Chapter 3
Minorities in Science

The underrepresentation of ethnic minorities in science has been an issue for many decades and has been exhibited at all levels of the educational pathway, including of course professional science careers, which is not surprising since these careers require the successful completion of educational levels. Thus, if the underrepresentation is seen at K-12, college, and professional/graduate school levels, then underrepresentation has to be exhibited at the career level. Generally this has been referred to as the educational/career pipeline and the absence of adequate numbers along the way referred to as “leaks in the pipeline.” For ethnic minorities, a number of reasons for these leaks have been identified and actually some remedies have been identified as well. Unfortunately this issue has not been enough of a priority for those solutions to have been implemented, very often due to inadequate amount of funding, so the problem has continued. Now, considering the changing demographics of the country, this problem is becoming an even major issue with regard to the scientific workforce and the resultant advancement of science in the future.

Underrepresentation Numbers

The number of individuals from certain ethnicities has long been underrepresented in the sciences, i.e., the percentage of these individuals in the area of science is significantly lower than their percentage in the general population. These groups include Blacks, Native Americans, Hispanics, and Pacific Islanders. Thus, one must recognize that there is a distinction between a minority, which conventionally has been nonwhites due to the white population being the majority in USA, and an underrepresented minority, i.e., URM. As indicated, those groups mentioned above have long been underrepresented at all levels of science, i.e., undergraduate majors, graduates, graduate and health professional programs as well as in the professions, e.g., physicians, dentists, pharmacists, science researchers, the science professoriate, etc. These groups are not only underrepresented but also grossly underrepresented. For example, in 2005, despite Hispanics comprising 14% of the
nation’s population, just 7.5% of the bachelor’s degrees in engineering were earned by Hispanics. Similarly in 2005, Hispanics earned just 7.5% of the bachelor’s degrees in biology, 6.8% in computer sciences, 6.5% in physics, and 5.8% in mathematics. Moreover, considering that Blacks, Hispanics, and Native Americans comprise currently about 33% of the general population, only about 6% of the physician workforce is represented by individuals from these ethnic groups. Another example is in the area of doctoral degrees awarded in the sciences, both life and physical. Of the 9,329 PhDs awarded in 2006 in the fields of science, only 6% were to Blacks, 4.2% to Hispanics, and 0.2% to Native Americans, for a total of 10.4%, again considering that these groups currently comprise more than 30% of the population. Even when one considers total PhDs and not just those in the sciences (Lederman 2007, “A Haven for Minority scholars”), of the approximately 55,000 PhDs awarded annually, only about 5,000 total are awarded to Blacks, Hispanics, and Native Americans (~9% when the total percentage of the population represented by those groups is almost 30% and rapidly growing). In terms of the “pipeline leak” for underrepresented minority students from K-12 through STEM PhD recipients, the data is staggering [CPST, data derived from National Science Foundation (1997) (NSF), WebCASPAR; database, National Center for Education Statistics, Digest of Education Statistics, 2006 and US Census Bureau, Population Division], as the URM numbers go from 35.5 to 5.6%. On the other hand, non-URMs only go from 63.2 to 49.9%! Perhaps even more of a concern is that the numbers for the group identified as Non-US citizens and other/unknown race/ethnicity go from 1.3 to 44.5%, with the number of international applications to graduate school continuing to increase (Redden 2009, “International applications up 4%”; Schmidt 2009, “Doctoral universities pull ahead in competition for foreign graduate students”). Moreover, based on the survey by the Council of Graduate Schools (CGS) where almost 250 institutions responded, not only are these applications rising but also they are showing the largest increases at the doctoral institutions where the largest number of international students is already enrolled. In another example of a focus on international students, David Moltz (2009a) reports in an Inside Higher Ed article (04/08/09) titled “Diversifying Middle America” that officials from the Northern Wyoming Community College district reported on their efforts to diversify their campus. First, it is noteworthy to recognize that nearly 97% of the students who attend the two colleges in that District are white with Native Americans from traditionally local tribes making up the largest minority group and that many of these minorities are there because of its National Junior College Athletic Association sports teams. The bottom line regarding their diversification efforts is that they are focused on attracting international students using their strong transfer history, their inexpensive costs, and their self-branding as “the gateway to the American West” as selling points. Is this “diversifying middle America”? Certainly not in terms of dealing with the underrepresented minority groups in science which are the focus of this book. Interestingly, even with the presence of these international students in Wyoming, incidents have occurred, e.g., a “dark” international student has been stopped five times by police with no citations given! It is obvious that the leaks seen for URMs from K-12 to PhDs in STEM are in stark contrast to
these international numbers and, as such, are significant since, at the same time, the numbers for non-US Citizens are increasing significantly. As for the numbers of underrepresented minorities in the faculty ranks, from the Nelson (2007) “Diversity Surveys 2007”, it was reported at the 2008 CGS meeting by Dr. Daryl Chubin that the numbers of tenured/tenure-track faculty in Top 50 departments, e.g., biology, psychology, chemistry, and mathematics for Black, Hispanic, and Native Americans did not exceed 3.6% (i.e., Hispanics in psychology) and in fact were all in the 1–3% range, whereas for whites, the percentages were all above 80%. In addition, very often differences are seen within the various underrepresented groups, in this case among students graduating, as evidenced by a report by Nealy (2009a) in Diverse Issues in Higher Education online (3/19/09). In that article, the University of Maryland discusses goals for closing the racial graduation gap as Black students are graduating at lower rates than white and Hispanic students. Specifically, only 40% of Black students earn a degree within 6 years of entering college compared to 65% of all students and 70% of Hispanics. Even more troublesome is the fact that the disparity between Blacks and Hispanics has grown 10% (15 vs. 25%) over the past 3 years. Although Chancellor Kirwan states that Maryland is not unique in this area, and the article goes on to cite low retention rates in the state’s historically Black institutions, I personally find it troublesome when high profile institutions such as the University of Maryland seem willing to compare themselves with others in an area such as this, i.e., Black graduation, while striving to be the absolute best in most other academic areas. In fact, a personal example of this was when I was testifying for a minority medical student who had filed suit for being dismissed from the University of Michigan. In response to one of my answers about the university’s commitment to retention of minority students, the prosecuting attorney stated that those numbers were similar to other universities around the country. I replied “but does not the University of Michigan strive to be the best and is not usually satisfied to be “like the others”? So why are they willing to be just like other universities in this area”? As with most issues, it becomes a matter of priority and for many institutions, particularly majority universities, for many years, inclusion of minorities has not been a high priority. Another example of that is the University of Wisconsin which developed a diversity plan to increase the racial and socio-economic diversity at its 26 college and university campuses, i.e., Plan 2008 (Journal of Blacks in Higher Education 2009a). The university a decade later admits that it “came up short of its goals” in that minority student enrollment went from 8.1 to 10.1% during those 10 years and also the graduation gap between Black and white students actually widened during that time to a current level of 23% points. One has to ask if other plans to improve the University failed as poorly, i.e., prioritization. They announced that a new diversity plan would be unveiled in Spring 2009. As still another example, the University of New Hampshire, after almost a decade spent recruiting and building a support base for minority students, remains a very White school in a very white state (Associated Press 2009a, “University of New Hampshire makes progress in increasing diversity”). The efforts to increase diversity were based in large part by a sit-in by students in 1998 demanding more diversity. Part of the objectives agreed to then was that there would be 300 Black
students by 2004 and 10 Black tenure-track faculty by 2003. As of 2008, there were 197 Black undergraduates and eight Black tenure-track faculty members. Thus, as was seen with the University of Wisconsin, the “diversity” Plan did not work. Similar to Wisconsin, one of the reasons, in addition to the possible lack of prioritization of this objective within the institution, could be the environment as New Hampshire as a state is 95.5% white.

Causes for the Pipeline Leaks

The underrepresentation of minorities at all stages of the pipeline clearly represents a major concern, especially when one recognizes that with the changing demographics, a significant percentage of the K-12 population is represented by minorities. And, as mentioned, these leaks are not confined to one ethnic group. For example, in Texas where Hispanics are the fastest growing ethnic group, making up about 36% of the population, Hispanic students are falling behind educationally at an alarming rate. In fact, high school graduation rates and college enrollments for Hispanics lag behind those for both whites and Blacks (Associated Press 2009b, “Hispanic students lag in college admission”). In that article, it stated that only 68% of Hispanics in Texas graduate from high school in 4 years, which is 10 points below the overall rate, and just 42.5% of those who graduated in 2007 enrolled in college or technical training. As such, the leak in the pipeline between K-12 and college represents perhaps the most troublesome one of all as the “pool” is most assuredly there. Fixing this leak requires substantial changes in the K-12 system, relating all the way back to the Brown versus Board of Education issue of “separate but equal.” And, perhaps now, the current economic crisis is the time to “fix the system.” Jack Schneider (2009) from Stanford University wrote in USA Today (4/9/09) that perhaps now is the time to tackle education funding once and for all. He stated that just like at the time of the great Depression, school funding is dependent heavily on local property taxes, an inequitable funding formula that disadvantages the neediest children. As such, he pitches equal school funding, i.e., use federal aid to schools not only as a bailout but also as a means for encouraging them to create more equitable funding formulae. This would also require improved management and budgeting based on results but it could accomplish what President Obama wanted when he stated “The source of America’s prosperity has never been merely how ably we accumulate wealth but how well we educate our people.” Addressing this leak in the pipeline does not to take anything away from the importance of the leak in the pipeline at the faculty level but those numbers at the faculty and professional ranks will be discussed more in Chap. 8. It is important to point out at this point that regardless of why the numbers are so low, it is the fact that the numbers are low that presents many of the difficulties experienced by minorities at all stages of the pipeline. i.e., being in an isolated situation is not favorable for survival, let alone success and that is what ethnic minorities have experienced in academia and the sciences for many years. As a result, the numbers
are extremely slow to increase and, with that, less people are available to provide support and mentoring for the others. At the undergraduate level, this has been the reason that Historically Black Colleges and Universities (HBCUs) were established and not only have remained but also have been most successful over the years (Burrelli and Rapoport 2008, “Role of HBCUs as Baccalaureate-Origin Institutions of Black S & E Doctorate Recipients”; Hannah 2009a, “Are HBCUs Still Relevant”; Nealy 2009b, “Education Secretary Duncan: HBCUs as relevant today as ever”), despite the fact that many have suffered from inadequate fiscal resources, especially when compared with Predominately White Institutions (PWIs). This problem of resources at HBCUs was addressed in an article by Errin Haines from the Associated Press, particularly in light of the economic woes of the country in 2009 (Diverse Issues in Higher Education 2/16/09). In the article, Haines focuses mainly on HBCUs which have traditionally been somewhat more financially sound than others, e.g., Morehouse, Spelman, Howard, and Hampton. Even in these cases, decreases in the amount of tuition due to losses in enrollment, coupled with less donations, have caused, in some cases, the phasing out of programs or schools as well as layoffs of staff as in the case of faculty of Clark Atlanta. Despite this, individuals quoted in the article such as Drs. Michael Lomax, UNCF President and John Franklin, Morehouse President are optimistic that the HBCUs will survive and flourish, especially based on their histories, and also on the fact that the HBCUs have always been segregated but not segregating (Rivers 2009, “HBCUs: Segregated but not segregating”). This is important to note since segregating institutions were, as defined by Dr. King, an instrument used by one race to uphold its political, economic, and/or social dominance through methods that work to the detriment of other races whereas a segregated institution is a body that is adversely affected by those policies. Another major impact of the economic downturn was seen with the announcement by the UNCF at the top of their Web site “The recession is hitting UNCF colleges hard. Hundreds may not graduate this spring,” as reported by Stuart (2009) in Diverse Issues in Higher Education online (4/9/09). The UNCF, the usually somewhat low-key supporter of 39 of the nation’s private, HBCUs is trying to raise as much as $5 million quickly so students ready to graduate in Spring can do exactly that. Dr. Lomax stated that he was confident that the organization could do it using emergency campaigns as well as corporate donors who have been long-time UNCF supporters. Still this represents another economic situation for education and, in particular, Minority Serving Institutions (MSIs). On the positive side of possible financial support of MSIs, the Lumina Foundation announced that it is requesting proposals for its Minority-Serving Institutions – Models of Success grant program (Staff 2009, “Minority-serving institutions called to serve as leaders in student retention”). The Foundation, recognizing that about one-third of all American students of color are educated at MSIs, which translates into almost 2.3 million students, states that these institutions “can serve as leaders in a national effort to improve college attainment rates.” In direct comparison and contrast to funding at MSIs, many of the PWIs are research institutions and, as such, have access to many more financial resources.
Regardless, students from these institutions as well as other Minority Serving Institutions (MSIs) such as Hispanic Serving Institutions (HSIs) and Tribal Colleges are faced after graduation, in most cases, with once again, being much more isolated at an institution where they indeed represent the minority population. This is a major contributing factor among others why attrition is higher in these postbaccalaureate programs for women and minority students, despite a number of reports on the successful retention of minority students in PhD programs, e.g. Anderson 2008a, University of Texas program demystifies graduate school for minority students; Evans 2008, Mentoring magic: How to be an effective mentor-tips from two highly successful principal investigators; Glenn 2008, What universities can do to graduate more minority PhDs; Lederman 2008, Who produces Black PhDs? For those who do successfully make through these programs they are still faced with an isolation phenomenon in that the number of minority faculty members and health professionals, as mentioned above, come nowhere near those numbers that they experienced at the MSI or even their numbers in society. As such, they tend to congregate for support and to avoid the isolation, only to be labeled as segregationists. This is discussed in a most cogent way in the book *Why are all the Black kids sitting together in the cafeteria?* by Beverly Daniel Tatum (1997). Basically she states that this phenomenon is really not any different than the White kids or Asian kids who gather with others like them. Also, director John Singleton makes this point very well several times in the movie *Higher Learning*, which has its setting in an institution of higher education. The point is why does this seem to be a problem only when Blacks choose to do this? Still, despite the obvious reasons that this occurs and also despite the fact that it is most positive for those students involved as it strengthens their self-confidence and self-esteem, a recent article reported on a study that did show that “affinity groups” such as these can create more racial tension on campuses (Nealy 2009c, “Do affinity groups create more racial tension on campus?”). In fact, in the book *The Diversity Challenge: Social identity and Intergroup Relations on the College Campus* by Sidanius et al. (2008), the authors conclude that “intergroup contact reduces ethnic tension and increases in friendship across ethnic lines.” Of course, at the same time, one still has to consider the very positive aspects of these affinity groups, particularly for those individuals who are part of these groups because they are in the minority within the environment. One possible solution to addressing this is to maintain the affinity groups but at the same time have the institution work to increase the interactions among the groups, thus allowing their independence but at the same time some interdependence upon one another. This is in contrast to an Arizona Legislative Committee which through an amendment of a state homeland security bill tried mandating the end of any such groups on campuses in their state. The result of an action such as this would be even more isolationism for the groups most affected leading to even more uncomfortable and unwelcoming environments (Metzler 2008, “Perspectives: Banning affinity groups shows lack of understanding”) and using the banner of “diversity actions” for justification. Like all issues dealing with ethnic differences, serious efforts must be made to recognize the strengths of the differences and also to resolve problems attributable to the differences. This is particularly the case for those groups that are
not well represented, such as certain ethnic minorities, and not just Blacks but for other underrepresented groups such as Hispanics and Native Americans as well. For example, in an article by M.J. Nealy, the life of a Native American on a PWI is chronicled (Nealy 2009d, “Chronicling the lives of Native Americans on Predominately White campuses”). From the article, it is seen that many of the same problems and concerns exist on these campuses for other ethnic minorities who too have been long underrepresented. In fact, it is not just about racism and ethnic minorities but also, as discussed in a *Diverse Issues in Higher Education* online article by A.R. Ford, about “ableism” or persons with disabilities (Ford 2009, “it’s not just about racism, but ableism”). Mr. Ford, a Black man with a disability (muscular dystrophy), is a PhD candidate at the University of Pennsylvania. In the article, he discusses the issues that he has dealt with because he is a Black man in society and in academia but also states that there are times when his disability creates an “otherness” that overrides that due to his Blackness. As such, he believes that ableism should be viewed as a form of racism, even though he acknowledges that in many contexts intolerance that occurs against persons with disabilities is more permissible or palatable than racism based on color. Personally I can attest to that based on a statement made by an established scientist who was part of a committee for a national scientific organization. When the issue of the need for handicap facilities was brought up in a joint discussion with the Diversity committee, which was addressing disabilities as one of their emphases, the person said that “individuals who need facilities to accommodate their disability should not be in the laboratory or science. Why modify laboratory facilities to accommodate them?” Please note that this person was part of a committee for a national scientific organization that had close to 100,000 members world-wide, only serving to emphasize the concerns expressed by Mr. Ford. Also, it is interestingly but unfortunately not surprising, that the underrepresentation occurs in other disciplines besides science and although it is not the emphasis of this book to discuss these in detail, an article really brought this fact forward (Porro 2009, “Reviving the great debaters tradition”). This article discusses the fact that despite the success that the HBCU Wiley College had in the 1930s, which was actually chronicled in a movie “The Great Debaters,” there were no HBCUs represented at the 2009 National Debate Tournament Championships (NDT), which is chartered and sanctioned by the American Forensics Association. Furthermore, the vast majority of the teams which were participating did not have a single Black debater. Again, although this is not a “science discipline,” the lack of Blacks and HBCUs participating in the NDT demonstrates that an important source of leadership training is missing, one that directly ties to future Black executives for corporations, nonprofits, and government. It is all of these and, in particular, the latter, i.e., government, that plays a critical role in science by way of policy making, funding, and regulations. Still another example of an underrepresentation that is not in the sciences but is due to the same reasons as the low numbers in the sciences is that of law. As reported in *Diverse Issues in Higher Education* online (Warfield 2009,
“Perspectives: meeting the standards, not lowering them”), a recent law school graduate of color points to the availability of preparatory tools as the reasons that the numbers lag behind. Specifically, as cited also for those students of color, the author indicates that concentrating on mentorship, standardized test preparation, and critical reading/analysis skills during high school and college will vastly improve the law profession at all levels, i.e., admittance, retention, and employment. In fact, the author cites specifically the lack of preparation of students of color to “navigate the Law School Admission Council system, how to write effective personal statements, and how to prepare for the LSAT exam,” which parallel almost exactly the problems that minority students in the sciences face at the graduate and professional school level. As he states, it is not a case of “pulling themselves by their own boot straps” as there are no straps. He goes on to recommend that similar efforts must be made to offer the same type of mentorship and guidance that is available for athletes, e.g., summer camps, sponsorship, mentoring, and tutorial programs. Finally, it is stated that “mentorship by academic and legal professionals will serve students of color much more than lowering the standard to be achieved”. An example of such a program for the law profession is that of the City of New York School of Law’s Pipeline to Justice Program (Hunt 2009, “Changing the face of the legal profession”). The aims of this program are exactly what is needed to address the issues raised in the previous article and, for that matter, to address similar issues in the other professions, e.g., medicine, so as to truly effect a change in diversity of the profession. This program has two main goals (1) to prepare law candidates to retake the LSAT and succeed in law school and (2) to allow students from diverse and underrepresented backgrounds a chance to enter the legal profession and serve their communities. These goals are accomplished through intensive practice test taking by the students and dedicated mentoring by the faculty. In addition, the administration of the program has taken on this responsibility most seriously, as evidenced by the comments of Dean Michelle Anderson. She states that “The Pipeline to Justice is making a terrific impact in terms of enhancing access to the profession. As gatekeepers to an overwhelmingly white profession, law schools have a responsibility to help the profession become more representative. [They] have to graduate students from [underserved] communities to move our country forward.” Associate Dean Mary Lu Bilek agrees, stating “Society does not need more lawyers; it needs more lawyers who believe in justice, who understand the needs and concerns of communities that have been neglected or worse, and who understand the power and promise of those communities to move our country forward.” Thus, whether it be science or law, the role of mentorship and individualization of efforts is crucial for the preparation of minorities for the next stage of their education and for their ultimate professions.

At the same time, despite the strengths and advantages of HBCUs and other MSIs, a recent data analysis from 83 federally designated 4-year HBCUs showed that only 37% of their Black students finish a degree in 6 years, which is actually 4% lower that the national college graduation rate for Black students. Most relevant to the issue of the shortage of Black men is the fact that just 29% of HBCU males complete their degree in 6 years. Granted, some schools such as Howard and Spelman have much
higher graduation rates, certainly better than the national average, but many do not. For example, at 38 HBCUs less than 25% of the Black men who began college in 2001 had graduated by 2007! (Pope 2009a, “Under a third of men at Black colleges earn degree in 6 years”; Pope 2009b, “Men struggling to finish at Black colleges”). For some HBCUs, the figures were less than 10%. There are a plethora of possible reasons for these numbers. Walter Kimbrough, President of Philander Smith College in Little Rock, AR, puts the blame squarely on the HBCUs themselves, stating that they have become lazy and no longer offer the same type of nurturing, caring, “the President knows you” that was their trademark 40–50 years ago. As a result of his perspective on this problem, President Kimbrough was instrumental in establishing mentoring programs for men on the Philander Smith campus, programs which actually also actively recruited the students to the programs. Additionally, it is President Kimbrough’s belief that since many of the men come to campus with the idea that they should not ask for help, the answer is for the institution be more intrusive. Graduation rates have indeed gone from the teens to near 30% as a result of these collective efforts. Other reasons, in addition to the reluctance to ask for help, and which have been mentioned already, some of which are not unique to HBCUs, include (1) the lack of role models, (2) lack of preparation, and (3) finances. The last one is of special importance since the lack of sufficient resources and facilities is all too characteristic of many HBCUs and, as such, contributes significantly to this problem. As an example, Philander Smith is not a campus with significant resources but at the same time is relatively small in terms of student numbers and as a result can give more attention to the individual student. Still, as stated throughout, money and financial support is critical and a school like Philander Smith is hit hard by the problems as cited above that the UNCF is experiencing. At the same time, a school like Philander Smith is certainly “eligible” to submit a proposal to the Lumina Foundation for funding as a Model of Success institution (Diverse Staff 2009, “Minority-serving institutions to serve as leaders in student retention”). The difficulty that a school such as Philander Smith has, as well as most other MSIs, in submitting grants is the lack of research infrastructure and faculty time. Most faculty members at MSIs teach an equivalent of four courses per semester and when that time/effort commitment is combined with the lack of research infrastructure as a teaching institution, it is difficult to prepare grant submissions even when the agency has specifically identified their institution as the type for funding. Once again this goes back to monies as both “release time” and the development of a research infrastructure depend upon resources. As a personal note, I presented a career development seminar at Philander Smith in 2009 and did find a very active engagement of Black males at that time.

**Shortage of Mentors**

Directly related to the scarcity of the numbers is of course the lack of mentors which obviously has a very detrimental effect on the retention of the individuals at all stages of the pipeline (Bass et al. 2008, The University as a mentor: Lessons...
learned from UMBC Inclusiveness Initiatives; Evans 2008, Mentoring magic: How to be an effective mentor, tips from two highly successful principal investigators; Fain 2007, Still young enough to be hungry; Glenn 2008, What universities can do to graduate more minority PhDs; Lederman 2008 Who produces Black PhDs?; Monastersky 2006, Brief intervention improves achievement of students subject to negative stereotyping, study finds; Nealy 2008a, New report highlights schools that make minority student success a priority; Yue 2008, Bonds to faculty help keep Latinos in STEM majors. To that point, in a recent article in *Diverse Issues in Higher Education*, Dr. Ansley Abraham (2009) sees the increased enrollment of Blacks and Hispanics as an opportunity for junior faculty to mentor minority students to graduation and into the faculty ranks. To do this, however, he promotes the training of young minority faculty members in the area of mentoring through groups such as the Southern Regional Education Board (SREB) – State Doctoral Scholars Program as well as the Compact for Faculty Diversity’s Institute on Teaching and Mentoring (2008). At the same time, he recognizes and states that the depth of the problem in that if every one of the Black, Hispanic, and Native American students who received a PhD in 2006 chose an academic career, there would still not be enough candidates to ensure that every college or university in the country could hire just one minority professor! Unfortunately, very often possible solutions or at least efforts in an area such as this are only made after a situation has surfaced as in the case of Massachusetts Institute of Technology (MIT) and the case of James. L. Sherley. In 2007 Dr. Sherley began a hunger strike outside the Provost’s Office alleging racism in his tenure denial. At the time only 27 of MIT’s 740 tenured faculty were Black, Hispanic, and Native American (that is 3.6%). Dr. Sherley, despite various efforts after the strike, including an EEOC investigation, the breaking of ties with MIT by Frank Douglas, a Black professor and Bernard Loyd, a Black former trustee and a letter authored by 11 MIT faculty members outlining a number of problems with the case, never did receive tenure (Hennick 2009, “Creating a sustainable pipeline”). Although Professor Douglas was not a signer of the letter, from his interactions with other faculty, he was quoted as saying “what I discovered…is that many of the young (minority) faculty were unsure as to how they would be evaluated and what type of career they would have.” This is similar to the results of recent articles that discuss the issues that young minority faculty raised regarding tenure and their positions (Jaschik 2008, “Racial Gaps in Faculty Job Satisfaction,” *Inside Higher Education*; June 2008 “On the road to tenure, Minority Professors report frustrations,” *The Chronicle of Higher Education* 12/5/08). As a result of this case and the surrounding events, the institution (MIT) indicated a commitment to ensure a welcoming environment for faculty of color and as of 2009, 34 faculty of a total of 767 are underrepresented minorities (4.4%). This commitment included the establishment of new positions that focus on faculty and staff diversity, including two associate provosts for faculty equity, as well as other initiatives including an event called the Diversity Leadership Congress which brought together administrative, faculty, and student leaders. In response to this and the other efforts, including a new Diversity Web site (Journal of Blacks in Higher Education 2009a, b, “MIT debuts new diversity Web site”) directed toward more
minority faculty at MIT, the overall objective, as stated by the Provost, is to focus on creating a “sustainable pipeline” rather than to be as concerned with the current numbers. There is no question that a sustainable pipeline is critical in making a difference and time will only tell whether this indeed happens at MIT. Regardless, despite its outstanding ranking among top institutions in the country in the area of science and technology, MIT is not able to claim leadership on issues of diversity. Unfortunately, this is in no way unique to MIT but rather, in general, there continues to be a continuing racial shortfall in tenure rates. Other examples, i.e., Duke, Harvard, Michigan, and Virginia Tech were included in an article entitled “Whatever happened to all those plans to hire more minority professors” which appeared in The Chronicle of Higher Education, written by B. Gose (2008). As with MIT, the successes of these outstanding institutions with regard to minority faculty recruitment ranked nowhere near their top rankings with regard to such things as research, funding, etc. In fact, some of the successes that Virginia Tech had seen earlier, due in large part to the commitment of an Associate Dean, who had since left, were affected negatively due to a “reining in or elimination” of some of the tactics that had worked. More recently, even the existing diversity language at Virginia Tech, relative to tenure and promotion, has now been challenged by the Foundation for Individual Rights in Education (Wilson 2009, “Critics challenge diversity language in Virginia Tech’s tenure policy”). As a result, the ground that had been gained by at least one university that had instituted some successful tactics was lost and may not be regained. And, as we discuss later in Chap. 8, concerns about tenure with minority faculty are paramount, especially considering the paucity of underrepresented faculty in general and at the tenured stage. For example, The Journal of Blacks in Higher Education (2009d) reported data from the Department of Education showing that in 2007 Blacks made up 3.4% of all full-time faculty members at degree-granting institutions in USA. And, of all tenured faculty members, the number of Blacks was 4.6%; however, that number of tenured Black faculty only represented 35% of the full-time Black faculty as compared to 44.6% of all white faculty who had tenure. Dr. Metzler provides some interesting perspectives on the tenure process as it related to minority faculty (Diverse: The Academy speaks, Metzler 2009, “The case against cultural standardization in tenure decisions”) which will be discussed in Chap. 8.

Impact of Antiaffirmative Action

Moreover, this is not a new phenomenon; in fact, efforts have been directed toward addressing this issue for many years, e.g., two of the major federal funding sources, i.e., the National Institutes of Health (NIH) and the NSF have had a number of designated programs for addressing underrepresentation for many years. In addition, a number of private foundations have also provided support for many years to address this disparity as well, e.g., Sloan, Gates, Ford, etc. Although these programs can be deemed successful, they have only scratched the surface with
regard to the total numbers, which is particularly significant with the current changing demographics that USA is facing. The persistence of this problem is of course due to a number of factors, including the lack of educational access and preparation, institutional racism, cultural issues, and attitudes against “affirmative action,” especially in recent years. These efforts by a number of groups, e.g., Center for Individual Rights and Center for Equal Opportunity have indeed decreased the numbers, and effectiveness, of minority-targeted programs, that as mentioned, had been successful over the years. Major examples of the results of actions by these groups include Prop 209 (CA), Prop 2 (MI), and similar actions in Texas and Washington. However, some changes have begun to be seen even with this movement, as evidenced by the decision by the California appellate court to uphold a school assignment diversity plan that was instituted in Berkley, CA (Matthews 2009, “Perspectives: a win in the diversity column”). In this case, it was decided that the plan did not violate Prop 209 since it considered the racial makeup of the neighborhoods, not the characteristics of the individual students. As a note at this point, it is interesting that other examples of targeted admissions programs, such as legacy, i.e., a relative previously attended the institution and athletic recruitment have not been attacked, or even challenged, as to their “fairness” such as has been the case with those programs that have targeted individuals that have been traditionally underserved and almost excluded in areas of education such as science. Perhaps that has been due to the fact that the groups that have supported preferences such as legacy, but attacked the minority programs, have quite often been members of those former groups and therefore had the “privileges.” An excellent source for such discussions is the book, Color and Money by P. Schmidt (2007). Interestingly, it has now reached a point where at least one school has decided to have an “orientation for whites” (Jaschik 2009a, “Orientation for whites”). Mount Holyoke College plans this year to start a special session for white students as part of a new orientation program titled “Promoting Intercultural Dialogue and Creating Inclusion.” There are mixed feelings about this as some believe that it will lead to more dialog between minority and white groups whereas others believe that it will lead to more segregation. There is no question that more dialog is necessary in the area of minority issues, especially relative to white privilege. Time will tell if this orientation for whites experiment works to accomplish that as currently it seems to be the only program like it in the country. Regardless of what programs exist, the one parameter that most often determines success vs. failure in almost all efforts is money, whether it is at the governmental level, at an institutional level, or at a personal level. Unquestionably, a major part of the difficulty in addressing this problem is that there has just not been enough funding directed toward these programs to adequately address the gravity of the problem, when considering the total numbers. Unfortunately until that changes, the type of changes that are needed will continue to be delayed, if not totally thwarted. As a positive step in that direction, the earmarks as part of the economic stimulus package under President Obama include HBCU historic preservation monies as well as specific designations for HBCUs, HSIs, and Tribal colleges. Moreover, these funds are in addition to monies that are provided for Department of Education programs such as TRIO, GEAR UP,
and K-12 Title 1 (Dervarics 2009, “Earmarks helpful for minority-serving institutions struggling in tough economy”).

Financial and Racism Considerations

Interestingly, the link between access to education and financial considerations is quite direct. For example, we know that despite the Brown v. the Board of Education decision, education in our country still represents a most segregated institution. Why? Public schools are supported by taxes and, as such, schools in well-to-do communities are going to have better facilities and often better teachers than schools in more financially deprived neighborhoods, which are very often either urban or truly “rural.” And, more often than not, ethnic minorities often attend schools with less funding and resources; hence the basis for disadvantaged and underserved individuals, often both financially and educationally. Additionally, the relationship between “social class and college readiness” is significant and discussed in an article by Patrick Sullivan (2009) in *Academe Online* 1/20/09 entitled “An open letter to ninth graders.” As that issue relates to this text, unfortunately in addition to not usually being as “college ready” due to both their K-12 experiences and lack of exposure in the home, these students often also do not have access to mentors as those from the well-to-do schools, i.e., often lacking both natural and planned mentoring. This issue is one that our society must address by making education a higher priority; one that will allow for equity and equality regardless of the financial status. However, in the meantime, it is essential for those students to have access to mentoring by any means necessary. Individuals as well as groups (such as those mentioned in Chap. 2) help to serve this purpose. This carries over directly to the advice that the NSF got from Hispanic Serving Institutions (HSIs) through the Hispanic Association of Colleges and Universities (HACU) in response to the question of how to tackle the dearth of Latinos in the science, technology, engineering, and mathematics (STEM) fields. The message was clear, as stated in the article in *Diverse Issues in Higher Education* 3/2/09 by Branch-Brioso (2009), i.e., “pay Hispanic students to do research or you will never get them, and keep them, in STEM fields, as they are working class students and need the financial support.”

The inequality that is displayed in education represents an aspect of institutional racism that too has to be addressed in our society, whether the institution is a university, a corporation, a government agency, or the local supermarket. There are certain state and federal guidelines to prevent discriminatory behavioral actions; however, there has to be accountability for these guidelines and policies to be enforced and in recent years the number of these cases handled by the Office of Civil Rights (OCR) had fallen precipitously, despite a significant increase in job discrimination claims filed with the EEOC in 2008 (Hannah 2009b, “Job discrimination hits record high: is economy to blame?”). Perhaps with the struggling economy, there is a movement to acknowledge more biases associated with the job, only time with tell if these translate into OCR claims. Regardless, this issue of racism
and discrimination can still continue to be addressed individually through mentors who choose to identify and mentor those students who traditionally do not have ready access to mentors. In doing so, these individuals, especially those who are not minorities, help to address the racism, not only at the level of the individual student, but also, institutionally, by recognizing the importance of different cultures. Ultimately it will take these efforts in combination with those of offices such as OCR and EEOC to truly make the difference needed.

Role of Community Colleges

It is significant at this point to discuss the role that community colleges are playing in the educational pipeline, especially for minority students. Historically, community colleges had a poor reputation, i.e., students went there because they could not get into 4-year institutions or they only wanted to learn a trade or they wanted to play athletics. This is not to say that some enrollees did not go to community college for those reasons; however, there were many other very good reasons that students chose community college, such as lower costs, academic strengthening, and geographic convenience. For these, as well as other reasons, community colleges as a group represent the most ethnically diverse educational institutions in the country. For example, 47% of Black and Asian students, 55% of the Hispanic students, and 57% of the Native American students are enrolled in the almost 1,200 community colleges across the country (Waiwaiole and Noonan-Terry 2008, “Perspectives: Need to equip, prepare community college faculty has never been greater”). Moreover, the diversity at community colleges extends into other areas, e.g., 47% receive financial aid, 59% are women, 29% are the first in their family to attend college, and 50% of the part-time students work full time. Also very importantly, 42% are enrolled in at least one remedial reading class. An additional factor that is to be considered with regard to community colleges and the educational future of USA is the anticipated boom in “baby-boomer students” (Hoover 2009, “Community colleges anticipate boom in baby-boomer students”). At the American Association of Community Colleges 2009 annual convention, Mary Sue Vickers, the director of the Plus 50 initiative, told the convention attendees that community colleges must do more to engage older students and prepare them for jobs. In fact, this initiative is a 3-year project that was designed to create and support programs for adults over 50 at 15 community colleges, and despite the fact that a high percentage of community colleges surveyed had offerings specifically for older students, only a little over half of those had work-force training and career-development services tailored specifically for them. As a result of this survey, the Director stated that “society’s ideas about aging have not kept pace with reality or with how baby boomers see themselves.” Statistics support this statement as the Bureau of Labor Statistics projects from 2006 to 2016, the number of workers aged 55–64 will increase by 36.5% while the number of workers who are 65 and older will increase by 81%. Along with this from the community college perspective comes the
marketing issues as putting a photo of an 18-year old on a community college brochure is not a good recruitment tool for someone who is significantly older than the person in the brochure, i.e., community colleges have to produce more relevant and effective recruitment materials. Another example of how community colleges are meeting the needs of society is the rise in distance education enrollments. At the 2009 annual meeting of the American Association of Community Colleges, it was reported that distance enrollments grew almost 30% in the past 2 years with the concern that these types of increases could not be sustained indefinitely, i.e., funding of these programs (Jaschik 2009b, “Rise in distance enrollment”). This concern may be exacerbated by the fact that funding in general is becoming more and more limited plus the announcement by the Sloan Foundation that it is closing its online-education grant program, a program that has funneled approximately $80 million since the early 1990s (Parry 2009, “Sloan foundation ends major grant program for online education”). Once again it is observed that funding represents the critical requirement for ensuring that the education process is successful, in this case at the community college level. This was in fact a topic of major discussion not only by a panel of “first” presidents at the 2009 American Association of Community Colleges meeting but also throughout the conference as community colleges have to “get on board” relative to fund raising just as 4-year institutions have done over the years. Finally, with respect to community colleges adapting to the needs of society, a number of unemployed are now seeking training for “green collar” jobs, such as installing solar panels, repairing wind turbines, and other work related to renewable energy (Chea 2009, “Unemployed seek training for ‘green collar’ jobs”). To respond to this demand, community colleges are using monies from the federal stimulus package. As examples, Palm Beach Community College in Florida is offering a new associate degree program focusing on alternative energy sources, while Central Carolina Community College in North Carolina has long wait lists for green building and renewable energy classes. In Michigan, which has been hit as hard as any states with regard to the economic downturn, Lansing Community College has seen an enrollment growth in its alternative energy degree program from 42 students in 2005 to 252 students in 2008. As a most positive note, with the current recognition of community colleges as an integral part of postsecondary education and the support throughout President Obama’s administration, it is hoped that sufficient funding will be identified to fund the needs of the community colleges, especially as they make the necessary adjustments to meet society’s needs.

Unquestionably, community colleges represent a critical step in the educational pipeline, especially for minority students. As a result, a number of efforts have been directed to facilitate, improve, and in some cases revamp community college education. Examples include President Obama laying out a community college plan in his campaign (Associated Press 2008a, “Obama lays out community college plan at campaign stop”), a community college working with the community unemployment issue (Miranda 2008, “How one community college gave displaced factory workers the confidence to enroll”), the relationship between community colleges and the economy (Ashburn 2008a, “Community colleges are key to shoring up the US economy, report says”; Associated Press 2008c, “Weak economy
spurs growth for community colleges”; Associated Press 2008d, “Gates foundation to invest in community colleges”; Jaschik 2008d “Gates Foundation to spend big on community colleges”) as well as other efforts to promote community college enrollment (Associated Press 2008e, “Wisconsin officials consider community college baccalaureate plan”; Jaschik 2009c, “Morphing community colleges”; Pluviose 2008, “More high-achieving students are choosing community colleges first”; Nealy 2008b, “New study looks at retention in community colleges”; Anderson (2008a), “Philadelphia program offers free tuition for community college students near degree completion”; Goodall 2009, “Bridging the gap from GED to community college student”). Furthermore, *Diverse Issues in Higher Education* developed a partnership with the National Institute for Staff and Organizational Development (NISOD), which is a consortium of more than 700 community colleges to provide a monthly column focused on community college issues. Also, with this emphasis on community college education, problems that had been seen such as student isolation/fear in a new surrounding plus miscellaneous administrative hassles have been addressed through various efforts (Ashburn 2008b, “Fears and Administrative hassles deter community-college students in their first term, they say”). Another example was a result of the Survey of Entering Student Engagement (Sense). In this case, a call to meet new students at the front door represented a straightforward solution (Sander 2008, “At community colleges, a call to meet new students at the front door”). In another case, the combined efforts of the Community College Survey of Student Engagement and the NISOD resulted in the attainment of student data that was then used to address issues regarding the students’ community college experience (Arnsparger 2008, “Student input helps community colleges improve overall excellence”). In still another case, using the Posse Foundation success model of peer studying as a basis (Reynolds 2008, “Riding into college with your posse”), the nonprofit research organization MDRC tracked the progress of freshman at Kingsborough Community College of CUNY and found that taking courses as a group helped these community college freshman succeed (Supiano 2008, “Taking courses as a group helps community college freshman succeed, study finds”). Still other reports demonstrated that mentoring programs help keep students engaged (Hayes 2008, “Community college mentoring programs help students stay engaged”) and that Black students are among the most engaged in community colleges (Nealy 2008c, “Report: Black students among the most engaged at community colleges”). Recently, Dickinson College, in Pennsylvania, developed a comprehensive transfer partnership with four local community colleges that goes much beyond the typical articulation agreement (Moltz 2009b, “New approach to community college transfers”). With this new initiative, if transfer students meet the academic criteria, e.g., 3.25 GPA, they are provided a merit scholarship, i.e., $10–15k, in addition to any need-based aid that they qualify for. For students early in their community college experience, an interest in Dickinson is “rewarded” by advising, counseling, and visits to the campus. Because financial support is a major component of this program, it is expected that it will increase not only the successful transfers but also the diversity of the transfers. The bottom line from all of the efforts cited is that attending a
community college can be a most positive component in a student’s educational pipeline, especially if there are good reasons for doing so.

And, as mentioned, for the under-represented ethnic minority students there often are such reasons, including the economic situation in the country in 2009. This “recession” is responsible for sending even more students to community colleges (Tirrell-Wycoski 2009, Diverse Issues in Higher Education, “Recession sending more students to community colleges”). In this article, the author cites the fact that the average annual cost of community colleges is $2,402, whereas it is $6,585 for tuition and fees for an in-state resident at a public 4-year institution and $25,142 for a private 4-year school. Also, in response to the economy, in some cases community colleges are offering free tuition to the unemployed (Delos 2009a, Diverse Issues in Higher Education 2/13/09). However, as a result of such occurrences, the influx of students is creating problems at some schools as they are just not able to accommodate a significant number of new enrollees, which may actually lead to community college turning students away (Delos 2009b, “Community colleges may soon start turning students away”; Selingo 2009, “Community-college leaders confront a challenge: enrollments are up but money is not”). On the positive side, due to the fact that academia has now, for the most part, recognized the importance of community colleges and the education that they provide, students can use that experience to their advantage in progressing up their educational ladder, something that was difficult for them to do previously. There is no question that there is a “community college surge” (Jaschik 2009d, “Community college surge”) that has resulted in turn in an increase in almost every major type of program offered. It is hoped that these institutions can continue what they have done for so long, i.e., “doing more with less.”

Another major step in acknowledging the role of community colleges nationally was the recommended appointment of Chancellor Martha J. Kanter from the Foothills De Anza Community College District as the US undersecretary of education, which is the second- or third-highest ranking position in the Department of Education (Lederman 2009, “2-year college leader is US nominee”; Field 2009a, “Obama pick shows focus on training work force”). In this position, Ms. Kanter oversees policies, programs, and activities related to postsecondary education, vocational and adult education, and federal student aid. Unquestionably, the appointment spoke volumes as to the importance placed on community college education by the presidential administration. In fact, in response to the appointment, Gerardo de los Santos, President and CEO of the League for Innovation in the Community College stated “But in the broader scope, it also says something about the meaningful role that community colleges are playing in our society to step up and provide economic development, revitalization and educational access.” Also, George R. Boggs, President of the American Association of Community Colleges said “I think that this administration realizes that community colleges are a real unrecognized workhorse for education and work-force development.” Finally, Secretary Duncan further confirmed the role of community colleges by stating “community colleges are a vital, vital part of our postsecondary education system and an extremely important part of restoring our economy and ensuring our students
can compete.” Following the Kanter appointment was another appointment recognizing a community college administrator. Glenn Cummings who currently was Dean of Institutional Advancement at Southern Maine Community College and formerly speaker of the Maine House of Representatives was appointed to become deputy assistant secretary of education, a post in which he will work to get more Americans to enroll in college (Field 2009b, “Maine community-college dean is named federal higher-education post”).

Along with these positive actions regarding community college education, a somewhat more sobering statistic comes from a look at the ethnic make-up of community college trustees, especially considering the demographics of the community college student population and the fact that the trustees govern the community colleges. The Association of Community College Trustees (ACCT) unveiled results of a comprehensive survey among almost 750 local boards from 39 states and 34 state boards (Moltz 2009c “Who are community college trustees?”). Their data showed that 82% were white, 9% were Black, 4% were Latino, and 2% were Asian. Other statistics showed that this group was 66% male and 34% female, more than 50% made more than $100,000 annually, and only 29% were from the education profession. Again, considering the group of students that are served by community colleges, i.e., 50% or more are from each of the underrepresented ethnic groups, approximately 50% receive financial aid and almost 60% are women, having trustees that might relate more closely to that population could possibly better address some of the issues that community colleges are currently and will face in the future.

A final issue that has to be noted and addressed is the perception of community college courses and the students that matriculate in them. “Junior” colleges in the past were seen as places where students could go for furthering their athletic abilities or places where students went for a trade as opposed to where they went for legitimate reasons including preparing for a 4-year institution where they could eventually graduate. Although that perception is not as wide spread as it once was, especially in academia, it is still much more pervasive than it should be. And, as so often is the case, media unfortunately can potentiate this misperception. For example, a few years ago Jay Leno, on his Tonight show, made some comments about community colleges that were not only disrespectful and derogatory but also not based on facts. Although an advocate for community colleges was able to ultimately meet with Mr. Leno and clarify some of the misperceptions, many who heard his original comments never heard the follow up. With regards to the issue of remediation and its perception related to community colleges and the minority male, an article by Moltz (2009d) (Inside Higher Ed “Black men and remedial education”) makes some very cogent points. Discussions from a meeting of the American College Personnel Association, which represents student affairs administrators, focused on remediation at both community colleges and 4-year institutions, emphasizing the paucity of the Black male in education in general and in science in particular. Several of the attendees defended strongly the role of remediation at 4-year institutions, basing their comments on a study which analyzed the effect of a particular developmental program at an HBCU on retention and
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persistence of Black males. Ivan Harrell from J. Sargeant Reynolds Community College in Virginia suggested that due to various impairments that Black men encounter in high school they are more likely candidates for remedial education and as such would be more affected by possible cut backs in support of those programs, both for pure financial constraints but also for perceived lack of effectiveness. He specifically cited at least 22 states that have either educed or eliminated remedial coursework from their public institutions, including some HBCUs. His thoughts were that some of this was due to the public perception, i.e., the institutions needed to increase their public image/prestige and eliminating remediation would help to do that by making the students go to community colleges for that. As for specific data, Robert Palmer, a professor at the State University of New York (SUNY) at Binghamton presented results from a study at an HBCU where a group of Black men were followed from the time that they entered a remedial program as freshman through graduation. Based on extensive interviews, he found that the young men “warmed” to the idea that the program indeed offered them a “second opportunity to earn a college degree” as well as providing them with self-confidence and self-esteem. Despite this study being more qualitative than quantitative, it strongly supported the concept that remedial education very often enhances “sound and academic integration,” especially for minority students. So, although remedial education may not be maintained at all 4-year institutions, as mentioned elsewhere in this text, or, in fact, may be on the chopping block at some, undoubtedly by developing “varied measures of assessment,” schools could justify these programs and their benefits. As a personal note from my experience regarding remediation at my 4-year institution, i.e., CSUDH, about 90% of our incoming students need math and English remediation, very much due to the school system in the area of South Los Angeles where the university is located. Despite this fact being well known, many faculty members complain that they should not have to teach remediation. The obvious response is that there is a need for it to be taught and as educators at the school it is our responsibility, certainly until such time that the local K-12 schools can provide the appropriate education so that is no longer needed, or at least needed only minimally at the college level. Short of that happening, relationships between secondary, i.e., local high schools, and postsecondary institutions, CSUDH, must be strengthened so as not to eliminate some important educational opportunities, especially for minority males who are already negatively impacted in the educational system. One additional approach that addresses both the introduction to STEM as well as remediation at the community college level is the efforts expended at Eastfield College, which is part of the Dallas County Community College District. The College reported at the League for Innovation in the Community College 2009 meeting (Moltz 2009e, “Beyond ‘drill and kill’”) that, with support from the NSF, “they had increased the number of STEM majors of URMs by 57% while at the same time raising the retention rate from 15 to 46%.” They accomplished this by “rethinking the way that the students are introduced to science” and using stipends to pay the students to work in a science environment, rather than throwing them into an introductory physics or biology course to experience “drill and kill.” These efforts have been complimented by bringing in featured scientists
to talk about careers (they indicated that the free pizza did not hurt the attendance!). They are now moving in a direction to address the remediation, especially in math since most require it and, as such, are held back and even discouraged from moving forward into science disciplines. Math remediation will be offered by specific components, e.g., fractions, an example where the student may be weak. Also plans are to offer the remediation in the summer so that they can enter college “math ready.” It is obvious that educational efforts at the K-12 level and the college level, i.e., both community college and 4-year institutions must make efforts to address weaknesses wherever they occur and also develop ways to remedy them.

With all of the past concerns related to community colleges, including misperceptions and remediation education being two of the major ones, it has only been in recent years that academicians, particularly at research intensive universities, and only at some, are beginning to recognize the role that community colleges are playing and will continue to play in the future. This is especially important not only as society adjusts to the educational needs especially in light of the country’s economics but also since these misperceptions can play a significant role later in the student’s pursuit of further education. For example, admissions decisions for professional schools, e.g., medical schools, need to know how to interpret information that is common to community colleges and the 4-year institutions where they have articulation agreements, but not common to many research intensive and/or professional schools, i.e., articulated courses accepted at 4-year institutions should be considered the same as courses taken at the 4-year institution. If Admissions personnel are not aware of these nuances associated with community colleges and more students, especially minorities, are coming forward with credentials from community colleges, addressing the underrepresentation will once again take a major hit. This problem can actually be exacerbated by the fact that oft times the “prehealth advisors” at community colleges are not as well prepared concerning professional school admissions practices as those at 4-year institutions plus often they may not even believe that the advice is really theirs to give since the student will be getting many of the prehealth requirements at the 4-year institution. Similarly, there will often be an even greater absence of mentors at the community colleges who are knowledgeable about these admissions practices at professional schools. Thus, since the underrepresented numbers in the graduate and health professions are already an embarrassment, and more minorities are attending community colleges, admissions personnel at the graduate and professional schools have to become educated as to interpreting community college transcripts. Getting past the stereotyping and the misperceptions can be the first productive step.

Certainly the emphasis on community colleges as demonstrated by the Obama administration can help tremendously in this regard, not only as mentioned earlier the President’s statements about community college education and his appointment of community college leaders to key education posts, but also the fact that Dr. Jill Biden, the wife of the Vice President, is currently teaching at a community college and even more to the point, her thesis was on “how to retain students in community college.” To this point, she accompanied the US Secretary of Education Duncan on a visit to Miami Dade College, the largest and most diverse community college in
America as well as the one that awards more associate degrees to Hispanic and Black students than any other college in the country. During the visit, she and the Education Secretary spoke individually with students as well as college administrators (Farrell 2009, “Duncan: Community colleges important to restoring economy”). As part of those discussions, it was pointed out that part of the stimulus package would aid education through increases in Pell grants and Work-study awards as well as through tuition tax credits for families that would benefit most relative to community college attendees. These types of increases lend support to Secretary Duncan’s statement that “improving education is the civil rights issue of our generation.” Community college education is an excellent place to start and the support for the community college education throughout the President’s administration bodes well for that happening.

Thus, in the meantime, and until the size of the pool can be significantly increased at all stages of the pipeline, there are efforts that can be made to “work with the pool that is available,” and the most important of these is the individualized and personal mentoring of the students. It has been reported that this type of effort is most effective to the success of minority students. Thus, even without the benefit of a funded program specifically designed to accomplish this goal, efforts by individuals can result in a similar effect. Not surprisingly, this is most effective through personal one-on-one interactions; however, as already mentioned, the use of communications through email and Web chats can also serve as a very meaningful exchange. In fact, when this is coupled with providing guidelines and directions to the students, the need for the direct personal interaction is ameliorated (but never eliminated!). To do this most effectively in the academy, institutions must truly recognize the importance of mentoring and as such provide support for it, whether it is as additional salary, release time, or anything else that provides the faculty member with the type of support necessary to say “mentoring is important to our institution.”

Increasing the numbers of minorities into the sciences is definitely a “win–win” situation, especially considering the fact that by 2043, whites will comprise less than 50% of the population, with Latinos representing 30% (Visconti 2009, “Can companies survive without a concern for diversity”). Currently the “majority is the minority” in California and Texas. As a result, if the workforce is to mirror society, then addressing the underrepresentation of minorities now, especially in the areas of science, technology, and health, is a must. The positive aspect of this issue is that we know where the problems exist, i.e., leaks in the pipeline, and actually how to fix them. Unfortunately these “fixes” require funds and that is why the problem of underrepresentation has not only persisted, as mentioned, but has gotten worse. Short of the allocation of monies to fix these leaks, both now and in the future, efforts such as writing this book are being undertaken to provide assistance in areas where we know the problems exist. Additional references that provide insights into this area include Adams 2002, Get up with something on your mind; Jones 2006, Just what the PhD ordered; Moore & Penn 2005, Finding your North; National Academy of Sciences 1997, Adviser, teacher, Role Model, Friend on being a mentor to students in science and engineering; National Science Foundation 1997, Mentoring for the 21st century workforce.
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