CMD-it
Center for Minorities and People with Disabilities in Information Technology (CMD-IT)

Fostering Innovations Through Inclusion
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Trend Analysis for Minorities
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Introduction

This report provides an analysis of the trends in the number of degrees awarded to minorities in Computer Science. The focus is on degrees awarded at the level of associates, bachelors, masters, and doctorates. The data covers the period of 2000 through 2009. The data was obtained from two sources. The first source is WebCASPAR (https://webcaspar.nsf.gov/), using IPEDS/NCES (the Integrated Postsecondary Education Data System (IPEDS), which is a survey conducted by the Department of Education's National Center for Education Statistics (NCES), to obtain data for Race and Ethnicity for the field of Computer Science. The WebCASPAR database provides easy access to a large body of statistical data resources for science and engineering at U.S. academic institutions. The data obtained from WebCASPAR allows us to consider trends focused on gender and race/ethnicity. This data is consistent with the data found in the NSF report on "Women, Minorities, and Persons with Disabilities in Science and Engineering" (http://www.nsf.gov/statistics/wmpd/). The second source is the CRA Taulbee reports (http://www.cra.org/resources/taulbee/), with a focus on the data for Computer Science only.

The two data sources have different numbers of U.S. institutions for which data is obtained. For 2009, WebCASPAR included at least 1065 institutions for the associate degree, 1283 institutions for the bachelor's degree, 442 institutions for master's degree, and 97 institutions for the doctorate degree. In particular, the institution counts correspond to those that reported awarding at least one degree at the given level. In contrast, for the 2009-2010 academic year, the CRA Taulbee data is based upon completed surveys from 150 CS Programs. The focus is on the Computer Science degree only because for the WebCASPAR classification variable of "Academic Discipline, Detailed (standardized)" Computer Science is given, but not Computer Engineering.

The graphs can be found as powerpoint slides in the file *Trends Minorities 2011 – GraphNumbers*. Each graph is labeled with **G#**, to aid in identifying the appropriate graph corresponding to the discussion. We decided to include the graphs as powerpoint slides to facilitate the use of the data in presentations. We ask that the presenter acknowledge CMD-IT for the data collection as well as the two data sources, WebCASPAR and CRA Taulbee.

WebCASPAR and Taulbee (Graphis 3, 5, 7)

Bachelor's Degrees: Graphs 3 provides a comparison of the data obtained from WebCASPAR and CRA Taulbee for the bachelor's degree. Given the large difference in the number of institutions included in the two data sources as noted previously (1283 for WebCASPAR versus 147 for Taulbee for 2009), there is a significant difference in the percentages identified by the two surveys, especially for

Black and Hispanic. For WebCASPAR, the percentage for Black is in the 10%-11% range, in contrast to 3%-4% as indicated with Taulbee. In the case of Hispanic, there is some difference in the percentages, with WebCASPAR indicating percentages in the range of 5% to 8% with Taulbee indicating percentages in the range of 3% to 6%. For the case of American Indian/Alaska Native, the percentages are less than 1% for both data sources. Further, it is noted that the Taulbee data indicates a recent decline in the percentage of Hispanic bachelor's degrees in contrast to the WebCASPAR data which indicates a recent increase in the percentage of Hispanic bachelor's degrees.

Master's Degrees: For Graph 5, while the number of WebCASPAR institutions is much smaller for the master's degrees than the bachelor's degrees, there is still a significant difference between the percentages for the Black and Hispanic groups for WebCASPAR versus Taulbee. For Blacks, the WebCASPAR source indicates percentages in the range of 4% to 5.5% in contrast to the Taulbee source, which indicates percentages in the range of 1% to 2%. Both sources indicate a slight decline in the percentages when going from 2008 to 2009. For Hispanics, the WebCASPAR range is between 2% to 3% in contrast to the Taulbee range, which is between 1% to 2%.   Both data sources provide similar trends. For the case of American Indian/Alaska Native, the percentages from both sources are consistently small, less than 1%.

Doctorate Degrees: With Graph 7, which is focused on the doctorate degrees, the numbers are very small from both data sources as the maximum percentage is only 2.80 in 2002.

Trends

The remainder of the analysis is focused on data from WebCASPAR only, as this source includes associates degrees and allows the disaggregation of data by gender and race/ethnicity. Graphs 1 and 2 indicate that the number of associate degrees in Computer Science awarded to the three minority groups are in the same range as the number of bachelor's degrees in Computer Science. For the year 2009, number of associates degrees outnumber the bachelor's degrees for Black (4316 versus 3868, respectively) and American Indian/Alaska Native (293 versus 213, respectively) and is approximately the same for Hispanic (2995 versus 2999, respectively).

Graphs 8 through 19 provide the breakdown in the number of degrees awarded by gender for each group. The data indicate that over the last five years, there is a significant gap in the number of Computer Science degrees awarded for the associates, bachelor's and masters levels, For the case of the doctorate degree, the numbers are very small and the number of women still lags behind the number of men for each group.

Graphs 20 through 31 provide the breakdown of minority women for each degree level for 2000, 2005, and 2009. As the level of the associates degree, the percentage of Hispanic women has gone down from 11% in 2000 and 2005 to 9% in 2009. For Black women, the percentage has gone up from 17% to 21%. For American Indian/Alaska Native women there was a slight decrease from 2% to 1%; it is the case that the numbers are very small which can impact the percentages. At the Bachelor's degree, the Hispanic women went from 7% to 9%; the Black Women went from 16% to 19%, and the American Indian/Alaska Native Women went up to 1%. At the master's level, the percentage of women from the three groups remains approximately flat. This is also the case for the doctorate degrees.