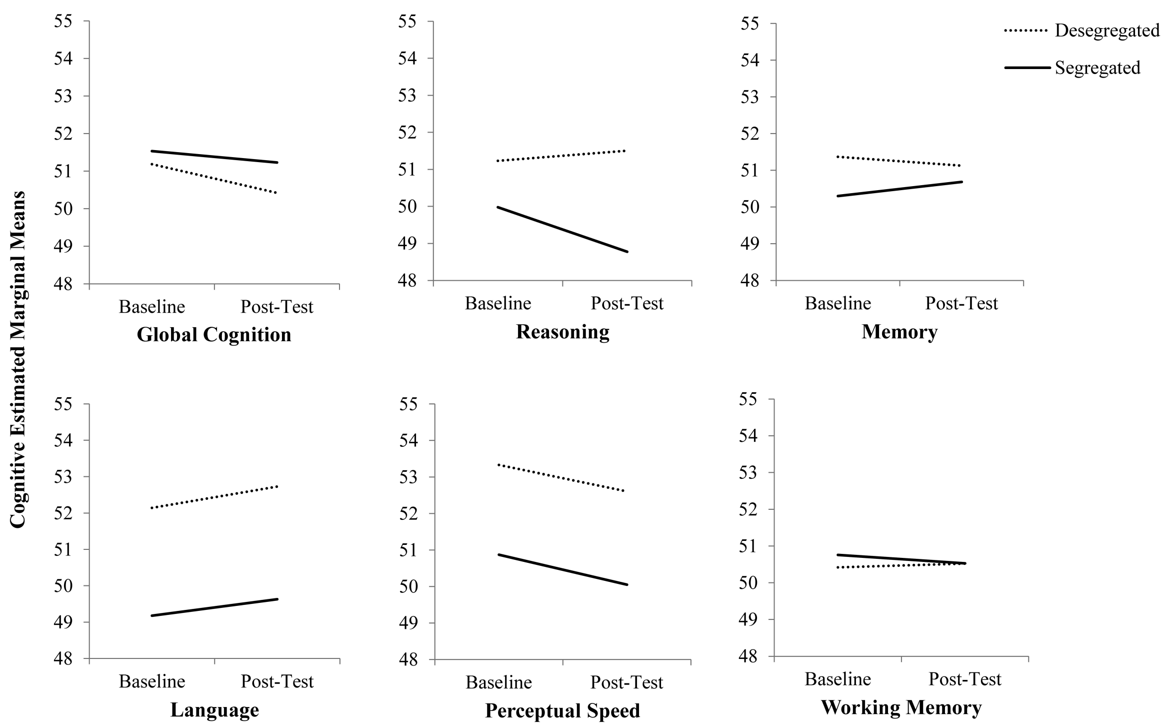

Figure 1. Cognitive estimated marginal means by schooling group.

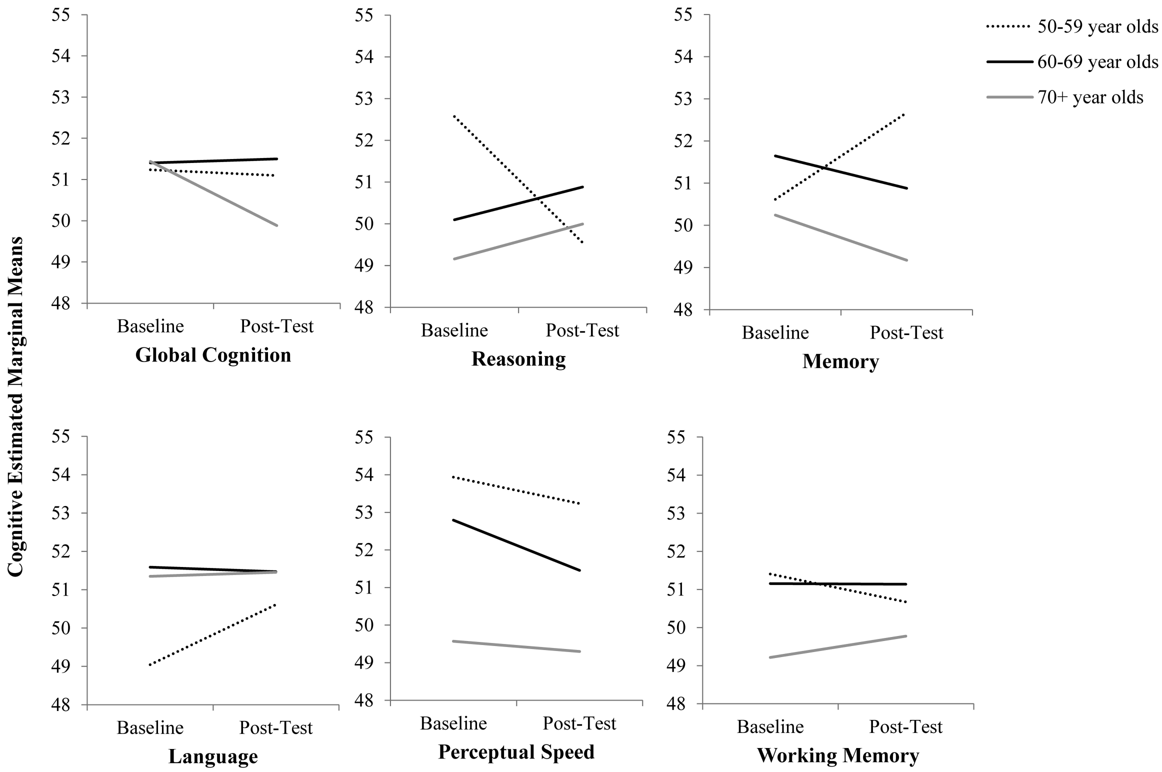

Figure 2. Cognitive estimated marginal means by age cohort group.

Based on these findings, it appears that early differences in schooling affect starting cognitive performance levels, but not necessarily rates of decline in performance. This overall finding is consistent with the cognitive reserve hypothesis (Tucker-Drob, Johnson, & Jones, 2009), which describes the reserve in cognitive abilities that individuals build, in part, as a result of educational experiences early in life. One consideration is whether or not the present findings would be different with a longer follow-up period. It may be the case that we captured our sample just prior to a change in trajectory for some individuals. At the same time, the average rate of decline may have been similar, even with a later follow-up interval.

Another consideration is whether or not desegregated schooling is more important for some abilities than for others. Our present results indicate that both measures of fluid and crystallized cognitive abilities show an overall mean level difference based on schooling type. These findings are similar to cross-sectional relationships found by Whitfield and Wiggins (2003). Also, similar to Allaire and Whitfield (2004), we found differences in the relationship between desegregated schooling and cognition by age cohort.

Broader Effects of Racism and Discrimination

These results fit in a broader context of the social times. Regardless of educational group membership, all experienced racism and discrimination. In addition, segregated versus desegregated schooling is a proxy for other factors (e.g., income and school expenditures, degree of direct racism and discrimination experienced in the daily school environment) that also have direct and indirect effects on cognitive aging (Barnes *et al.*, 2012). Specifically, higher school expenditures for desegregated schools likely had a positive effect on cognitive aging, as it set students on a trajectory for greater cognitive reserve later in life; however, the desegregation of schooling split the African American community and exposed students to increased stress as a result of racism and discrimination experienced in the school environment.

Age cohort differences.—It may be that being in different schooling types and age cohorts affected performance differently for individuals. Our young-old group (ages 50–59) would have ranged from being unborn to 5 years of age when the *Board v. Board of Education* decision occurred. Thus, the youngest of our desegregated schooling group would likely have had early and longer exposure to educational discrimination. Such exposure to harsh displays of discrimination at such a young age likely was extremely stressful since these individuals were still developing emotional regulation, identity, and other important aspects of psychological well-being. Nevertheless, the longer exposure to the positive cognitive effects of desegregated schooling (i.e., attending schools with better resources and funding) likely contributed to the performance advantage observed for this group on Language and Perceptual Speed measures. Our mid-old group (60–69 years) would have been 6–15 years of age at the passage of the *Board v. Board of Education* decision. This age segment of our desegregated schooling group would likely have experienced exposure of education discrimination, but later in childhood. It is unclear whether or not exposure to discrimination at this point in childhood would have had the same effects since the length of exposure would have been shorter than for the younger group. Finally, the old-old group (70 years and older) would have been 16 years and older at the time of the *Board vs. Board of Education* decision. So, they may have had only some exposure to educational discrimination, if still attending public schools. This group would have experienced desegregated schooling later in their educational careers, and it is more likely that they would have already graduated from secondary education and/or entered the workforce. Further, they probably were more mature and better able to handle these challenges at this age. Finally, they were likely primed to take part in the civil rights movement that would take place over the course of the next decade.

Limitations

This work is limited by a relatively short follow-up interval between study time points (approximately 3 years). It may be the case that with a longer interval between study time points, our sample would have shown greater decline in cognitive scores, and thus the relationships between schooling and age cohort group membership may have been strengthened. Nevertheless, a longer follow-up period would have likely resulted in greater attrition of participants, due to death or other reasons.

A second limitation is the dichotomization of the schooling type variable, which does not fully capture the complexity of the educational experiences of the participants in this study (i.e., the specific number of years or grade levels spent in each school type and in what geographical location). Furthermore, the study did not collect sufficient data regarding the number of years or grade levels attended in each type of school setting. The present analyses focus on exposure to desegregation (i.e., completion of at least some education in a desegregated school at any point) and not the effect of a certain amount or duration of desegregated versus segregated schooling. The present findings cannot make specific conclusions regarding experiences of discrimination (number of years, type, geographical location, etc.); we can only speculate based on what is known historically about the general experiences of African Americans in these age cohorts.

Conclusions and Future Study

Overall, these findings highlight the importance of considering qualitative educational factors versus simply education quantity when understanding cognitive aging, particularly among African Americans (e.g., Morgan, Marsiske, & Whitfield, 2008). Studies should go beyond only accounting for years of education, as the present and previous findings have shown that school environment and other indicators of education quality, particularly along racial and socioeconomic lines, play a major role in late-life cognition. Furthermore, future studies with larger samples of individuals who attended desegregated and segregated schools should examine how number of years attended in each school type might estimate a "dose-response" relationship between desegregated schooling and cognitive performance later in life.

This research extends on previous work that suggests that policy decisions and the positive, as well as negative, ramifications of these decisions can have lasting effects on individuals. The *Brown v. Board of Education* decision turned 60 during the time this manuscript was first prepared for publication (in May 2014). Interestingly, work by civil rights organizations, such as The Civil Rights Project based at UCLA, suggests that there is a trend toward resegregation of public schools in Eastern United States, including Maryland (Ayscue, Flaxman, Kucsera, & Siegel-Hawley, 2014). Specifically, over the past 20 years, schools in the Baltimore–Washington metropolitan area have seen a decreased white share of enrollment and a tripling of "intensely segregated schools" (those that are 90%–100% minority; Ayscue *et al.*, 2014).

With the trend toward the reversal of desegregation gains resulting from the *Brown* decision, future research should continue to examine the effects of how specific education policy decisions may explain disparities in cognitive function and other health outcomes, particularly those health outcomes that are commonly observed in African Americans. Future studies should continue to examine these relationships longitudinally over longer periods of time to better examine individual trajectories. Finally, future studies should also include other ethnic groups, including Hispanics and Latinos, given the changes in the demographic landscape of the United States in the 60 years since *Brown*.

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