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Black Americans, Gains in Science and Engineering Degrees, and Gender

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ABSTRACT

This article is divided into three parts. First, it presents the most recent data on Black Americans' higher education enrollment and degree attainment rates, and overall numbers of earned college degrees at all levels. Second, the article presents data on the most recent enrollment rates and total numbers of science and engineering degrees earned by Black Americans. Finally, the article presents a number of factors that have contributed to the gains in earned science and engineering degrees by Black Americans, and also factors that have contributed to their slow rate of progress in these academic fields.

KEYWORDS

Black Americans; Science and Engineering; Mathematics; Gender; Progress

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References

- [1] Ashby, E. (1964). African universities and western tradition. Cambridge, MA: Harvard University Press.
- [2] Baker, P. R., & Lutz, A. (2009). How African American is the net black advantage? Differences in college attendance among immigrant blacks, native blacks, and whites. *Sociology of Education*, 82, 70-100. doi:10.1177/003804070908200104
- [3] Ballard, H. E., & Cintrón, R. (2010). Critical race theory as an analytical tool: African American male success in doctoral education. *Journal of College Teaching and Learning*, 7, 366-374.
- [4] Barinaga, M. (1998). Graduate admissions down in minorities. *Science*, 281, 1778. doi:10.1126/science.281.5384.1778
- [5] Beoku-Betts, J. (2004). African women pursuing graduate studies in the sciences: Racism, gender bias, and third world marginality. *NWSA Journal*, 16, 116-135. doi:10.2979/NWS.2004.16.1.116
- [6] Bozick, R. (2007). Making it through the first year of college: The role of students' economic resources, employment, and living arrangements. *Sociology of Education*, 80, 261-285. doi:10.1177/003804070708000304
- [7] United States Census Bureau (2011). Census women. URL (last checked 20 April to 26 April 2011). <http://www.census.gov/newsroom/releases/archives/education/cb10-55.html>
- [8] Chew, C. M. (2004). Howard University engineers success. *Black Issues in Higher Education*, 21, 30-32.
- [9] Davis, L. E. (1999). Working with African American males: A guide to practice. Thousand Oaks, CA: Sage.
- [10] National Center for Education Statistics (1997). US Department of Education. URL (last checked 9

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- [11] England, P., Allison, P., Li, S., Mark, N., Thompson, J., Budig, M. J., & Sun, H. (2007). Why are some academic fields tipping toward female? The sex composition of US fields of doctoral degree receipt, 1971-2002. *Sociology of Education*, 80, 23-42. doi:10.1177/003804070708000102
- [12] Eugene, W., & Clark, K. (2012). E-learning, engineering, and learners of African descent: A needs analysis. *Journal of STEM Education: Innovation and Research*, 13, 45-57.
- [13] Franklin, J. H., & Moss, A. A. (1994). *From slavery to freedom: A history of African Americans* (7th ed.). New York: McGraw-Hill.
- [14] Franklin, C. W., & Mizell, C. A. (1995). Some factors influencing success among African-American men: A preliminary study. *Journal of Men's Studies*, 3, 191.
- [15] Freeman, C. E., Snyder, T. D., & Connolly, B. (2005). The impact of degree field on the earnings of male and female college graduates. *Education Policy Analysis Archives*, 13, 1-19.
- [16] Glazer, N. (2003). Nathan glazer explains the Black faculty gap. *The Journal of Blacks in Higher Education*, 40, 80. doi:10.2307/3134053
- [17] Green, A., & Glasson, G. (2009). African americans majoring in science at predominantly white Universities (a review of the literature). *College Student Journal*, 43, 366-374.
- [18] Hamilton, K. (2004). Is there a doctorate in the house. *Black Issues in Higher Education*, 21, 26-29.
- [19] Hanson, S. L. (2004). African American women in science: Experiences from high school through the post-secondary years and beyond. *NWSA Journal*, 16, 96-115. doi:10.2979/NWS.2004.16.1.96
- [20] Haynes, D. M. (2002). History: The missing link in making young scientists and scholars. *Black Issues in Higher Education*, 19, 1-4.
- [21] Herper, S., Rushani, D., & Kaufman, J. S. (2012). Trends in the Black-White life expectancy gap, 2003-2008. *JAMA*, 307, 2257-2259. doi:10.1001/jama.2012.5059
- [22] Hoffer, T. B., Sederstrom, S., Selfer, L., Welch, V., Hess, M., Brown, S., Reyes, S., Webber, K., & Guzman-Barron, I. (2003). *Doctorate recipients from United States Universities: Summary report 2002*. Chicago, IL: National Opinion Research Center.
- [23] Hurtado, S., Cabrera, N. L., Lin, M. H., Arellano, L., & Espinosa, L. L. (2009). Diversifying science: Underrepresented student experience in structured research programs. *Research in Higher Education*, 50, 189-214. doi:10.1007/s11162-008-9114-7
- [24] Anonymous (2008). Black colleges and universities are graduating an increasing share of African Americans who earn Ph.D.s in mathematics and science. *The Journal of Blacks in Higher Education*, 61, 35.
- [25] (2002). No African Americans on MIT's list of 100 leading science and technology innovators. *The Journal of Blacks in Higher Education*, 37, 55.
- [26] (1996). A science degree is the big ticket for black college students. *The Journal of Blacks in Higher Education*, 30-32.
- [27] Kaba, A. J. (2012a). Talented tenth: An analysis of the 2011 root magazine's 100 most influential young Black Americans. *International Journal of Humanities and Social Science*, 2, 1-31.
- [28] Kaba, A. J. (2012b). The exclusion of black women from national leadership positions in the United States: Taxation with limited representtation. *Sociology Mind*, 2, 133-140. doi:10.4236/sm.2012.22017
- [29] Kaba, A. J. (2011a). The status of Africa's emigration brain drain in the 21st Century. *Western Journal of Black Studies*, 35, 187-207.
- [30] Kaba, A. J. (2011b). Explaining the causes of the black-white wealth gap in the United States. *Sociology Mind*, 1, 138-143. doi:10.4236/sm.2011.13017
- [31] Kaba, A. J. (2008). Race, gender and progress: Are Black American women the new model minority? *Journal of African American Studies*, 12, 309-335. doi:10.1007/s12111-008-9043-8
- [32] Kaba, A. J. (2005). Progress of African Americans in higher education attainment: The widening gender gap and its current and future implications. *Education Policy Analysis Archives*, 13, 1-34.

- [33] Kerlin, S. P. (1995). Pursuit of the Ph.D.: " Survival of the fittest. Or is it time for a new approach? Education Policy Analysis Archives, 3, 1-30.
- [34] Kulis, S., Shaw, H., & Chong, Y. N. (2000). External labor markets and the distribution of black scientists and engineers in academia. *The Journal of Higher Education*, 71, 187-233.
- [35] Livingston, A., & Wirt, J. (2004). The condition of education 2004 in brief. US Department of Education, Institute of Education Sciences. NCES 2004-076. <http://nces.ed.gov/pubs2004/2004076.pdf>
- [36] Ma, Y. Y. (2009). Family socioeconomic status, parental involvement, and college major choices— Gender, race/ethnic, and nativity patterns. *Sociological Perspectives*, 52, 211-234. doi:10.1525/sop.2009.52.2.211
- [37] Malcom, L., & Malcom, S. M. (2011). The double bind: The next generation. *Harvard Education Review*, 81, 162-171.
- [38] Marra, R. M., Rodgers, K. A., Shen, D. M., & Bogue, B. (2012). " Leaving engineering: A multi-year single institution study. *Journal of Engineering Education*, 101, 6-27. doi:10.1002/j.2168-9830.2012.tb00039.x
- [39] Massey, W. E. (2003). Education dedicated to black males still relevant. *Network Journal*, 10, 38.
- [40] McKillip, J. (2001). Affirmative action at work: Performance audit of two minority graduate fellowship programs, Illinois' IMGIP and ICEOP. Education Policy Analysis Archives, 9, 1-21.
- [41] Morris, V. R. Joseph, E., Smith, S., & Yu, T.-W. (2012). The Howard University Program in Atmospheric Sciences (HUPAS): A program exemplifying diversity and opportunity. *Journal of Geoscience Education*, 60, 45-53. doi:10.5408/10-180.1
- [42] Mullen, A. L., Goyette, K. A., & Soares, J. A. (2003). Who goes to graduate school? Social and academic correlates of educational continuation after college. *Sociology of Education*, 76, 143-169. doi:10.2307/3090274
- [43] National Center for Education Statistics (1997). Minorities in higher education. Washington DC: US Department of Education Office of Educational Research and Improvement.
- [44] National Science Foundation, Division of Science Resources Statistics. (2004). Women, Minorities, and Persons with Disabilities in Science and Engineering. [NSF 11-309] (Report). Arlington, MA: Academic Institutions of Minority Faculty with Science, Engineering, and Health Doctorates.
- [45] Ong, M., Wright, C., Espinosa, L. L., & Orfield, G. (2011). Inside the double bind: A synthesis of empirical research on undergraduate and graduate women of color in science, technology, engineering, and mathematics. *Harvard Educational Review*, 81, 172-207.
- [46] Perna, L., Lundy-Wagner, V., Drezner, Noah D., Gasman, M., Yoon, S., Bose, E., & Gary, S. (2009). The contribution of HBCUS to the preparation of African American women for stem careers: A case study. *Research in Higher Education*, 50, 1-23. doi:10.1007/s11162-008-9110-y
- [47] Place, A. W., Payne, C., & Rinehart, J. (1996). An investigation of reasons for professional career choice among African-American college students. *Education*, 117, 43-50.
- [48] Porter, M., & Bronzaft, A. L. (1995). Do the future plans of educated black women include black mates. *The Journal of Negro Education*, 64, 162-170. doi:10.2307/2967239
- [49] Pyrtle, A. J., & Whitney, V. A. W. (2008). To attract, engage, mentor and sustain: Outcomes from the Minority Students Pursuing Higher Degrees of Success (MSPHD' S) in earth system science pilot project. *Journal of Geoscience Education*, 56, 24-32.
- [50] School Enrollment in the United States: 2010. United States Census Bureau. URL (last checked 11 January 2012). <http://www.census.gov/newsroom/releases/archives/education/cb12-tps02.html>
- [51] Shipp, V. H. (1999). Factors influencing the career choices of African American collegians: Implications for minority teacher recruitment. *The Journal of Negro Education*, 68, 343-351. doi:10.2307/2668106
- [52] Slaton, A. E. (2010). Engineering segregation: The University of Maryland in the twilight of jim crow. *Magazine of History*, 24, 15-23. doi:10.2307/maghis/24.3.15
- [53] Smith, D. M. (2003). To prove-them-wrong syndrome: Voices from unheard African-American males in engineering disciplines. *Journal of Men' s Studies*, 12, 61-70. doi:10.3149/jms.1201.61

- [54] Solorzano, D. G. (1995). The doctorate production and baccalaureate origins of African Americans in the sciences and engineering. *Journal of Negro Education*, 64, 15-32). doi:10.2307/2967281
- [55] Slovacek, S. P., Whittinghill, J. C., Tucker, S., Rath, K. A., Peterfreund, A. R., Kuehn, G. D., & Reinke, Y. G. (2011). Minority students severely underrepresented in science, technology engineering and math. *Journal of STEM Education: Innovations and Research*, 12, 5-16.
- [56] Sullivan, O. R., & Haskins, J. (2001). *African American Women scientists & inventors*. New York: John Wiley and Sons.
- [57] Table 1 (2012). Enrollment status of the population 3 years old and over, by sex, age, race, hispanic origin, foreign born, and foreign-born parentage: October 2010 School enrollment in the United States: 2010 United States bureau. URL (last checked 11 January 2012). <http://www.census.gov/hhes/school/data/cps/2010/tables.html>
- [58] Table 66 (2011). Statistical profile of doctorate recipients, by race/ ethnicity and citizenship: 2009. Doctorate Recipients from US Universities: 2009. URL (last checked 8 January 2012). <http://www.nsf.gov/statistics/nsf11306/>.
- [59] Thompson, G. L. (1994). Engineering, business majors grow among blacks: But study finds deep disparities between enrollments, degrees. *Black Issues in Higher Education*, 11, 10-11.
- [60] Towns, M. H. (2010). Where are the women of color? Data on African American, Hispanic, and Native American Faculty in STEM. *Journal of College Science Teaching*, 39, 8-9.
- [61] Trusty, J. (2002). Effects of high school course-taking and other variables on choice of science and mathematics college majors. *Journal of Counseling and Development*, 80, 464-474. doi:10.1002/j.1556-6678.2002.tb00213.x
- [62] United States Department of Education (2004). African American parents consider science important part of children's education. URL (last checked 13 February 2005). <http://www.ed.gov/news/pressrelease/2004/03/03162004a.html>
- [63] Williams, B. (2004). Faces of science: African Americans in the sciences. *School Library Journal*, 50, 54.
- [64] Anonymous (2009). Young Blacks Are Beginning to Break Negative Stereotypes of a Racial Deficiency in the Sciences. *The Journal of Blacks in Higher Education*, 65, 36-37.