

The Benefits of Diversity for Education at Carnegie Mellon

Report Commissioned by the President's Diversity Advisory Council - Carnegie Mellon.
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March 2004

This document reviews the research on the implications of a diverse university community for education, and articulates our values and beliefs about the impact of diversity on the education we provide. The Carnegie Mellon community believes that a more diverse campus is important because diversity broadens the educational experience for all our students. This review and analysis sets this priority in historical, psychological and social contexts.

Introduction

Over the past three decades Carnegie Mellon has risen from regional to international distinction because of our leading-edge research, innovative education and effective use of technology. As we have evolved and attracted students and faculty from across the nation and around the world, we have come to realize the important role that campus culture plays in supporting our standing as a prominent research university and as a citizen in a global society. A prominent feature of the culture we seek is diversity, because diversity broadens the educational experiences of all our students, furthers our competitive strengths, advances our university's inclusiveness and positions us for influence in a global society. We believe that students who graduate from a university with a diverse population are better prepared for the social, cultural and technical demands of the workplace, and are better able to participate as citizens of local, national and international communities.

The campus culture that we aim to shape will welcome, value and support faculty and students of various ethnicities, religions, languages, colors and perspectives, and create an environment in which men and women can freely pursue their talents and callings in a climate that nurtures their full potential. This culture of diversity will not only celebrate the freedom and vitality to be found in a great American research university, but will allow us to demonstrate leadership both within our own nation and in the international arena. Only a diverse campus community can offer our students a model of the workplaces and polities in which we expect them to exercise leadership in the years after graduation. We need to prepare them for such environments by making Carnegie Mellon itself a model of inclusion and respect for differing perspectives and diverse ways of living, learning and flourishing. Furthermore, we expect our students to carry this model of inclusion forward to improve their own workplaces and life experiences.

Strategic planning has been key to our success as we have sought a comparative advantage through deliberate focus in fields that range from the fine arts, humanities and social sciences to engineering, the physical sciences, business and public policy. The focus on niche sub-disciplines that has made us a leader in many areas (e.g. Cognitive Neuroscience, Engineering and Public Policy, Bayesian Statistics, Computational Finance) has been balanced with our interdisciplinary approach to research and education. Educational planning has turned our comparative advantages within singular disciplinary "niches" into a wide-ranging multidisciplinary strength.

The same tenacity that has brought us this far is now further required as we engage in a process that takes our institution to a higher level of inclusion. The Board of Trustees, President, central administration and many faculty are committed to diversity as a strategic priority. Without this commitment, we cannot maintain our international influence or assure the greatest potential for success among our students.

The commitment to diversity has been renewed and deepened over the last decade, but the process began before the Second World War. Over the past 70 years, the Board of Trustees, the President and central administration—as stewards of the mission and interests of our university—have acted to advance the diversity of our population and develop the supportive base of our campus culture. In the 1930s we removed quotas against the admission of Jewish students, a generation ahead of our peer institutions. In the mid-1960s we joined other research universities in further diversifying our student population through an affirmative action program for underrepresented minorities, mainly African Americans. In the mid-1970s Carnegie Mellon developed and implemented a federally approved affirmative action plan for the employment of women and minorities. In the 1980s we began an effort to increase the recruitment of Asian, Asian American, Hispanic and African American faculty. In the 1990s we increased our international student population, instituted domestic partner benefits and, at the end of the same decade, began to increase significantly the number of women admitted in many fields of engineering and the sciences. This broadening of our population has itself become a catalyst for further diversity efforts.

Our resolute progress toward greater diversity over the past 70 years has, at times, been slow and uneven. Yet, through it all we have maintained our commitment to a culture that supports tolerance, mutual respect and inclusion. The success of our efforts to build and reinforce this culture of diversity will critically depend on our ability to recruit the kind of faculty, staff and students who can create and sustain such a diverse community, and who consider it a privilege to be part of a community that is international, diverse and demanding.

This document articulates our values and beliefs about the impact of diversity on the education we provide. We first describe the scope of the education we seek to provide and our goals for inclusiveness. We then describe the historical setting that places our institutional efforts in a national context. Finally, we discuss the scholarly literature that supports an investment in a diverse university community and culture.

I. Defining Education and Diversity at Carnegie Mellon

To prepare our students for life and leadership, our educational philosophy focuses on the total, or holistic, development of students as people. Students develop in many dimensions during their four years at Carnegie Mellon University: intellectually, cognitively, socially, emotionally, culturally and psychologically. To help them learn and grow in all these dimensions, we strive to immerse our students in an environment that is conducive to learning both inside and outside the classroom. Our responsibilities as educators include providing content and context, promoting professional and personal growth, supporting career planning and the development of skills, and fostering the ability to negotiate a complex and dynamic social world. We want our graduates to have the desire, confidence and skills to learn and grow throughout their lifetimes.

Building on our traditions of innovation, problem solving and interdisciplinary collaboration, we educate with an eye to the future, to help our students meet the changing needs of society. We are committed to an educational environment that fosters exploration, discovery, creativity, design and invention; we want our students to be at the forefront of enhancing the quality of life, whether through a work of art, a robotic arm or a better understanding of the human mind.

We hope to foster in our students a commitment to quality, ethical behavior, society and respect for one another. We have developed a curriculum with a focus on interdisciplinarity and teamwork from our longstanding commitment to educate through familiarity with and understanding of real-world situations. This environment of authentic, collaborative problem solving helps students discover the value and benefit of observing the world from multiple perspectives. For those disciplines and activities where creative processes seemingly happen in a solitary way—such as writing poetry or designing a chair—we strongly believe that the broad education we offer, the open exchange of ideas we promote, our urban setting and the diversity of the Carnegie Mellon community all contribute to an environment that produces results superior to those that would be created in an environment lacking these critical features.

We aim to prepare students for the complexity and diversity of our society—to recognize, value and learn from heterogeneous cultures, communities and perspectives. Our goal is to develop a fundamental respect for different ways of living, working and learning. Valuing diversity goes beyond a simple tolerance of different backgrounds and approaches: it recognizes, appreciates and facilitates the processes involved in the exploration and discovery of the unfamiliar, allowing for a variety of ways to think about and communicate ideas. Furthermore, valuing diversity makes for stronger affiliations within our community and enhances our ability to be effective in an increasingly complex and pluralistic society. Students must

understand and respect people and ways of life that are different from their own, because this is the world in which they will live and work.

Diversity expands and enhances what we already do. By increasing our comfort levels with differences, we increase our flexibility to learn in different ways and to enrich our experiences, both educational and otherwise. Diversity encourages critical thinking and increases communication across cultural borders, and helps to forge relationships. Diversity of views and perspectives is important at any university, but especially at Carnegie Mellon, which relies so heavily on collaboration as a basis for innovation. Fostering mutual respect for our differences strengthens our university community.

Learning to navigate a rich array of diverse communities is a life skill needed for any person in a world brought together through technology and ease of travel and communication. True exchange of ideas—a key to innovation and progress—requires sensitivity to and understanding of others' views, values and ideas. The diverse community at Carnegie Mellon provides an ideal setting to develop these skills.

II. Diversity: A Historical Perspective

As Carnegie Mellon further develops and articulates its diversity mission, we take heart in the progress that the nation and the university have made over time, but we must also confront and address the complex and stubborn persistence of inequality along the color line. Since the Revolutionary War, U.S. history has been characterized by two large, interrelated themes: 1) sharp internal ethnic, nationality and cultural conflicts and 2) the gradual mediation of such conflicts through the creation of a more inclusive multicultural and democratic nation. When the U.S. embarked upon its political career with the Declaration of Independence in 1776, it did so with huge gaps between its democratic promise and its reality as an elite, slaveholding, predominantly white male-dominated republic. Government by, for and of the people would take years to perfect. It remains imperfect, but it retains its promise as a model for a multicultural democracy. In less than two centuries, America expanded the franchise to landless white men, formerly enslaved African American men and to women of all ethnic and racial backgrounds. America's ability to respond to ongoing social conflicts by broadening the base of democratic participation and civic engagement should inform Carnegie Mellon's current effort to create a more inclusive multicultural university.

In the wake of the American Revolution, the nation did little to reverse the earlier system of inequality. The new nation continued the removal of Native Americans from their land, tightened the institution of slavery, subordinated women and disenfranchised the masses of landless white men by imposing property

qualifications on the right to vote. It was during this period in the nation's history that rising numbers of white workers adopted the term "white slavery" to describe their lot, but drew a careful distinction between themselves and enslaved blacks.

From the early years of the nation, white workers waged a relentless struggle to gain equal rights. By the 1820s and 1830s, the nation responded to their demands by removing property qualifications and enfranchising all white men. For their part, some four million enslaved blacks gained their freedom in the wake of the Civil War. Following passage of the 13th, 14th and 15th Amendments to the Constitution, for the first time in the nation's history all black men were entitled to the right to vote in the North and South. The emergence of Jim Crow laws during the late 19th century undermined this process of democratization across the color line, but the emergence of the modern civil rights and black power movements of the post-World War II years dismantled the system of Jim Crow through passage of the Civil Rights Acts of 1964, 1965 and 1968.

Under the umbrella of the modern civil rights movement, women, Hispanics, Native Americans and gay rights activists also accelerated their assault against various forms of political, institutional and cultural injustice and inequality. Although women had gained the right to vote in 1920 and American workers had gained a New Deal during the 1930s, these movements failed to address the racial and gender divisions of American society. As such, they left unfinished the work of creating a multi-racial and gender-integrated democracy. By the late 20th century, however, the nation had made substantial progress toward incorporating diverse ethnic and nationality groups as well as women into the body politic. It was now not only necessary for citizens to avoid racial and gender discrimination but to take "affirmative action" to ensure equitable treatment of women and minorities in American society. In short, America had finally started to address its "unfinished revolution" of full citizenship rights for women, black Americans and a variety of other ethnic and racial groups.

As a result of our history, America is a diverse society. To succeed in its democratic promise, America needs to assure that qualified students can gain access to high quality education. We at Carnegie Mellon have been at the forefront of efforts to assure such access, and our current strategic priority continues our trajectory toward a more inclusive campus.

III. A Demographic Perspective

Addressing the issue of broadening inclusion is imperative given the country's current population and future projections. Racial and ethnic diversity has increasingly characterized the U.S. population over the

last century: in 1900 one in eight Americans was of a race other than white, while by 2000 the ratio was one in four (U.S. Census Bureau, November 2002). The past 30 years is largely responsible for this increased diversity, as the population of races other than White or Black grew by the year 2000 to be comparable in size to the Black population. Between 1980 and 2000, the aggregated Minority population (defined as people of races other than White and people of Hispanic origin) increased by 88%, and the Hispanic population doubled. By 1980, Hawaii and the District of Columbia were more than 50% Minority, and by 2000 California and New Mexico reached that marker as well. Texas is close, with a 48% Minority population.

Carnegie Mellon's demographics are not as striking as national demographics, yet we've made slow and steady progress over the years. In 1976 we had only 4.8% minority undergraduate students, and in 2003 we have 10.8%.¹ Similarly, we've grown from 6% minority faculty in 1979 to 14% today.² Staff positions don't show much overall movement between 1979 and 1993 (178 and 183, respectively), although there has been a shift: a decrease in the number of minority service and maintenance workers and an increase in the number of minority staff in executive, administrative, professional and secretarial/clerical positions.³

IV. The Educational Benefits of Diversity

On a scientific level, diversity carries significant value across a number of complex social and biological systems. For example, biodiversity within ecosystems, genetic diversity within species, and the diversity of holdings within economic portfolios all convey advantages that result in strength, breadth of resources, resilience to challenge and increased viability. While we strongly believe that diversity has *inherent* moral and social value on the college campus, we also recognize that like the benefits it delivers in other complex systems, diversity conveys a host of benefits in higher education. Indeed, research from the social sciences has identified a number of specific ways in which students who attend universities with a diverse student population benefit in comparison to students with homogeneous student bodies (for reviews see Hurtado et al., 1999; Milem, 2003; Milem and Hakuta, 2000; Orfield, 2001; Smith et al., 1997). In particular, the traditional one-sided view of promoting diversity through college admissions focuses on equal access to educational opportunities for minority students. This approach suggests a zero-sum gain such that for every minority student accepted for admission, there is a lost opportunity for an equally, or even more qualified, non-minority student. Arguments in favor of diversity from this

¹ These numbers represent African American, Hispanic and Native American students.

² These numbers include Asian faculty as well as African American and Hispanic.

³ Between 1979 and 1993, the number of minorities in executive/administrative positions increased from 11 to 20; in professional positions from 5 to 15; and in secretarial/clerical positions from 26 to 65 (data from the files of the Office of Equal Employment Opportunity).

perspective tend to rely on ethical considerations of equality and social justice. However, social psychological research suggests that the benefits of a diverse student body are realized not by just the minority population, but by *all* students.

As a starting point in examining the benefits of diversity to university students, it is useful to place the college years in the context of broader psychosocial development. Many educational scholars argue that the college years represent a distinctive developmental phase that lies at the interface between adolescence and young adulthood (Astin, 1977, 1993; Feldman and Newcomb, 1969; Pascarella and Terenzini, 1991; Perry, 1999). Of notable importance is the role of peers. A large body of research convincingly demonstrates the significant influence that a student's peer group exerts on intellectual and social development (Astin 1993; Alwin et al., 1991; Kuhn, 1993; Pascarella and Terenzini, 1991). During this phase, substantial changes occur in personality, self-identity, social and academic self-concepts, self-esteem, values and attitudes (Alwin et al., 1991; Astin, 1977, 1993; Erikson, 1946, 1956; Newcomb, 1943; Newcomb et al., 1967; Pascarella and Terenzini, 1991). Critical to optimal development at this stage are what various theorists refer to as disequilibrium, dissonance, incongruity or periods of crisis (Coser, 1975; Langer, 1978; Marcia, 1980; Piaget, 1971, 1975/1985; Ruble, 1994). In essence, these periods represent exposure to experiences and ideas that differ from or challenge those previously experienced. As such, introductions to diverse people, new ideas, unexplored perspectives and unimagined experiences facilitate the development of a more genuine and authentic self. Without this experience, self-development defaults to an automatic adoption of the perspectives, values and social roles from which the student came.

As an institution of higher learning, Carnegie Mellon is committed not only to nurturing individual self-development but to providing an environment that delivers the highest quality academic experience among its graduates. Part of this mission is to guarantee that students are able to think clearly and critically about complex issues and to apply their knowledge to a rapidly changing world. To achieve this goal, students must move well beyond rote memorization of fixed knowledge within a particular domain and develop a deeper integrated understanding of complex interacting systems (Simon, 1980). Critical to this goal is the ability to think deeply, creatively and from different perspectives. As faculty, we encourage students to articulate and evaluate their views, to assimilate data from multiple sources and to consider evidence in novel and innovative ways. We create classroom situations that engage students, encourage discussion and facilitate debate to achieve multiple perspective taking. In doing so, we help our students learn to articulate their own positions and to view information and problems from multiple vantage points.

What is increasingly clear from psychological research is that interactions among students within a diverse student body promote this same type of learning experience. By interacting with students who have different backgrounds and life experiences, students are inevitably faced with new perspectives and views that differ from their own. This contact provides ongoing opportunities for students to question, articulate and expand their own beliefs. As a result, on average those students who interact with diverse others develop higher levels of critical thinking and active thinking skills (Gurin et al., 2002; Pascarella et al., 1996) and demonstrate greater engagement and motivation (Gurin, 1999; Gurin et al., 2002; Gurin et al., 2004). In addition, students on diverse campuses generally experience enhanced classroom discussions (Orfield and Whitley, 1999) and develop a greater ability to understand diverse perspectives (Gurin, 1999; Gurin et al., 2002; Gurin et al., 2004).

In addition to fostering critical thinking and providing opportunities to view problems from multiple perspectives, campus diversity may teach students to more effectively negotiate and function within complex social and occupational environments. Given the changing demographics of the United States, the increasing diversity in the American workforce, and the growing nature of the global marketplace, this is a critical skill that prepares students for life after graduation. In fact, global corporations like General Motors, 3M, E.I. Du Pont de Nemours & Co., Intel Corporation, Microsoft, Texaco, and Procter and Gamble have clearly articulated that it is essential that students be educated in an environment in which they are exposed to diverse ideas, perspectives and interactions (Amici Brief Steelcase, Inc. et al., 2000; Amicus Brief General Motors Corporation, 2003). These companies maintain that the diversity that universities provide contributes significantly to students' abilities to live and work together and communicate across boundaries—a value they embrace given that “no one... can afford to think in purely local terms” anymore (Amici Brief MIT et al., 2003). Moreover, these companies believe that diversity within their workforces leads to more innovative ideas and products, as do William A. Wulf, President of the National Academy of Engineering (1999) and Neal Lane, former Director of the White House Office of Science and Technology Policy (1998).

The ability to skillfully navigate complex and diverse social environments requires more than simply identifying a set of rules or guiding principles from a textbook or lecture. Although classroom discussions and readings about different perspectives can enhance these social and interpersonal skills, they are developed, internalized and reinforced through implicit learning experiences that can occur within the context of direct exposure to a diverse social environment. What is critical here is not just diversity in a structural or demographic-sense, but interactions that facilitate the sharing of ideas, experiences and

perspectives among diverse groups. Indeed, on average those students with greater exposure to this type of diversity have shown higher levels of racial and cultural awareness (Gurin, 1999), greater commitment to racial understanding (Millem, 1992, 1994) and more openness to diversity and challenges (Pascarella et al., 1996).

Social justice concerns and U.S. history alone are sufficient grounds to support diversity in university admissions processes. On ethical grounds, the alarming level of national and international violence and intergroup conflict, and the persistent levels of subtle racism underscore the need for a diverse campus population. Certainly, demographic data suggests that for most students in the United States, college provides the first experience of living and learning in a diverse community. As such, the university is uniquely positioned to promote contact among diverse groups under conditions that social science research has shown to reduce intergroup hostility, stereotyping and distrust (Amir, 1976; Cook, 1984; Pettigrew, 1991, 1998). By promoting equal status interactions that provide opportunities for group members to know each other as individuals, encouraging a common goal or identity among a diverse student body, and providing support for group equality from authorities, Carnegie Mellon actively facilitates the development of democratic ideals and tolerance for difference. Again, these important values are most likely to be internalized when they are the result of experience rather than through formal instruction. In support of this position, research from the social sciences demonstrates that students with greater cross-racial interactions are better able to identify common values among diverse groups, recognize that conflict can have value when handled appropriately (Gurin, 1999), and show greater commitment to the goal of promoting racial understanding (Astin, 1993; Milem 1994). Moreover, those with greater interracial interactions also demonstrate more involvement with community and volunteer services, show higher involvement in community action programs (Bowen and Bok, 1998), and are more likely to live and work in racially diverse environments (Gurin, 1999).

Consistent with the research on the educational benefits of diversity, research among a variety of organizations demonstrates that, under conditions that foster positive intergroup interactions, diversity may confer creative and functional advantages. Recent reviews of 40 years of research on demography and diversity in organizations (Williams and O'Reilly, 1998; Milliken and Martins, 1996) conclude that "diversity appears to be a double-edged sword, increasing the opportunity for creativity as well as the likelihood that group members will be dissatisfied and fail to identify with the group (Milliken and Martins, 1996, p. 403)." Under ideal conditions, diversity can promote creativity and improve decision-making because it enhances knowledge, information, perspective, skills and abilities. These ideal conditions include the ability to manage the possible dysfunctional aspects of heterogeneity in groups

(e.g., in-group/out-group effects, stereotyping, and less frequent communication). In other words, the advantages afforded by a diverse group can be negated by a view of “otherness” as a deficiency, resulting in stereotyping, polarization and anxiety. Therefore, because the demographic composition of work groups affects group process (e.g., conflict, cohesion and communication), which in turn affects group performance, effectively managing heterogeneous groups is vital to realizing better outcomes (e.g., more creative solutions or decisions).

IV. Conclusions

So, what does all of this mean, in concrete terms, for students and education at Carnegie Mellon? How does diversity enhance the education that distinguishes us from others? How does a diverse student population impact our goals of problem solving, innovation, collaboration, interdisciplinarity and leadership? We have tried to articulate the answers to these questions in this document. As a result of varied intellectual perspectives coming from our diverse student population, students may define problems in unique ways and entertain a broader array of alternative solutions/designs/decisions, leading to more innovative thinking. Furthermore, our diverse population and the resulting cross-racial and cross-cultural interactions will result in our students not only being comfortable working collaboratively with colleagues with distinctively different views due to their differences, but will also ensure that they carry forward with them the importance of diverse perspectives in achieving the best results. They will understand and respect difference and be able to lead effectively because they search for understanding beyond their own views, and value seeing the world from multiple perspectives.

All of these things do not happen simply because diverse students are thrown together to work and play. We must create the conditions that enable diversity to enhance—not hinder—intellectual and social growth among all students, both within and outside the classroom. The frequency and quality of interactions and the social milieu in which they take place are vital. Environments that foster equal status interactions, afford opportunities to explore the existence of common goals, provide occasion for informal one-on-one interactions, and espouse social norms that endorse equality and group interaction are the ones that are most likely to experience the immense benefit that diversity can offer. In other words, we can't just throw students with vast differences together without any support; we need to teach them how to negotiate those differences and use them to the group's advantage.

The university provides a variety of forums—structured with the necessary conditions for success—in which students confront diverse ways of thinking, doing and being, for example, through text (e.g., courses, the Multicultural Book Club), dialogue (e.g., courses, Community Collage, Speak Your Mind,

Diversity Challenge), and public celebrations (e.g., International Festival, Native American Heritage Month). Through all these venues, we seek to create an environment where the values of diversity may be realized most fully.

We believe a high-quality education demands a diverse setting, and we are committed to encouraging and supporting its development. Because we define education broadly at Carnegie Mellon, and because we are committed to the holistic development of our students, we aspire for them to excel not only as professionals but also as human beings, devoted to the principles of a multicultural and democratic nation. Because we prepare our students to move through multiple communities in this increasingly complex and opportunity-rich world, we believe they will make a difference.

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