⑤SAGE

Metacognitive Knowledge, Skills, and Awareness: A Possible Solution to Enhancing Academic Achievement in African American Adolescents

Annie K. Smith[1], Sheila Black[1], and Lisa M. Hooper[2]

Abstract

The resegregation of public schools in the United States continues to place African American students at an academic disadvantage with—oftentimes—limited educational resources and fewer qualified teachers. Providing African American students with skills and strategies to succeed has never been more urgent. Metacognition, often defined simply as "thinking about thinking," is a construct and process that may explain how students can improve and control their thinking and learning. Given the educational inequality African American students often face, providing strategies—with which they have control—may help empower students to better navigate and make the best of their daily academic experiences and environment composed of limited physical and human resources. Toward this end, recent research on metacognition looks promising and may be one viable option to enhance

[1]The University of Alabama, Tuscaloosa, USA
[2]The University of Louisville, KY, USA

Corresponding Author:
Lisa M. Hooper, Professor, Department of Educational and Counseling Psychology, Counseling, and College Student Personnel, College of Education and Human Development, The University of Louisville, Louisville, KY 40292, USA.
Email: lisa.hooper@louisville.edu

academic achievement among students. In this article, we consider three related areas that inform African American youth educational experiences: (a) the history of the educational context which African American youth have long faced, (b) the laws that have historically and currently buttress and inform the educational landscape for African American youth, and (c) one potential solution (i.e., metacognitive knowledge, skills, and awareness) to reduce or ameliorate some of the problems outlined in the history and laws that have been implicated in the low levels of academic achievement among some African American youth. Following the review of these related literature bases, we offer recommendations on how the extant literature bases may inform directions for future research that is focused on metacognition and that is ethically and culturally responsive.

Introduction

It has been well documented that urban schools are characterized by less effective instruction, high teacher turnover, and frequent student mobility (Utley & Obiakor, 2015). Of significance, many students who attend urban schools self-identify as Black American or African American, making the urban school context particularly important to African American youth and families. In 2014, the U.S. Department Education's Office for Civil Rights (OCR) released a report based on a sample of 97,000 of the nation's public school systems during the 2011-2012 school year, which shines a light on disparities relevant for African American youth. The OCR report identifies significant racial disparities in the following areas: (a) educational opportunity, (b) school and community resources, and (c) discipline-related outcomes, particularly in urban and rural school districts (OCR, 2014). Also, evidenced in the report is the fact that African American students are suspended to a greater extent than their White American classmates performing similar behavioral infractions or actions. Interestingly, the data also showed that these suspension outcomes begin as early as kindergarten. Another important finding evidenced in the report is the vast racial disparities, which are seen across all age groups (i.e., from pre-kindergarten through high school). Other disparities include the extent to which students had equal access to preschool. Findings showed African American students were given limited access to preschool and they were mostly enrolled part-time, although

81% of Asian American students and 71% of the White American students were enrolled in preschool full-time. According to the U.S. Department of Education (2014) and as reported by other researchers (see Kamp, Admiraal, Drie, & Rijlaarsdam, 2015; Zepeda, Richey, Ronevich, & Nokes-Malach, 2015), African American high school students have unequal access to advanced placement courses that typically focus on critical and higher level thinking skills.

Urban public schools—and numerous corollaries—in the United States continue to place African American students at an academic disadvantage with limited educational resources, fewer qualified teachers, and frequent school pushout (i.e., suspensions and expulsions). Providing African American students with skills and strategies to succeed has never been more urgent. Metacognition often defined simply as "thinking about thinking," is a construct and process that may explain (in part) how students can improve and control their thinking and learning. Stated another way, metacognition is an awareness of how one thinks, and includes components such as knowledge and regulation. Metacognitive knowledge consists of an awareness of oneself as a learner, such as strategies used for learning, cognitive strengths and limitations, and factors that might affect individual student performance (Brown, 1978; Flavell, 1979). Although metacognition is complex, there are numerous components that researchers have found to be beneficial to adolescents, especially learners without adequate access to educational resources. One benefit of metacognition is increased motivation (Pintrich, 2004). In addition, the utilization of metacognitive strategies has the potential to help students become more efficient at transferring a particular learning strategy across situations (e.g., learning how to use concept maps in science may help students use this skill in history or other subjects, which provides more options and practice resulting in additional learning and academic achievement; Clerc, Miller, & Cosnefroy, 2014).

Given the educational inequality African American students often face, providing strategies—with which they have control—may help students to better navigate and make the best of their reality by coping with the limited resources evidenced in their daily academic experiences and contexts. Many students in urban schools struggle with academic achievement. "Only approximately 60 percent of students in urban areas graduated in 2005, and many of those who do mange to graduate are ill-prepared for higher education or the workplace" (Byars-Winton, Branchaw, Pfund, Leverett, & Newton, 2015, p. 34). According to Conchas, Lin, Oseguera, and Drake (2015), low school performance in learners in urban settings is attributed to structural inequalities, stereotypes by the media, and the American society. The researchers contended that such structural inequalities are deeply rooted in

U.S. history and negative perceptions and depictions further add to the challenges associated with the schooling experiences of Black American students in urban environments. Of significance, recent research on metacognition looks promising and may be one viable option to enhance academic achievement among students. The current article considers three related areas: (a) the history of the educational context which African American youth have long faced, (b) the laws that have historically and currently buttress and inform the educational landscape for African American youth, and (c) one potential solution (i.e., metacognitive knowledge, skills, and awareness) to reduce or ameliorate some of the problems outlined in the history and laws that have been implicated in the low levels of academic achievement among some African American youth. Following the review of these related literature bases, we offer recommendations on how the extant research may inform directions for future research that are focused on metacognition strategies that may be ethically and culturally responsive for African American youth academic achievement and other educational outcomes.

Literature Review

African American Adolescents and the Academic Achievement Gap

Acknowledging and addressing institutionalized educational inequalities are vital to understanding the present state of the American public education system and its effects on Black American students. The academic achievement gap has long been pernicious. The complexities of learning require—if not—demand a consideration of America's policies and proffered ideas concerning the education of Black American students. Therefore, an examination of the history and current structures of the American educational system is important in understanding how the long-observed academic achievement problems and possible solutions to help all adolescents but in particular African American urban youth thrive academically. As many decades have passed, school desegregation has decreased but still exists. In 1954, the U.S. Supreme Court prohibited separate schools for Black students in its *Brown v. Board of Education* decision. For many, recent reports of resegregation in public school settings are reminiscent of a time in American history when education was separate and unequal, with African American students predominately suffering the academic and financial aftereffects of this disparity (Black, 2011; Rist, 1996). In some cases, students are more racially segregated today than in the 1960s prior to forced desegregation (Dorsey, 2013; Hannah-Jones, 2014). With court-mandated school desegregation in the 1960s and 1970s, private academies were created to provide alternatives for White American

parents who were strongly against forced integration or who questioned the quality of the education their children would receive in racially mixed classrooms (Andrews, 2002).

Although there were obvious benefits from school desegregation, the departure of White American families from public schools (i.e., "*White flight*") to suburban areas and schools produced a range of aftereffects and unintended consequences possibly adding to the resegregation of students (Armor, 1995; Rossell & Hawley, 1981). During the 1970s, there were mixed findings and little agreement about the association between White flight and school desegregation. "However, the main strategy of resistance took the collective form of building new educational institutions" (Andrews, 2002, p. 917). Since then, the courts have relaxed or overturned the original desegregation laws, although as previously mentioned, in recent years, there has been an increase in resegregation (Dorsey, 2013; Hannah-Jones, 2014). In addition, schools with higher percentages of African American students, and other racial and ethnic minority students, tend to have unequal experiences in terms of adequate resources and higher teacher turnover rates (Condron, Tope, Steidl, & Freeman, 2013; Eitle & Eitle, 2010). Consequently, African American students are—once again—left with a plethora of academic inequalities, including but not limited to academic resources, low-quality curriculum, and fewer experienced and/or qualified teachers (Armor, 1995; Black, 2011).

The current and past policies have been significant, and at times debilitating, for Black American communities and educational opportunities (Bertrand, Perez, & Rogers, 2015). During the 1990s, the federal government contributed approximately 10% of school funding. However, the percentage has increased over the years with Title I funds and grants that are awarded to states based on individual needs. Nevertheless, the federal government plays a major role in how students gain access to educational opportunities and community resources. It is the government's responsibility to enforce policy (e.g., fair housing, Head start enrollment, Pell grants, Title IX, and Title VI of the Civil Rights Act, and grants for empirical research that includes African Americans). The federal government also oversees health and human services, agriculture department for school lunches, and controlling and enforcing laws. As discussed earlier in this article and addressed later is the impact of school desegregation on the education of African American students. Elements such as environmental quality, neighborhoods, access to resources comparable with those in more affluent school districts may have a long-term effect on the lives and livelihood of African American students attending urban schools and living in urban communities.

Currently, African American and White American families typically live in different school districts, whereby neighborhoods are racially segregated (Condron et al., 2013). Usually, segregated schools are unequally funded with more African American students living in communities with fewer neighborhood resources and jobs, higher crime rates, and poorer public services. According to the U.S. Department of Education, NCES (2014), in 2012, the rate of school-age children living with families in poverty was 39% for Black American children and 13% for White American children. The effects of poverty often make it more difficult for some African American students to achieve academically and earn a high school diploma. The achievement gap is frequently described as the often-observed academic differences between successful White American students and racial minority students. The racial achievement gap is a national urgent problem (Clotfelter, Ladd, & Vigdor, 2009; Seaton, 2010; Wakefield & Hudley, 2005).

Legislation and learning. The beginning of the 21st century brought with it legislation designed to address education inequality. In a bipartisan effort, the U.S. Congress attempted to reform education by requiring states and school districts to implement initiatives to improve student achievement. The No Child Left Behind (NCLB) act of 2001 is the law that *attempted* to close the achievement gap by using the following criteria: (a) holding schools, local educational agencies, and states accountable for improving the academic achievement of all students, and (b) identifying and turning around low-performing schools that have failed to provide a high-quality education to their students, while providing alternatives to students in such schools to enable the students to receive a high-quality education (NCLB, 2001). Thus, the main goal of the NCLB was to close the achievement gap of African American and White American students.

Despite the goals of NCLB, it has *not* closed the achievement gap between African Americans and White Americans. African American students are predominately educated in public school systems that have fewer assets and tools than those of White American students (Jimerson, 2005). The racial achievement gap is a national problem (Clotfelter et al., 2009; Seaton, 2010; Wakefield & Hudley, 2005). Although well-meaning, NCLB has resulted in an ineffective emphasis on standardized testing that focuses on rote memory (Jimerson, 2005; Neill, Guisbond, & Schaeffer, 2004; Smyth, 2008). Many of today's students have deficits in higher order thinking skills, such as critical thinking, problem solving, decision making, and creativity (Berliner, 2011; Jones & Egley, 2004). These skills and strategies are necessary for proficiency and mastery of math and science concepts. Thus, by not learning critical thinking skills, students are limiting their academic successes.

Although school inequality plays a major role in academic success, the numerous variables and complexities around academic achievement cannot be simplified or reduced to school resegregation alone. There are many factors contributing to academic successes and failures. Researchers continue to explore the academic achievement gap and the underachievement of African American students. Evaluating intervention programs designed to help students develop higher level thinking skills should be an integral part of research. Decision-making skills are not only important in academic settings, but also in life. Metacognition consists of knowledge, skills, awareness, and strategies to help people develop and enhance higher level thinking. African American adolescents—similar to their White American counterparts—may benefit from developing these skills and learning the strategies that can be applied at school and in other contexts (Clerc et al., 2014).

Metacognition: Cognition and Cognitive Development Theory

Researchers are exploring strategies to help students succeed and thus offering empirical evidence about ways students may better prepare themselves academically through metacognitive strategies such as goal-setting, self-evaluation, and self-reflection. The process of thinking, cognition, or metacognition is a topic that is common in the field of education. By understanding cognition, it may be easier to explain the role of metacognition in teaching and learning (Brown, 1978; Okoza, Aluede, & Owens-Sogolo, 2013). Cognitive development theorists propose that many aspects of cognition involve predictable sequences of developmental stages, whereby children build on knowledge and skill acquisition from previous stages. Children are motivated and have natural inclinations to make sense of their environment by constructing, interpreting, and understanding their experiences, while adapting to new information (Bandura, 2001; Flavell, 1979; Zimmerman, 2000).

Metacognition is also described as a multidimensional set of skills that can help learners gain academic skills for limitations in intelligence and prior knowledge. Metacognitive strategies using self-regulation techniques may provide an effective foundation for students to achieve academic success and provide them with skills to become motivated problem solvers and critical thinkers. Awareness of higher order thinking and developing relevant strategies using metacognition may be particularly effective in improving cognitive processes and thus academic achievement.

Academic achievement and African American adolescents. African American adolescents will face many challenges in school settings, including

racism—whether perceived or real (Manna, 2013; Schulte & Stevens, 2015). For this reason, African American students—irrespective of income—require coping skills and strategies to be successful and thrive. As a result, it is important to understand the background and influences of adolescents not only in terms of their cognitive processing but also in terms of their academic motivation. Teachers play a significant role in student motivation. For more than a decade, experts have reported the effects of teacher expectations on students' academic performance. School environments can empower students by giving them some control of their learning and making clear associations between the curriculum and students' cultural and lived experiences. In addition, schools that and educators who tend to facilitate learners' academic motivation and encourage metacognitive strategies (e.g., taking notes, highlighting, or questioning), also contribute to individuals reaching their educational goals.

As previously discussed, metacognition is an awareness of how one thinks, and includes the components, knowledge, and regulation. Metacognitive knowledge consists of an awareness of oneself as a learner, such as strategies used for learning, cognitive strengths, and weaknesses, and factors that might affect individual performance (Brown, 1978; Flavell, 1979). Metacognition *is* knowledge and there are three basic types of metacognitive knowledge: (a) *procedural metacognition*, knowing how to do something or perform the steps to completing a task; (b) *declarative metacognition*, factual information that can be spoken or written; and (c) *conditional knowledge*, which involves not only knowing the facts and the steps to completing a math problem but also knowing when and how to use the best or most effective strategy (Flavell, 1979; Garner, 1987). The significance of metacognitive knowledge is that it includes information about strategies that work for most individuals and knowledge of specific strategies that work for diverse learners. Thus, students who receive metacognitive training at the beginning of the semester—which might include specific tasks or activity strategies—learn early in the semester how to study for a particular subject. In terms of the cognitive skills that African American adolescents can develop and can control, metacognition may afford adolescents an enhanced ability to negotiate and cope with their external environment and unique cultural experiences including racism and oppression (Osborne, 1995).

Earlier and current research supports the effectiveness and significance of metacognition in academic settings. More specifically, research with adolescents provides evidence that there is a direct positive relation between metacognitive strategies and academic improvement (Kramarski & Mevarech, 2003; Sperling, Richmond, Ramsay, & Klapp, 2012). Winne and Nesbit (2010) asserted metacognition is a key variable in students' academic

success. They suggested that learners are "agents" as they choose whether and how to engage in various activities. Because learning is a complex process, it is important to develop effective strategies to facilitate the cognitive processes (Winne & Nesbit, 2010). In addition, Winne and Nesbit (2010) outlined four important characteristics of and select outcomes for learners: (a) learners tend to be poor judges of how much they learn; (b) learners who engage information in meaningful ways tend to improve their accuracy; (c) learners who improve their accuracy experience recalling information rather than merely scanning residual information in working memory; and (d) learners who are aware of their cognitive process and metacognition.

Research points to the benefits of training students on how to engage in higher level cognitive skills. For example, some researchers have examined the benefits of interventions directed toward training students on how to use metacognition. Gillies, Nichols, Burgh, and Haynes (2012) conducted a study composed of 35 groups of sixth-grade students from 18 classrooms. Teachers were trained and videotaped using three conditions: (a) cognitive questioning condition, (b) community of inquiry condition, and (c) the comparison condition to include metacognitive strategies during their instruction (Gillies et al., 2012). They found that the intervention resulted in promoting and guiding students to engage in higher level thinking skills in science (Gillies et al., 2012).

Research supports the importance of metacognition in students' memory, learning, and achievement. Unfortunately, most—if not all—research on metacognition fails to include African American adolescents, although there have been studies composed of ethnically diverse adolescents in other countries. These international studies provide preliminary empirical evidence that metacognition and academic success are significantly and positively related and culturally relevant (Kramarski & Mevarech, 2003; Okoza et al., 2013). Kramarski and Mevarech (2003) investigated the effects of metacognitive knowledge and instructional methods on 348 Israeli students' mathematical reasoning. The participants were 348 eighth graders from Israel. Four instructional methods were examined: (a) cooperative learning and metacognitive training, (b) individualized learning and metacognitive training, (c) cooperative learning without metacognitive training, and (d) individualized learning without metacognitive training. The cooperative group with metacognitive training outperformed the individualized learning group with metacognitive training. Both groups with metacognitive training significantly outperformed both the cooperative and individualized groups without metacognitive training. The researchers concluded that instructional methods combined with metacognitive training enhanced mathematical reasoning (Kramarski & Mevarech, 2003). The findings highlight the preliminary effectiveness of teaching metacognition to adolescents in diverse environments.

These preliminary studies show how metacognition training may be included in an academic setting. Okoza et al. (2013) recommended that both pre-service and in-service teachers are taught metacognitive strategies and that students learn the concept through direct classroom instruction. Although the effectiveness of using metacognition during instruction has been documented, teachers may feel uneasy about this idea given their daily responsibilities. Through training, adolescents may be taught to formalize and execute plans and activities to improve their learning, which may help alleviate some of the burdens on teachers. van der Stel and Veenman (2013) conducted a 3-year longitudinal study involving secondary students ages 12 to 15. The participants were from the Netherlands and chosen because of the diversity in their education levels, socioeconomic status, and ethnicity. The researchers examined three issues: (a) whether metacognitive skills grow in quality over time, (b) how metacognitive skills relate to intellectual ability, and (c) whether metacognitive skills are general or domain specific (van der Stel & Veenman, 2013). During the study, participants were given new text-studying and problem-solving tasks in both math and history while thinking aloud about the process. The results showed that (a) over time, metacognitive skills both progressed and regressed; (b) metacognitive development contributed to learning independent of intellectual ability; and (c) over time, metacognitive skills appeared to be general by nature and transferable to different domains (van der Stel & Veenman, 2013). The researchers concluded that the quality and frequency of metacognitive activities increase when students are able to transfer skills acquired in one context to a different one.

Because metacognition includes knowledge about one's own cognitive processes, one might think that students could just "pick up" on it through experience. However, metacognition is highly related to executive processing (e.g., the ability to monitor and correct behavior) and working memory (i.e., the ability to store and manipulate information). Thus, many adolescent learners will not be equipped with internal resources and knowledge to engage in metacognitive processing. In fact, "empirical findings suggest that most learners are unable to regulate their learning automatically" (Schwonke, 2015, p. 172). Thus, the criticality of teachers' role in facilitating metacoginitive awareness, knowledge, and skills cannot be overstated. Teaching components of metacognition can be done at any age. Young children have the potential to become aware of their thinking processes by learning to complete a task and modeling behaviors of caregivers and teachers. They learn to read aloud and learn to comprehend the text through discussions and character and plot identification (Aberšek, Dolenc, & Kovačič, 2015), although teaching metacognition as an intervention often works better with ninth graders. More specifically, ninth graders are transitioning to high school and may find these

strategies quite helpful. Moreover, they tend to have some experience using metacognition as they self-regulate and self-monitor, although many do not have detailed knowledge and awareness of in-depth cognitive processing and how to use the most effective strategy in completing specific tasks. Also, adolescence is a period when academic motivation usually decreases for many reasons. Metacognition helps to motivate students as they become aware of the power of thinking to solve problems and set goals (Cleary, 2004; Conchas et al., 2015; Schwonke, 2015).

Implications and Directions for Future Research

Addressing institutionalized educational inequality is very much needed. According to the U.S. State Department of Education, public schools are funded primarily by states and localities. Property taxes play an important role in school access to educational resources; Thus, more affluent neighborhoods are based on funding. Importantly, the federal government has the power to enforce or evaluate policies that affect educational equality and equity.

The recent breakthroughs in brain development and its cognitive processing have direct implications for the development, evaluation, and testing of novel and culturally relevant methods that can foster success, self-efficacy, and academic achievement among African American adolescents. A specific focus on and attention to metacognition could possibly provide the way forward for students to become more proficient at higher level thinking skills, resulting in better problem-solving and decision-making strategies. Academic interventions should be systematic, strategic, and culturally tailored in helping students complete high school and pursue postsecondary education or training for productive lives. Understandably, teachers may feel overwhelmed with the day-to-day classroom responsibilities and implementing mandated curricular objectives. They may even feel as if incorporating metacognitive strategies into daily instruction is just another thing to do on their never-ending "to do" list. However, collaborative partnerships with colleges and universities can help provide training and resources for students, and guidance, support, and professional development for teachers.

Research highlighting the benefits of metacognition in classroom environments should not be ignored. It is plausible that emphasizing metacognition in the classroom is a viable and effective solution to enhancing academic achievement in African American youth. African American students should be afforded every possible opportunity to improve their academic achievement. Metacognitive training should be one of those options. Future research should include empirical approaches to measure this construct and process in

classroom setting and other contexts, particularly those settings that include African American students. More empirical research is needed to help students learn to use the most effective metacognitive strategies for academic achievement and make the best choices for their lives. Research examining the effects of transfer and memory in adolescence is needed as well the benefits of parents, guardians, and older siblings encouraging and modeling metacognition in the home. Finally, future research must include racially and ethnically diverse individuals in their study samples to better understand the efficacy, effectiveness, and transportability of findings evidenced in White American and international populations.

Declaration of Conflicting Interests

Funding

References

Aberšek, M. K., Dolenc, K., & Kovačič, D. (2015). Elementary and natural science teachers' online reading metacognition. *Journal of Baltic Science Education*, *14*, 121-131.

Act, No Child Left Behind. (2001). United States department of education. *Public Law*, 107-110.

Andrews, K. T. (2002). Movement-countermovement dynamics and the emergence of new institutions: The case of "white flight" schools in Mississippi. *Social Forces*, *80*, 911-936.

Armor, D. S. (1995). *Forced justice, school desegregation and the law*. New York, NY: Oxford University Press.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, *52*, 1-26. doi:10.1146/annurev.psych.52.1.1

Berliner, D. (2011). Rational responses to high stakes testing: The case of curriculum narrowing and the harm that follows. *Cambridge Journal of Education*, *41*, 287-302. doi.10.1080/0305764X.2011.607151

Bertrand, M., Perez, W. Y., & Rogers, J. (2015). The covert mechanisms of education policy discourse: Unmasking policy insiders' discourses and discursive strategies in upholding or challenging racism and classism in education. *Education Policy Analysis Archives*, *23*, 1-35.

Black, D. W. (2011). Voluntary desegregation, resegregation, and the hope for equal educational opportunity. *Human Rights*, *38*, 2-5.

Brown, A. L. (1978). Knowing when, where, and how to remember: A problem of metacognition. *Advances in Instructional Psychology*, *1*, 77-165.

Byars-Winston, A. M., Branchaw, J., Pfund, C., Leverett, P., & Newton, J. (2015). Culturally diverse undergraduate researchers' academic outcomes and perceptions of their research mentoring relationships. *International Journal of Science Education*, *37*, 2533-2554.

Cleary, T. J., & Zimmerman, B. J. (2004). Self-regulation empowerment program: A school-based program to enhance self-regulated and self-motivated cycles of student learning. *Psychology in the Schools*, *41*, 537-550.

Clerc, J., Miller, P. H., & Cosnefroy, L. (2014). Young children's transfer of strategies: Utilization deficiencies, executive function, and metacognition. *Developmental Review*, *34*, 378-393.

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2009). The academic achievement gap in grades 3 to 8. *The Review of Economics and Statistics*, *91*, 398-419. doi:10.3386/w12207

Conchas, G. Q., Lin, A. R., Oseguera, L., & Drake, S. J. (2015). Superstar or scholar? African American male youths' perceptions of opportunity in a time of change. *Urban Education*, *50*, 660-688.

Condron, D. J., Tope, D., Steidl, C. R., & Freeman, K. J. (2013). Racial segregation and the Black/White achievement gap, 1992 to 2009. *The Sociological Quarterly*, *54*, 130-157. doi:10.111/tsq.12010

Dorsey, D. N. T. (2013). Segregation 2.0: The new generation of school segregation in the 21st century. *Education and Urban Society*, *45*, 533-547. doi:10.1177/0013124513486287

Eitle, D., & Eitle, T. M. N. (2010). Public schools segregation and juvenile crime arrest in metropolitan areas. *The Sociological Quarterly*, *51*, 436-459.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, *34*, 906-911.

Garner, R. (1987). *Metacognition and reading comprehension*. New York, NY: Ablex Publishing.

Gillies, R. M., Nichols, K., Burgh, G., & Haynes, M. (2012). The effects of two strategic and meta-cognitive questioning approaches on children's explanatory behaviour, problem-solving, and learning during cooperative, inquiry-based science. *International Journal of Educational Research*, *53*, 93-106.

Hannah-Jones, N. (2014). Segregation now. *Atlantic*, *313*, 68-81.

Jimerson, L. (2005). Placism in NCLB—How rural children are left behind. *Equity & Excellence in Education*, *38*, 211-219. doi:10.1080/10665680591002588

Jones, B. D., & Egley, R. J. (2004). Voices from the frontlines: Teachers' perceptions of high-stakes testing. *Education Policy Analysis Archives*, *12*, 1-34.

Kamp, M. T., Admiraal, W., Drie, J., & Rijlaarsdam, G. (2015). Enhancing divergent thinking in visual arts education: Effects of explicit instruction of meta-cognition. *British Journal of Educational Psychology*, *85*, 47-58.

Kramarski, B., & Mevarech, Z. R. (2003). Enhancing mathematical reasoning in the classroom: The effects of cooperative learning and metacognitive training. *American Educational Research Journal*, *40*, 281-310.

Manna, P. (2013). Centralized governance and student outcomes: Excellence, equity, and academic achievement in the U.S. states. *Policy Studies Journal*, *41*, 683-706. doi:10.1177/0014402914563695

Neill, M., Guisbond, L., & Schaeffer, B. (2004). *Failing our children: How "No Child Left Behind" undermines quality and equity in education. An accountability model that supports school improvement* (Summary report). Cambridge, MA: The National Center for Fair & Open Testing.

Okoza, J., Aluede, O., & Owens-Sogolo, O. (2013). Assessing students' metacognitive awareness of learning strategies among secondary school students in Edo State, Nigeria. *Research in Education*, *90*, 82-97. doi:10.7227/RIE.90.1.6

Osborne, J. W. (1995). Academics, self-esteem, and race: A look at the underlying assumptions of the disidentification hypothesis. *Personality and Social Psychology Bulletin*, *21*, 449-455.

Pintrich, P. R. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. *Educational Psychology Review*, *16*, 385-407.

Rist, R. C. (1996). Color, class, and the realities of inequality. *Society*, *33*, 32-36.

Rossell, C. H., & Hawley, W. D. (1981). *White flight from school desegregation: Magnitude, sources, and policy options* (Final report). Washington, DC: Department of Education.

Schulte, A. C., & Stevens, J. J. (2015). Once, sometimes, or always in special education: Mathematics growth and achievement gaps. *Exceptional Children*, *81*, 370-387. doi:10.1177/0014402914563695

Schwonke, R. (2015). Metacognitive load—Useful, or extraneous concept? Metacognitive and self-regulatory demands in computer-based learning. *Journal of Educational Technology & Society*, *18*, 172-184.

Seaton, E. K. (2010). What the achievement gap conversation is missing. *Review of Black Political Economy*, *37*, 275-277. doi:10.1007/s12114-010-9072-0

Smyth, T. S. (2008). Who is No Child Left Behind leaving behind? *The Clearing House*, *81*, 133-137.

Sperling, R. A., Richmond, A. S., Ramsay, C. M., & Klapp, M. (2012). The measurement and predictive ability of metacognition in middle school learners. *The Journal of Educational Research*, *105*(1), 1-7.

U.S. Department of Education Office for Civil Rights. (2014). *Civil rights data collection: Data snapshot (school discipline)*. Retrieved from http://ocrdata.ed.gov/Downloads/CRDC-School-Discipline-Snapshot.pdf

U.S. Department of Education, National Center for Education Statistics. (2014). *Public high school four-year on-time graduation rates and event dropout rates: School years 2010-11 and 2011-12*. Retrieved from http://nces.ed.gov/pubs2014/2014391/findings.asp

Utley, C. A., & Obiakor, F. E. (2015). Measuring the Cool Tool as a targeted intervention to minimize teacher reprimands and students' on-task behaviors in an urban elementary school. *Learning Disabilities: A Contemporary Journal*, *13*, 43-57.

van der Stel, M., & Veenman, M. V. J. (2013). Metacognitive skills and intellectual ability of young adolescents: A longitudinal study from a developmental

perspective. *European Journal of Psychology of Education*, *29*, 117-137. doi:10.1007/s10212-013-0190-5

Wakefield, W. D., & Hudley, C. (2005). African American male adolescents' preferences in responding to racial discrimination: Effects of ethnic identity and situational influences. *Adolescence*, *40*, 237-256.

Winne, P. H., & Nesbit, J. C. (2010). The psychology of academic achievement. *Annual Review of Psychology*, *61*, 653-678.

Zepeda, C. D., Richey, J. E., Ronevich, P., & Nokes-Malach, T. J. (2015). Direct instruction of metacognition benefits adolescent science learning, transfer, and motivation: An in vivo study. *Journal of Educational Psychology*, *107*, 954-970. doi:10.1037/edu0000022

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, M. Zeidner, & P. R. Pintrich (Eds.), *Handbook of self-regulation* (pp. 13-39). San Diego, CA: Academic Press.

Author Biographies

Annie K. Smith was an associate clinical assistant professor in the Department of Educational Studies in Psychology, Research Methodology and Counseling at The University of Alabama. She taught educational psychology, social psychological foundations in education, and introduction to teaching courses. Her research focuses on teaching quality, teacher efficacy, student academic identity and motivation, and the application of metacognitive strategies in classroom settings, with a focus on African Americans.

Sheila Black is an associate professor in the Department of Psychology at the University of Alabama. Dr. Black specializes in experimental psychology with an emphasis in cognitive aging. Her research also focuses on attentional processes, memory and language, inhibitory processes.

Lisa M. Hooper is a professor in the Department of Counseling and Human Development at the University of Louisville. She is a mental health and family therapist and researcher who has both clinical and research experience with underrepresented and underserved racially and ethnically diverse populations. At Georgetown University School of Medicine, The University of Alabama, and the University of Louisville she has studied the implications of family roles and relationships, patient, and provider factors on guideline-concordant depression and culturally competent care in a range of populations.